

THE GARDENER'S MAGAZINE



EDITED BY SHIRLEY HIBBERD, ESQ., F.R.H.S.

VOLUME XXV.

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FOR AMATEUR CULTIVATORS, AND EXHIBITORS OF PLANTS, FLOWERS, AND FRUITS:

FOR GENTLEMEN'S GARDENERS, FLORISTS NURSERYMEN, AND SEEDSMEN:

FOR NATURALISTS, BOTANISTS, BEEKEEPERS, AND LOVERS OF THE COUNTRY.

CONDUCTED BY SHIRLEY HIBBERD, F.R.H.S.

"There are no ancient gentlemen but gardeners. . . They hold up Adam's profession."
Hamlet, v. 1.

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THE GARDENERS' MAGAZINE.

SATURDAY, JANUARY 7, 1882.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M.tmp. &c. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; O, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths after Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1888			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882		
8	S	1st Sunday after Epiphany.	8 6	7 1	4 8	8 54	9 24	4 10	4 23	1 35	36.3	Correa pulchella, G.	Scarlet.	8	
9	M	Fire Insurance due.	8 6	7 26	4 9	9 53	9 42	4 45	5 0	1 53	2 10	36.3	Correa speciosa, G.	Scarlet.	9
10	Tu	Royal Exchange burnt, 1853.	8 5	7 50	4 10	11 6	10 0	5 15	5 32	2 25	2 40	36.4	Erica Wilmoreana, G.	White.	10
11	W	Hilary Law Sittings begin.	8 5	8 14	4 12	Morn.	10 19	5 48	6 5	2 57	3 13	36.4	Hovea Manglesi, G.	Purple.	11
12	Th	(Last Quarter, 3h. 47m. after.	8 4	8 37	4 14	0 12	10 39	6 25	6 45	3 30	3 50	36.5	Petasites fragans, H.	Lilac.	12
13	F	Cambridge Lent Term begins.	8 3	9 0	4 15	1 20	11 3	7 10	7 33	4 10	4 35	36.5	Jasminum nudiflorum, H.	Yellow.	13
14	S	Oxford Lent Term begins.	8 2	9 22	4 17	2 30	11 34	8 0	8 33	4 58	5 25	36.6	Epacris nivalis, G.	White.	14

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VOLUME XXIV., handsomely bound in cloth, is now ready for sale. The price of the volume is 10s. 6d. Back volumes can also be had.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, JANUARY 10.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

THE NEW YEAR appears to have made a fair beginning, and the people who are busy turning over new leaves have more than the usual allowance of daylight for the purpose. At all events we venture to say so, and it is a venture, because before these words appear in print a big fog may fall upon us, and that may be the prelude to a big frost and a real winter. However, at the moment of writing the temperature is high, the grass green, the sky clear, and the sun looks like a silver plate very thinly washed with a golden lustre. King Sol has made an honest endeavour to look burnished and jaunty, and has nearly succeeded. If he will but continue in the same course he will be sure to succeed as time passes, and this funny old globe will shuffle into the proper position to face him comfortably. The shortest day is long since past, the longest day is coming, and between the shortest and the longest comes the season of the hopeful Spring. What sort of Spring shall we have? That is a question of some interest, but no one can answer it. What is in store for us we do not know; but it is reasonable to look for some unpleasant hours before we can say that the winter is past and that the spring is pleasantly preparing the way for the more pleasant summer. And here we are caught in a somewhat important speculation. We have had no winter as yet; shall we have any, say between this and Lady Day? Well, we are uncomfortably confident that we shall have the usual visitation of east winds, for the march of the sun will make them, and it is much to be feared that they will prove equally destructive and painful. In our issue for October 8 we said there was "a prospect of a milder winter than we have had for several years past." We are careful always in making rough forecasts to declare that the only means of forecasting we possess are such as all observers possess in common with us, and those means may be said to comprise simply the facts of nature. And we now appeal to the facts of nature, and the answer seems to be that if we do not prepare for a season of keen east winds at a time when we really could do without them, we shall be imprudent and proper candidates for a fools' paradise. For to put the case with rather too much truth, if the winter does not come the spring will, and the sweet budding time that we are looking forward to will be chequered with an occasional bitter shrinking

time, and when the cold days of March and April arrive vegetation will be in a worse plight than usual in consequence of the comparatively high temperature of the past two months. A few weeks more of mild weather will start trees into leaf and bring the spring flowers from their dark beds. And the cold that will probably follow will probably alter their appearance, and teach us once more how dangerous it is for anything or anybody to appear at the wrong time. Early springs are rarely propitious for the husbandman, and we have a prospect of an extremely early awakening of vegetation; and in fact vegetation is awakening already.

A fortnight of frost coming at once would be peculiarly beneficial in putting a stop to movements that are calculated to lead to disaster. But as we cannot rule the weather all that is left to us is to leave no means untried for retarding the growth of plants that are especially susceptible to injury by frost in spring. Where wall trees are unnailed they may with advantage remain so. Trees that are not as yet pruned may with advantage remain so. This will make an extra pressure of work later on; but of two evils we must choose the least, and whatever tends at this time to promote growth does undoubtedly tend also to promote mischief. Where there are arrears of planting to be done the work may be carried on merrily, and the trees, if suitable subjects for the process, will be benefited by it, for the lifting will give them a check that will probably suffice to prevent growth until the east winds have blown themselves away. As for garden stock in general it is so completely governed by the weather that there can be very little done to save it should the winter come suddenly and demand a sacrifice. Probabilities, however, are all in favour of a continuation of soft weather until the usual season of east winds, and there is every probability that they will come as usual, and make some chilly days to mar the spring.

ROYAL HORTICULTURAL SOCIETY.—Having published the dates of all the business meetings and exhibitions for the present year, we can now complete the list of the society's engagements by adding that the Evening Fête will take place on Tuesday, June 13.

SOCIETY OF ARTS.—On Wednesday, January 18, Mr. F. E. Hulme, F.L.S., &c., will read a paper on "The Relation of Botanical Science to Ornamental Art." On Wednesday, February 15, Colonel G. F. Pearson will discourse on "The Teaching of Forestry."

THE GARDENERS' CHRONICLE ALMANACK for 1882 is a very pretty bit of colour-printing, with colour enough to attract attention, and information enough to justify its occupation of a permanent place in the counting-house, seed room, and library. The calendar is legible and sparsely occupied with entries. It is the common fault of almanacks of this class to be illegible and overloaded.

THE ANTIQUARY for January has a decidedly English and rustic tone. The Rev. W. Gregor contributes a paper on New Year Customs; a letter descriptive of the Netherlands in the time of James I. will be read with much interest; the Funeral of the Old Pretender is very carefully described by Mr. J. T. Bent. Amongst the illustrations, one represents Stonehenge as it is; another gives a side view of a bust of Thucydides, who, we judge, was as nearly like the late Prince Consort as if both haads had come from the same mould.

THE FLORIST and POMOLOGIST begins the year with two beautiful plates. *Lilium Parryi* is a Californian plant, the flowers yellow spotted with red; *L. polyphyllum* is of Himalayan origin, the flowers white margined with reddish purple. The fruit figured in colour is the *Waterloo Peach*, an American variety, large, showy, of good quality, and early. The number is well filled, and the useful papers on grape vines are continued. It strikes us the "register of novelties" is scarcely a happy thought.

DISEASE IN VIOLETS.—An American scientific journal states that for some time past an obscure and as yet unstudied disease has been making havoc among the violets in transatlantic gardens. It began about three years ago, when it nearly ruined the largest grower in New York, popularly known as the "Violet King." It was thought to have arisen from the substitution of well-water for rain-water in a very hot season, but this has been disproved. No doubt the disease, like that among the hollyhocks, is proximately caused by a fungus.

CONDENSED GRAPE JUICE.—In Italy a new industry has arisen in the production of condensed grape juice, after the manner of condensed milk. The juice is evaporated in a vacuum pan until it assumes the appearance of toffee, and is reduced to one-tenth of its former bulk. The delicate aromatic others on which the savour and bouquet depend must inevitably be dispersed, but, it is said, that with due regard to the temperature used, the whole of the grape sugar and the mineral substances, as phosphates, tartrates, and tannates, on which the dietetic properties of wine greatly depend, remain unimpaired. In many cases a great saving on transport could thus be effected if the excise authorities offer no opposition.

A NEW SPECIES OF COTTON was reported on by Dr. Masters at a recent meeting of the Linnean Society. It has been named *Gossypium Kirkii*, and is a native of East Tropical Africa. It has an interest historically from being probably the origin of very numerous cultivated varieties. It was obtained by Sir John Kirk growing wild at Dar Salem. Dr. Masters regards it as nearly allied to *G. Barbadosense*, which is commonly cultivated in Tropical Africa, although along the Nile valley *G. herbaceum* is that usually in cultivation. According to authorities cotton was not cultivated in Egypt in ancient times; and the fact that the varieties now grown there are for the most part forms of *G. herbaceum* suggests the idea that India is the source whence Egypt has derived the cotton—a notion confirmed by various other considerations. The wild form of *G. herbaceum*, Dr. Masters has previously shown is probably *G. Stocksii*, Masters; a native of Scinde.

PROPOSED PRESENTATION TO MR. THOMAS MOORE.—It having become known that Mr. Thomas Moore intended to retire from his active participation in the management of the *Gardeners' Chronicle*, as also from other fields of literary and scientific labour, a few of his friends met to consider in what way it would be best to make public recognition of his many and valuable services to botany and horticulture. It was then determined that a subscription should be opened for the purpose of providing and presenting to Mr. Moore a substantial service of plate, the place and date of the presentation being left for the present undetermined. We place the matter before our readers as possessing peculiar interest. We often hear of "indefatigable" workers, but we rarely meet with Mr. Moore's equal in this respect, and there is a peculiar pleasure in reflecting on the quality of his work, its soundness, fullness, accuracy, and the high catholic spirit that pervades it, as representing a man who will spare no pains to attain and to declare the truth. But this consideration opens up only part of the case, for Mr. Moore is not only our first authority and most successful author on ferns, and a ripe exponent of practical floriculture, but he has been the most busy man of our time in works of benevolence in connexion with gardeners. The committee acting in this matter have resolved to receive subscriptions without limit, in order that many may participate in the pleasure of paying a proper compliment to Mr. Moore on an occasion so full of importance. The list includes already many subscriptions of five guineas to one guinea, but smaller sums are expected and hoped for, the cause being one in which gardeners generally will take an interest. The honorary treasurer is William Paul, Esq., Waltham Cross, Herts; the honorary secretary, Mr. Shirley Hibberd, 15, Brownwood Park, London, N.

CANTUA BUXIFOLIA.

THIS lovely plant is so scarce that it seems to need re-introducing in order to obtain for it the attention of a thousand amateurs whose plant houses it would adorn with less trouble than many another favourite having less claim to admiration. In the course of much travelling and visiting gardens, I have only once met with it, and that was in the principal conservatory at Cliveden, where Mr. Fleming directed my attention to it as a beauty that was half forgotten. There it was in full splendour in the month of May, and its character was admirably displayed, for it was trained up a pillar in the way of a fuchsia, which it somewhat resembled in its general expression. In my own garden in a snug nook in the Isle of Wight it has stood for many years as an open air wall plant, and I am satisfied that it would prove hardy in all the more favoured spots in the southern counties.

Cantua buxifolia belongs to the family of phloxes, but is far removed from the garden phloxes in habit and appearance. The leaves are smallish, oblong-ovate, downy, sometimes divided, the colour light green. The flowers come in clusters; they are long-tubed, with a spreading limb somewhat in the fashion of the flowers of a stephanotis, but fully double the size; and the colour an intensely rich crimson-rose, with a tinge of yellow in the tube.

There are many reasons why this fine plant should be pressed on the attention of gardeners. One reason, in addition to the main reason—its exquisite beauty—is that it flowers at a time when it is really wanted, for we have but few cool conservatory plants that make any striking display in the month of May. The fuchsias, and maurandias, and other pillar plants flower later, and the camellias are past. In fact, we have little else of note to give colour to the cool conservatory in May than azaleas and opacris, and the *cantua* is quite different to either of those both in style and colour. Its hardiness is another point in its favour. Being a native of the mountains of Peru, it may be reckoned as hardy as the more vigorous-growing fuchsias, and as it requires nearly the same cultivation as a free-growing fuchsia, a beginner may take it in

hand with a fair prospect of complete success. A light rich turfy soil suits it, whether the basis be peat or loam; but I should always prefer such a mixture as the best specimen fuchsias are grown in; and the treatment should be the same, with a little less moisture and less use of the knife.

As a specimen plant for exhibition the *cantua* would toll in a collection, but it flowers too early for a country show, and possibly that in part accounts for the unmerited obscurity of the plant. But spring shows are now known elsewhere than in London, and we may hope to see the lovely *Cantua buxifolia* shining in a collection at the Manchester Whitsun Show, as well as at South Kensington or the Park. W.

THE CONTENDING PEAS.

If we take a cynical view of the contending peas, we shall be bound to declare that the time is near for gathering the first crop of outdoor peas on Christmas Day. And those will not only be "early," but of wonderful quality; they will contain within themselves the salt, pepper, butter, and gravy, which, in their proper way, are now requisite to the finishing of a dish of peas for the satisfaction of the gourmand. But we are not required by any law, written or understood, to take a cynical view of the pea question, or of any question. Every new pea is announced as "an advance" on all that have gone before, and every such announcement is by the wise and wary taken *cum grano salis*, the very thing that is wanted to bring out the true flavour of any and every pea. And when this has been done, where are we? We are in a world that witnesses many improvements of things required by the appetite of man; and in our time—as in the time before us—garden peas have undergone considerable improvement, and our tables and our stomachs have the advantage. The older men who have given attention to the matter will remember the Early Charlton and the Double-bearing Frame (so-called because the pods were produced in pairs), as the two leading early peas in the days of their youth. They gave moderate crops of white peas of very poor quality. Then came Sangster's No. 1, which was seen and acknowledged to be a tremendous stride forward because of its productiveness and beauty and good quality. Very soon, thereafter, the floodgates were opened, and prominent amongst the peas that floated on the flood, were the novelties introduced by Dr. Maclean, of Colchester, who entered into the cross-breeding in a scientific manner, and accomplished very nearly the objects he had in view. Amongst other things, he gave us a series of varieties of dwarf habit, strong constitution, and great productiveness, the quality of all being good and of some few equal to the taller kinds they were intended to supersede. The total product of good table peas was certainly very much augmented by the labours of Dr. Maclean; and if we compare some of his dwarf heavy-bearing kinds, such as Maclean's Wonderful, or Princess Royal, with the Rouncival peas we hear of in the rhymes of Thomas Tusser, we should doubtless have a very striking lesson of the capabilities of man to modify the products of nature. But we may take one of the series for a moment's consideration. Maclean's Advancer was the most distinct advance perhaps effected by him or by any man in our time. It gave us a genuine marrow pea of fine size and quality, as early as the small flavourless Charlton, or the then celebrated Dillistone's Early, the earliness of which was its sole merit. And why, we will ask, is Advancer now but little known? The answer is that it has been beaten. Mr. Laxton took up the work where Dr. Maclean left it, and his successes have enlarged very materially the opportunities of the gardener and the furnishing of the dinner-table. Mr. Laxton had before him as severe a task as was ever undertaken by a raiser of new varieties, who to succeed must accomplish—not a change here, or a slight improvement there—a very definite purpose. The peculiarities of Maclean's Advancer illustrate the case appositely. All marrow peas are less hardy than white peas, and all wrinkled peas are less hardy than round peas. When wrinkled peas are sown early, allowance must be made for a considerable percentage of seed that will rot instead of germinating. Advancer proved to be a remarkable variety for earliness, productiveness, and high quality in a favourable season; but in an unfavourable season, and in all exposed and unfavourable localities, it was useless as a first early, and was not wanted for a second or main crop supply. The next step in improvement, beyond all doubt, was to keep the quality and add to it hardness of constitution; and this has been done in Alpha and William the First and the newly announced Earliest of All. In these we have the most perfect combination hitherto of earliness, hardness, and high table quality. The American Wonder will probably be the prominent competitor amongst the first early peas in the present season, its table qualities and its cropping having given satisfaction in the past year. For nine-tenths of all the gardens in the land the latest of the first earlies are of much greater service than the very earliest of the class. If we compare Ringleader with Sangster's No. 1 as to total weight and quality of crop, we find the difference to be immensely in favour of Sangster's; but then it is about eight days later, and the much-desired dish of green peas in the month of May requires the selection of the very earliest irrespective of quality; and having made the selection on the ground of earliness, we are bound to be thankful to those whose labours have combined quality with earliness and with both a good constitution.

The contention will always be most apparent in connexion with the earliest and the latest varieties, for of mid-season sorts we have very many that appear so good that it seems impossible to improve them. We do not say that they cannot be beaten, because we never know when any garden plant has reached its extreme of improveability. For second early sorts we have Dr. Maclean, Champion of England, Stratagem, Laxton's Supreme, Marvel, and Veitch's Perfection; and for later crops, British Queen, Culverwell's Giant, Maclean's Best of All, and No Plus Ultra. To these there may be added fifty that differ in

character variously, but in aggregate goodness are as nearly equal as may be. Some of the very best are among the very cheapest, the very hardest, and the most manageable. The most generally useful perhaps, where there is no special demand for extreme earliness or the highest quality, are Eloy's Essex Rival, William the First, Dr. Maclean, Princess Royal, Voitch's Perfection, and No Plus Ultra. Any well-kept garden will need at least six varieties, and the six here named are heavy croppers not wanting in goodness, and all dwarf except the last, which will run to six feet. The new variety called Walker's Perpetual Bearer promises to carry us through an old difficulty, for we want late peas without mildew, and this new-comer appears to withstand heat and drought better than most other late kinds, and it may—indeed it should—prolong the season in a profitable manner. There seems indeed to be one thing wanting in the way of late peas, and that is a dwarf No Plus Ultra. And that is as well worth working for as a wrinkled first early.

ROYAL HORTICULTURAL SOCIETY, 1882.

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PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOUTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 73d and 1s. 13d., labelled "JAMES EPPS and Co., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

Literature.

The Gardeners' Year Book, 1882. By ROBERT HOOD, LL.D., F.L.S. This compact almanack contains all the necessary lists of plants, flowers, and fruits that have obtained attention in the course of the past year, and in addition a number of practical papers on violets, roses, heating apparatus, tree lifters, and insecticides. There are many good engravings of plants, machinery, tents, &c., and portraits of the late Mr. Arthur Voitch and John Spencer.

The Antiquary (Stock) is so thoroughly established as one of the favourite monthlies of scholars and gentlemen that we need not any further dwell upon its peculiar character. But it may be proper to announce that in the course of the present year it will contain papers on the archaeology of the months, and these will be written by antiquarians familiar with English rural customs.

The Bibliographer (Stock) very faithfully answers to its title and increases in interest. The January number contains papers on the Bishop's Bible, the Wood Cuts of the Netherlands, Dante in England; and amongst the miscellanies carefully compiled reports of recent great book sales.

Science Gossip (Bogue) is admirably kept up in variety, freshness, and scientific soundness. In the January number will be found a capital paper on drawing microscopic objects, and one of more general interest on the kangaroo.

The Ladies' Gazette of Fashion (4, Ave Maria Lane) is as usual elegant in appearance and various in contents. The fashions are of course "everything" here, but there are in the January number useful papers on the picture galleries, the shops, Christmas cards, and ladies' work.

From Messrs. Cassell we have received continuing parts of Britten's *European Ferns*, Paxton's *Flower Garden*, Hulme's *Familiar Wild Flowers*, and Hibberd's *Familiar Garden Flowers*.

From Messrs. Ward and Lock we have received continuing parts of *Amateur Work*, Dr. Clarke's *Commentary, Scientific Recreations*, Rollin's *Ancient History*, *Self-Culture for All*, *Eaton's Dictionary of Science*, *Hallam's Literature of Europe*, *Haydn's Dictionary of Dates*, &c., &c.

The Ladies' Treasury. Edited by MRS. WARREN. (Bemrose.)—This useful and entertaining monthly has especial claims on the ladies of England, because of its large view of their social relationships, and happy combination of the requirements alike of fashion and of reason. In the January part we find charming papers on matrimony, beauty, old times, and times to come, and useful papers on household management, needlework, tapestry painting, dressmaking, cookery, and gardening, besides some clever sketches of life and character suitable for the entertainment of all who can run and read.

TRADE CATALOGUES.

HOOPER AND CO., COVENT GARDEN, *Spring Catalogue*, 1882.

STEVEN BROTHERS, 35, UPPER THAMES STREET, E.C.—*Illustrated Catalogue of Hot-Water Apparatus*, &c.

DOWNIE AND LAIRD, 17, FREDERICK STREET, EDINBURGH.—*Catalogue of Garden, Flower, and Agricultural Seeds*, 1882.

FRANCIS AND ARTHUR DICKSON AND SONS, 106, EASTGATE STREET, CHESTER.—*Vegetable and Flower Seeds*, &c., 1882.

B. S. WILLIAMS, VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY, N.—*Descriptive Catalogue of Flower, Vegetable, and Agricultural Seeds*.

JAMES DICKSON AND SONS, 108, EASTGATE STREET, CHESTER.—*Vegetable and Flower Seeds, Seed Potatoes*, &c., 1882.

WILLIAM PAUL AND SON, WALTHAM CROSS.—*Catalogue of Vegetable, Flower, and Agricultural Seeds*.

J. CHEAL AND SONS, CRAWLEY, SUSSEX.—*Illustrated Catalogue of Seeds for Vegetable and Flower Garden*.

KERR AND FOTHERINGHAM, CORN EXCHANGE, DUMFRIES.—*Vegetable and Flower Seeds*.

DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Descriptive Catalogue of Vegetable and Flower Seeds*.

HYGIENIC HEATING AND LIGHTING CO., 16, NORTH BUILDINGS, FINSBURY.—*Prospectus of Clarke's Siphon Stove*, &c.

CARLYLE IN THE COUNTRY.—The next morning, Carlyle was found lying on the rectory lawn in the sunshine, looking up through spreading branches into the clear blue sky. Hare had been propounding his purpose of sending him over to see Pevensey Castle and "the old Wilhelmus Conqueror localities." But the days had not yet come when the question "whether the Bastard did land at Pevensey, or not rather near Hastings, Bexhill, or so," and "what had really been the marchings and preliminaries to the great battle," of which he speaks in his "Reminiscences," had any interest for him. The "fit person," whose "faithful study for long years and decades, not in the chronicles and romances only, but on the ground," would decide these questions, was probably then an Oxford freshman, little dreaming of becoming the world-famous historian of the "Norman Conquest." Besides, Carlyle was tired with his yesterday's long ride. He might potter about the garden, and later on stroll over the fields, but "go to Pevensey—no, absolutely no." "What was the Conqueror to him that he should get up from that soft sweet grass and climb up into a carriage and take a long dusty drive, by hot treeless roads? For the present he would lie there. Nothing better or half so good."—*Canon Venables, in The Quiver for November.*

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland's Odonto, the purest, most fragrant, and non-gritty tooth-powder ever made. The hair also may be kept beautifully soft, pliable, and glossy, and its liability to fall during, and become dry during the damp and fog of winter may be arrested by the regular application of Rowland's Macassar Oil. Sold everywhere.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any other earthy matter calculated to produce gall-stones or gout deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

CAUTION FOR NEW YEAR.—The recently published reports of Medical Officers of Health show that the mild autumn weather and excessive rainfall have produced an unusual amount of Scarlet and Typhoid Fevers throughout the United Kingdom. There is also in many districts excessive mortality from Measles and Smallpox. Every cautious Householder should use reliable preventive measures, and none are better than Washing with WRIGHT'S COAL-TAR SOAP, recommended alike by the entire Medical Profession and the Public. Let the Soap be in every Bed Room, Bath Room, and Nursery, and when you purchase, insist upon being supplied with Wright's. Refuse all imitations.—[ADVT.]

Notes of Observation.

GENTIANA ACAULIS ALPINA.

THIS universal favourite is so constant in character under every change of circumstances that we may search far to find varieties of distinctive character. Those that have been registered differ but slightly from the prevailing form, but one amongst them named "alpina" is particularly worthy of attention to form close tufts on the front ledges of a rockery. In this variety the leaves are shorter and broader than the type, and the flowers sit closer, and the expression of the plant is more cushion-like, or we may say more "alpine." I find that this variety comes true from seed and seems to be even more in love with a gravelly or stony soil than the more luxuriant or typical form that is in common cultivation. Most lovely are the deep blue flowers of this plant, sitting close down upon the dense and bold-looking leafage. Whatever the books may say about propagating by division being best, my advice founded on experience is to sow the seed as soon as ripe and trust to seed alone for multiplication.

W. B.

IS THE LOQUAT HARDY?

The Loquat is tolerably hardy as a shrub, as I can testify from experience. Some years ago there was one at Peckham in a front garden and it had reached a height of seven feet, which suggests that it had endured some sharp winters. It grew eventually to be too large for the place and was removed, and what became of it I do not know. Perhaps some ancient inhabitant of Peckham can complete the history of this tree. Some five years

PERPETUAL SPINACH.

A CORRESPONDENT asks what is meant by the entry in the seed catalogues of "perpetual spinach"? It is a proper question, for comparatively few persons are acquainted with the plant that bears this name. People who care not for spinach in any form may be pardoned for ignorance of this subject; but there are others who would, if they could, eat spinach every day throughout the year, and to such the perpetual spinach is a plant of some interest. It is not a spinach and it is not perpetual. It is a beet producing a few white fibrous roots and a large head of light green leaves, which being cooked as spinach are nearly, but not quite, as good as the real article. It has been a rule with me for many years to sow every year one row of this beet, and occasionally it proves peculiarly serviceable. In the later days of summer, when real spinach has bolted or perhaps disappeared utterly, this plant gives a capital supply of leaves to take its place. And again in spring, if the winter spinach has been punished, the beet spinach will be found unhurt. As compared with a good growth of genuine spinach it is just a trifle less delicious, but it is good if gathered young, and as regards profitableness, a given area of ground will produce double the quantity of this than of any other spinach.

S. H.

GIANT SUMMER SPINACH.

The foregoing note has reminded me that the Giant Summer Spinach is a comparatively unknown though very useful plant. It is a fine, handsome, flaccid, weedy-looking plant, with large soft-textured leaves that are really delicious when cooked spinach-fashion. It is more nearly a true spinach than the green-leaved beet, and its name in the books is Orach or Mountain



GENTIANA ACAULIS ALPINA.

ago my son brought me eight plants from Buenos Ayres. I planted them out in the garden, but they all died save one, which is still alive and looks very healthy, having survived the last two very severe winters, which killed many shrubs and trees that are commonly regarded as hardy. Thus it appears that there is often much difference in the constitution of plants of the same species that are grown from seed. All observant horticulturists are familiar with examples of the fact; it is very observable in the case of the laurestinus. Of this so-called hardy shrub I have seen many killed, while others, almost, if not quite touching them, had not a leaf browned.

Weirleigh, Brenchley.

HARRISON WEIR.

[The surviving plant of Loquat we saw in Mr. Weir's garden in June last, and it was then in perfect health and in a growing temper.—ED. G. M.]

GREEN KOHL RABI.

Some years ago you strongly recommended the growth of this in the vegetable garden. I several times thought of growing it, but did not do so until, having seen it in many continental cities, I began to consider that it must have some special merit, or it would not obtain such favour in places where vegetable cookery is better understood than in England. I therefore grew the green variety, and I hope never in the future to be without it. As a substitute for the turnip it is invaluable, for it never fails, and for flavouring soups it surpasses the turnip; while as a vegetable it is superb. We have adopted the plan of cooking it that you recommended, and our obligation to you is great. The green variety is the best, and it should be grown on rather poor ground.

ARTHUR.

Spinach. This is sown in spring, and is useful when the common round spinach has run to seed, and may be used from June onward until cut down by the frost. It is a late summer and autumn spinach; the hottest weather does not affect it, but to keep the supply going there should be two or three sowings, as it soon runs to seed. It is a plant that will stick to a garden, for wherever a patch of it is allowed to run to seed it will appear in plenty the next season, and when the self-sown plants are large enough to handle they may be transplanted into a row and there will be stock for use with very little trouble. The best variety is the one known as Lee's Giant Orach, which will be found in every seed catalogue.

S. H.

PENTUS CARNEA.

This useful plant is so rarely seen that a note on its merits may be useful to some of the brethren. We have none too many winter-flowering plants of high quality, and this being at once handsome as a specimen, and suitable to supply flowers for bouquets and decorations, should be entered on the list of desiderata by such as do not possess it, wherever winter flowers are in request. It is of compact habit and moderate growth, at all times cheerful in appearance, and conforms in leaf and bloom to the rubiaceous type, the tubular flesh-coloured flowers being produced in large clusters. In common with many other winter-flowering plants it requires a warm berth, but the intermediate house suffices in winter, and a light peaty soil will sustain it perfectly. The rosy variety (*P. rosea*) differs only in the colour of the flowers, and both plants flower so freely that one may at almost any time cut and come again.

W. B.

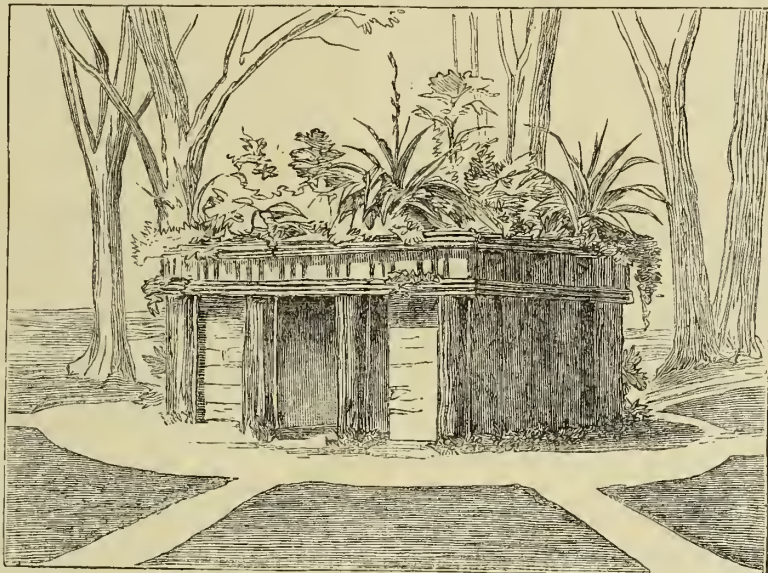
A CLASSIC GARDEN HOUSE.

The so-called "summer house" is usually of rustic design and with fantastic ornaments. It is not resorted to in winter, because of the cold, and is often avoided in the summer because of the heat. I send you a sketch of a very snug garden house which is the constant resort at all seasons of a garden-loving artist. It is in Grecian style, and may be regarded as a portion of a ruined temple on which the hand of nature has lavishly scattered a few elegant weeds. This structure is open on the side shown in the sketch, and serves as a cool retreat for smoking in the summer. But on the other side are two neat chambers, well lighted and warmed by gas, and here my friend pursues his labours in the midst of greenery, and "far from the madding crowd." A substantial garden house may be rendered a special and peculiar luxury of a garden.

W. B.

THE SPIKY GIANTS

While walking round a friend's garden in the past summer, he surprised me by saying, "I expect you will laugh at my spiky giants." Not knowing what he meant I could only say, "I am at your service to laugh or cry as you may command me." "Well," he said, "such politeness should be rewarded, so come at once and see the spiky giants." Then he turned through an opening in the tall yew fence and we were at once in the midst of a pretty little garden containing many curiosities. The main feature consisted in the masses of shrubs of many kinds comprising many interesting subjects not often met with, but in every direction helped out with clumps of rhododendrons, for my friend said, "It is bad taste to make curiosities conspicuous; they should be harmonized with substantial stuff calculated to give to the scene both body and colour." To this doctrine I assented, for it is the doctrine I have preached; but I said, "Your curiosities are conspicuous, and so your case is weak, to begin with." Now my friend surprised me by saying, "You are mistaken; the things I brought you to see are conspicuous to you, but to casual eyes they are not, for the friends come here to see the rhododendrons in June and the gladioli in August, and scarcely notice the spiky giants." Very well, facts are facts, and colour will in the big world carry all before it. Spiky giant number one was a huge plant of *Colletia horrida*, a frightful rhamnad that is classed as a stove plant, but is really hardy if on a dry soil and somewhat sheltered. It is a grand plant in its way, with its horn-like leaves, all spikes and thorns, and its beautiful clusters of greenish flowers.



GARDEN HOUSE IN GRECIAN STYLE.

Five other kinds of *Colletia* I found here, all apparently as hardy as laurels, and all so strange and spiky they seemed to need a guard; but as they had none, those who liked to handle them might do so and enjoy the treat. Other spiky giants were such as *Onopordon acanthium*, the Scotch Thistle, a very grand though common plant; *Carduus marianus*, the Virgin's Thistle; *Eryngium alpinum*, which has been described as a jeweller's plant; *Silybum eburneum*, the Ivory Thistle; *Chamaepycnos casabone*, the great Fishbone Thistle; and *Echinops ruthenicus*, the Russian Globe Thistle. But these were not all the spiky giants on view, for I found in the borders clumps and single specimens of *Centaurea babylonica*, *Centaurea americana*, *Serratula mucronata*, and the great grey woolly *Verbascum thapsus*. I was too much amused to think of my notebook, and therefore I cannot attempt to make a list of the spiky giants, but the few threads of the story I have drawn from my memory are so far suggestive that anyone familiar with plants could compile a hypothetical list and make business of it with one season's work.

ROGIERA GRATISSIMA.

This lovely plant appears to be regarded as a shy bloomer, but I am inclined to say that it behaves well if well treated, and it can be flowered in winter very nicely with a little management. It is like an ixora in general character, the leaves thick in texture and of a rich dark green colour, and the flowers in terminal heads of a pale pink colour, and of the rubiaceous type. It is nearly hardy, and needs distinct periods of rest and growth, and each new growth produces a head of bloom. Any good light loamy compost will suffice for it if containing a fair proportion of vegetable fibre, and a warm greenhouse temperature is needed for the production of winter flowers.

W. B.

HIBBERTIAS.

The Hibbertias are such beautiful basket plants that we ought more often to see in the conservatory such species as *H. volubilis*, *H. grossularifolia*, and *H. dentata*. They not only make fine basket plants, but may be trained up trellises, and are not the less useful as trailers on rocks, their elegant growth and bright yellow flowers being as distinct as they are unique. I have fine examples of these, and at the present the last-named is in beautiful condition in a sunny part of our large fernery, where as a rock plant it is invaluable.

W. B.

The House, Garden, and Home Farm.

WINTER.

A WRINKLED, crabb'd man they picture thee,
Old Winter, with a rugged beard as grey
As the long moss upon the apple tree;
Blue-lipt, an ice-drop at thy sharp blue nose,
Close muffled up, and on thy dreary way
Plodding alone through sleet and drifting snows.
They should have drawn thee by the high-heapt hearth,
Old Winter, seated in thy great armed chair,
Watching the children at their Christmas mirth;
Or circled by them as thy lips declare
Some merry jest, or tale of murder dire,
Or troubled spirit that disturbs the night,
Pausing at times to rouse the mouldering fire,
Or taste the old October brown and bright.

SOUTHEY.

THE HOUSE.

It is important to make note of the general condition of fern cases now, for the mild weather affects their inmates even more conspicuously than it affects the plants out of doors. Two months ago ours were carefully trimmed up for the winter; the dead fronds being cut away and a few sprawling fronds tied to invisible wire uprights, and a very little water was given where it appeared to be needed. Our rule is not to give a drop of water from December to March; but how stands the matter now? The ferns are all in splendid condition; many that are usually deciduous still carry bright green fronds, and several are pushing up new growth in a most vigorous manner, as if to say, "Spring has returned, and here we are to light up the scenes in the pantomimes." All our cases are on the cool system; long ago, as we have taken care to state, we determined, as the result of experience, that heated cases occasioned more trouble than they were worth; and since our adoption of the cool system the management of

our cases has been equally simple and agreeable, and they contain a very considerable assortment of the choicest exotic ferns in the very best possible condition. Very well, we now face the question whether we shall give water or not? At present the soil in all the cases is somewhat dry, and water would be beneficial beyond all doubt. But should a severe frost occur, say, within a few days of the watering, some of the more tender of our ferns would in all probability perish. Now we vote for the safe side, and we will not venture to give a drop of water until about the middle of February at the earliest unless we see signs of distress. In the last contingency we will supply the plants that need it; and as for the rest they must wait, for the risk would be very great of giving water in a general way now.

THE GARDEN.

It is of the utmost importance to have all the unoccupied plots in the kitchen garden well trenched and laid up rough preparatory to sowing and planting. The difference in the crops grown on well-made or on ill-made ground is enormous, and is the more strikingly manifested in those very things that obtain most attention. For example, peas, potatoes, and parsnips can only be well grown on ground that has been deeply stirred long in advance. As to the depth the spade should go, that must depend on the nature of the subsoil, for if that is of an objectionable nature a regular trenching two spits deep will be a mistake. Where the under crust is of good quality, and only needs to be cultivated, a portion of it should be brought up every year and mixed with the top spit, to increase the bulk of stuff the roots of the plants are to range in. When it can be done with safety the regular two-spit trenching should be carried out annually on all the plots kept in rotation cropping, and the result will be an increase of produce more than sufficient to pay for the labour. In potato culture this deep digging and knocking of the stuff about is of the greatest importance, and it is only by such practice our leading exhibitors secure their handsome samples and their heavy and healthy crops. Many an old garden that has been cropped and surface-dug until it will scarcely produce a dish of peas, would be completely renewed by a thorough trenching, even if not a particle of any manure were added. But the grand way for what a thorough

gardener would call a "good doing," is to plant a layer of fat stable dung between the two spits as the work goes on. In breaking up grass land this rule should be followed, as it provides a body of food for the plant and promotes the rotting down of the turf far from the daylight, to be ready for use when brought up again by the next "good doing," and in the meantime the wire worms and other such blackguards are put out of the way of doing mischief, for when turned down to the bottom of the trench they have no chance of reaching daylight again while living.

CAMELLIAS are flowering freely, and will not last long, owing to the mildness of the weather. It is important to see that they do not suffer through dryness at the root.

SEEDS MAY BE SOWN to advantage now, both for the vegetable and the flower garden. Of out-door sowing in winter we have discoursed sufficiently of late. We have in view now the many useful things that may be forwarded by sowing in pans, whether to come on slowly in the pits and frames, or to be pushed in heat. The more slowly they move, generally speaking, the better, but care must be taken to keep them going as they rise; for although seeds may lie dormant without harm for a time, young plants must have a certain amount of warmth, and light, and moisture, and air—in fact, they must have *cultivation*. Amongst the more useful things for present sowing, we may mention annual flowers for the borders, and more especially those that require a long season of growth before flowering, such as balsams, petunias, and begonias. Amongst the things wanted for planting out in the kitchen garden are cauliflowers, tomatoes, capsicums, and lettuces of each of which a few sowings may be made for a start. But there should be no large sowings made now of anything, for it is a hard task to keep things right when the east winds begin to pipe, for the man who has filled his pits and frames with tender stuff is not then inclined to dance. As regards the general spring sowing, it is quite time to make the beds ready, or at all events to make them ready in the rough, to be well mellowed by the weather.

HOME FARM.

WITH reference to the application of fertilizers to land devoted to farm crops, the only way to secure manures that are really cheap, is to obtain first a clear knowledge of what the soil requires, and to find the best market for the supply of the elements that are most in request. As a rule, what are known as "strong soils" are sufficiently rich in alkalies, and are very often rich also in phosphates, though the addition of calcareous matters is usually beneficial to such soils. Of necessity, chalk and limestone soils are often well fortified in respect of phosphates, but they are apt to be deficient of alumina, sulphur, and silica. When there is clay near at hand it is likely to be good practice to put clay on the chalk and chalk on the clay; and, as a rule, mixtures of soils are immensely more productive than either of the mixed soils would be separately. A hungry sand does not need to be enriched with silica, for it consists of scarcely anything else, but so deficient is it of the elements required by plants that it is always a costly business to manure a sandy soil effectually. Of all men in the world who need a sound knowledge of agricultural chemistry it is the light land farmer, the sand dune farmer, the tiller of gravel and silt, who may truthfully speak of his land as a "sieve." To such a man knowledge is money indeed. The two most important manures for sandy soils are kainit and superphosphate, the first being the cheapest form of potash at our command, and the second the cheapest and most convenient substitute for guano. There are two kinds of manure that may be secured at home by diligence and good husbandry. The first comprises all the muck made on the place, and by the term "muck" we mean everything that is in the nature of refuse and decomposable rubbish. The second is partly locked up in the soil, and partly suspended in the atmosphere, and the plough is the principal agent in collecting them both. In the soil are insoluble compounds of potash, soda, sulphur, &c., &c. When we stir the soil and expose these insoluble compounds, the frost, the sunshine, the air variously act upon them, and they are rendered soluble and thus become available to plants. In the air float gases that plants can appropriate as food, but they must be caught by the soil in the first instance, and the plough is the principal trap to catch them, for the stirring of the soil promotes its absorption of ammonia, carbonic acid, &c., &c., from the atmosphere. Thus the plough in the field and the spade in the garden are, strictly speaking, manuring machines, and mere mechanical tillage tends immensely towards the production of good crops. Knowledge is power; it is money also; yet, strange to say, the wise men are not all rich. Perhaps they are so anxious about other people they forget themselves.

THE POULTRY YARD.

IN keeping poultry in enclosed yards it is needful to provide a rather roomy house, and a yard as spacious as circumstances will admit, for it is most difficult to keep the birds in a really satisfactory condition for any length of time if they have not sufficient room for roosting at night, or sufficient space for exercise during the day. It is not the less necessary to select a light and open situation for the yard, for poultry will not thrive if they do not enjoy a fair share of light and air and a moderate amount of sunshine. It is not, of course, desirable that these structures should occupy an obnoxiously prominent position in the garden, but they should, if practicable, face the south, and have a water-tight roof and a dry floor. The floor of the yard must also be quite dry, and a few heaps of ashes or coarse sand placed here and there for the birds to scratch and dust in. Hens that are laying should have special attention in the matter of feeding, and during frosty weather, when the ground is frozen hard, and there is but little food to be obtained in the "runs," care must be taken that the whole stock has a sufficiency of suitable food. When kept on short supplies now the birds rapidly fall off in condition, and as they do not very quickly recover it is important that the food be sufficient.

THE APIARY.

BEES are, as a rule, more likely to suffer during the winter season from an excess of moisture in the hives than from cold, and therefore all that can be done to maintain the hives in a nice dry state should be done. Especially should attention be paid to this matter when it is considered that the danger of the bees suffering from severe weather is increased in exact proportion to the amount of moisture with which they are surrounded.

The damp accumulates on the top and sides of the hives, and the combs become mouldy and offensive, and very often disease spreads amongst the bees. As a rule the holes in the sides of straw hives are sufficient to ensure their perfect ventilation; but wooden hives, especially if exposed to the weather, require to have the crown holes left open wholly, or in part, and they should also have a few small holes in the sides. The crown holes must be covered with wire with a small mesh to prevent the entry of mice into the hives.

Replies to Queries.

Names of Fruits.—T. C.—No. 1. Easter Bergamot; 2. Probably Bezi Mai; 3. Beurre Langelier; 4. Fearn's Pippin.

Plants in Frame.—Amateur.—The plants have been kept too close for some time past, and the best advice we can give you in the matter is to recommend you to remove all dead and decaying leaves, and to ventilate more freely than you have hitherto done.

Exhibition Potatoes.—Subscriber.—The following varieties would form a most excellent collection of twelve:—Bedfont Prolific, Mammoth Pearl, and Porter's Excelsior, white rounds; Matchless, Red Emperor, and Vicar of Laleham, coloured rounds; Bresee's Prolific, International, and Woodstock Kidney, white kidneys; and Beauty of Hebron, Heather Bell, and Trophy, coloured kidneys. If ten varieties will suffice Matchless and Heather Bell may be omitted.

Propagating Grape Vines.—H. R.—Grape vines are readily increased by means of eyes, inserted singly in small pots and placed on a brisk hot-bed. The beginning or middle of February will be quite early enough to make a commencement, as the eyes will then start more readily, and the growth will be produced under more favourable conditions as to light, than would be the case were the buds to be inserted now. In the meantime the laterals removed now in pruning the vines can be laid in by their heels in the border for supplying buds next month.

Epiphyllums.—S. M.—The epiphyllums which bloomed during December should have careful management until the new growth is completed. They ought to be placed near the glass in the lightest position the stove affords, and as they have not been repotted for two years, supplies of liquid manure of a moderate degree of strength applied alternately with clear water will afford material assistance. On the completion of the new growth the plants should be hardened off and placed in the greenhouse, where they will be fully exposed to the sun, and have a free circulation of air about them. But there must not be any undue haste in their removal to the greenhouse.

Heating Greenhouse.—Inquirer.—The hot-water apparatus may in severe weather be supplemented with two powerful petroleum stoves, but the most economical course would be to either increase the quantity of piping in the house or provide a more powerful boiler. Oil stoves are only suitable for small houses, and when the structures are of large size, as in your case, and already fitted up with a hot-water apparatus, some little outlay in improving the power of the apparatus so that it can do the work required of it in a thoroughly efficient manner, will be found a good investment. The insufficiency of the heat in the greenhouse is due more to the weakness of the apparatus than to the distance of the structure from the boiler.

Seed Potatoes.—Single-handed.—The potatoes required for planting should as far as possible be placed in shallow boxes and baskets, or be spread out on the floor and shelves of a shed from which the frost can be readily excluded, so that the sprits produced after this period may be short and fine. If the shed is not frost-proof, a few trusses of straw ought to be placed ready to hand for covering the potatoes should severe weather set in. The Ashleaf sets required for planting in the frame for an early crop may, after they are put in shallow boxes, be placed for the present in the house in which you have just started the first crop of cucumbers, and remain there until the bed is made up for them. They should have a light place and receive a skiff from the syringe once a day; and as they ought not to make much growth before they are planted, the bed should be ready for them by the time the shoots are an inch or so in length.

Peach House.—Young Gardener.—The trees in both the early and late houses should be pruned, dressed, and trained in with as little delay as possible. Apart from the importance of having the work completed before the buds begin to swell, all indoor operations should be pushed on as fast as circumstances will permit to leave the hands free for outdoor matters as the days lengthen. In the first place, the trees must be pruned, and this will consist in cutting back the shoots which have borne fruit to those laid in during the season of growth, and then shortening the latter back to two-thirds or one-half their length, as may appear the most desirable. When the pruning has been completed the whole of the shoots should be well washed with warm water and a rather soft brush, the latter to be occasionally drawn over a lump of Gishurst's Compound or Nicotine Soap. On the completion of the washing all the wood should be painted over with a mixture of one of the two insecticides. Due care must be taken to well work the mixture into any crevices that may exist, and also to avoid injuring the buds, which, as you are doubtless aware, are readily detached. The borders must also have attention, and those inside should first be examined some distance below the surface to ascertain their condition with reference to moisture; and if the soil is at all dry, sufficient water should be supplied to well moisten it. Borders in which peach trees are growing ought not to be kept in a saturated state when the trees are at rest, but they must be in a moderately moist state, or a very considerable proportion of the buds will be shed as soon as the sap begins to rise. It is very important that the soil should not be dry during January and the following month. If the border has been made some years and the trees make a moderate growth, a light dressing of half-rotten manure will be most beneficial. But if the trees make a strong growth the application of fertilizers will do more harm than good.

Obituary.

ON the 3rd inst., at Reigate, Mr. HARRISON AINSWORTH, the celebrated novelist, aged 77 years.

ON the 4th inst., at Bestwood Lodge, near Nottingham, Mr. BERNAL OSBORNE, successively M.P. for Wycombe, Middlesex, Dover, Liskeard, Nottingham, and Waterford. He had attained the age of 68 years.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. at 10 a.m. Chiswick	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.	
			Rises.	South after Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.					
			Rises.	South after Noon.	Sets.	Rises. Morn.	Sets. After.	Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
15	S	2nd Sunday after Epiphany.	8 1	9 43	4 19	3 40	—	9 10	9 50	5 58	6 35	36 7	Chieranthus alpinus, H.	Yellow.	15
16	M	Battle of Corunna, 1809.	8 0	10 4	4 20	4 47	1 1	10 30	11 8	7 15	7 55	34 7	Eranthis hyemalis, H.	Yellow.	16
17	Tu	Battle of Falkirk, 1750.	7 59	10 24	4 21	5 49	2 3	11 45	—	8 33	9 10	30 8	Erica Wilmoreana, G.	White.	17
18	W	Prisca. Old Twelfth Day.	7 58	10 43	4 23	6 41	3 16	0 18	0 47	9 43	10 12	36 9	Bouvardia splendens, G.	Scarlet.	18
19	Th	● New Moon, 4h. 35m. after.	7 57	11 2	4 24	7 23	4 38	1 15	1 40	10 40	11 5	37 2	Eucharis amazonica, S.	White.	19
20	F	Pabian, Bishop.	7 56	11 20	4 26	7 58	6 3	2 5	2 27	11 30	11 52	37 4	Limnolobos rosea, S.	Red.	20
21	S	Agnes, Virgin and Martyr.	7 55	11 37	4 28	8 26	7 20	2 50	3 13	—	0 15	37 5	Angreicum oburneum, S.	White.	21

The Gardeners' Magazine.

SATURDAY, JANUARY 14, 1882.

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Exhibitions and Meetings for the Ensuing Week.

THURSDAY, JANUARY 19.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

“OUR YOUNG GARDENERS' LITERATURE” is the subject of a note by Mr. W. Carmichael in the *Gardeners' Chronicle* of December 31, page 853. As we propose to make some remarks on this note, we here reproduce it in full:—

“The other day I came across a copy of a translation of the ‘Georgics’ by R. D. Blackmore—a rendering brilliantly enthusiastic, and showing on every page the fervent love of Mr. Blackmore for his author and for Nature. Oh that a copy could be near every gardener's hand! Why should our young gardeners so earnestly desire to acquire a smattering of third-rate science? Botany they must know, and the elements of a few others, such as heat; but why, in the name of the Parcae, do they require to inebriate their life by devouring popular science? Perhaps inebriation is an exaggeration, but there are valid reasons for such a word. A little science is as dangerous as a little learning—“drink deep or taste not.” Cannot a man observe Nature without trying to pursue an abortive casual nexus? There is more truth than many think in the epigram that the “natural scientist knows least of Nature.” The end of a feeble or sufficiently exercised intellect that wets its feet in the vast ocean of science is dogmatic ignorance. The minds of gardeners are not feeble, but they have enough—and often have more than enough—to think about. Next to the literature of our craft, let such as Tennyson and Ruskin be our teachers, and so will our souls imbibe some part of the purity of our flowers, and the sternness of duty be illuminated by some errant rays of culture. How often are gardeners called uncultivated, and with justice! I am amongst those that believe that gardeners ought to have a social status better than they have now; this end can only be reached by our own perseverance.

“W. CARMICHAEL.”

We do not profess to understand the meaning of the writer where he speaks of the pursuit of “an abortive casual nexus;” but the general purport of the letter appears to be to advise young gardeners to seek intellectual refreshment in imaginative literature, and to leave science alone unless they see their way clearly to master it completely. It is probable that this letter will produce no effect anywhere beyond raising a smile at Mr. Carmichael's expense. But if it were to gain a following for the teacher who swears by “the Parcae” that young men should not “inebriate their life by devouring popular science,” the result, we think, would be very much to the disadvantage of the followers and altogether barren of honours for the leader. It is well certainly that young men should read Mr. Blackmore's delightful translation of the “Georgics.” It is well too that they should read Tennyson and Ruskin, and we should not fear the result if they were to read also Shakspeare, Byron, Scott, Wordsworth, and the alliterative and sensuous Swinburne. The poets look at Nature very differently to the scientists, and the imaginative faculty must be allowed to play its part in the education as well as in the recreation of young men, and perhaps of old men also, if they are still willing to be enlightened and entertained. But it does occur to us, and will also to many of our readers, that what is called “popular science” is, like many other things in this respect, that its materials may be classified as good, bad, and indifferent. Mr. Carmichael says, “botany they must know, and the elements of a few others, such as heat.” Are we to understand by

this that every young gardener is bound to become an accomplished botanist and engineer, and if he cannot see his way clearly to that end he is to take particular care to be entirely ignorant of botany and heat? He is, we assume, to ignore all “popular” sources of information on those subjects, lest by “wetting his feet in the vast ocean of science” he should for ever after be a fearful example of “dogmatic ignorance.” The ingenious and well-meaning writer is probably not aware that many men who have attained the highest eminence in science owe to “popular” treatises their first initiation as well as the impulse that led them on from things familiar to things unknown, and made them great and good for ever. Michael Faraday was unquestionably the greatest chemist and electrician of this century. He rests from his labours, and his works do follow him. He was literally a creation of the so-called “popular science.” He was of humble origin, and at the age of thirteen was apprenticed to a bookbinder. It was the reading of a very superficial but truthful book, Mrs. Marcet's “Conversations on Chemistry,” that fired him with scientific enthusiasm, and furnished him with the knowledge needful for the understanding of better books. Examples of the kind might be cited by the hundred, but this particular one is as good as a hundred, and will at least serve to show that if Mr. Carmichael can lay down a rule, history can furnish an exception of sufficient force to knock it all to pieces.

If the “abortive casual nexus” means being accidentally hanged, but not killed, as may be the case if it means anything, we do not see that young men who are inclined to be studious need be much alarmed at it. They may “observe Nature” before they ascend the imaginary gibbet, and while there may see Nature from an advantageous standpoint, and as the “nexus” will be “abortive” they will not, after all, be seriously interrupted in their scientific survey of the world around them. We are told that the “natural scientist knows least of Nature,” and what are we to say to that? Well, to make a short answer, we shall say it is a lie neither more nor less. No man can become a scientist without knowing much of nature. He may be able to predict eclipses, to indicate in what rocks the precious metals should be looked for, and to determine quickly and surely whether a plant met with in the desert by an exploring party in want of food may or may not be eaten with safety; and yet this man may know less than a ploughman about the habits of moles, less than a groom about the habits of horses, and less than Mr. Carmichael about the unsuitability of rhododendrons for calcareous soils. But, to tell the truth, our friend has made a grave mistake in his reference to the “scientist.” If the reading of books on popular science is calculated to make men scientists, even with the disadvantage of “knowing least of Nature,” we shall have Faradays rise up by thousands, and we shall have all the forces of Nature brought under our control, perhaps to the regulating of the seasons and improvement of the climate, as suggested by the unhappy author of the “Suspension of Gravitation.” A pretty confusion Mr. Carmichael will be in when this comes to pass. There will be nothing left for him but to imitate the naughty parrot and say, “I'm sorry I spoke.” The “epigram” that we denounce as a lie may be paralleled by one more famous. It was the wise Lord Bacon who said “a little knowledge is a dangerous thing,” which is also a lie if regarded broadly and generally, but is sometimes true, as in the case of the scientist who does not know that rats are partial to oil of rhodium, although quite capable of marking a boundary line to degrees of latitude and longitude with no better guide than a chronometer. A little knowledge is a dangerous thing when it is displayed presumptuously or employed injuriously, but it is better for the average citizen who is not a scientist to know that the world is round and moves in space than to be utterly ignorant of such elementary matters as the “popular” books will quickly and pleasantly enable him to master.

It is not often we have anything to say to the young men on their pursuits and studies. The young men of the present day are as good as of any previous day, and in some respects they are in the aggregate considerably better. And amongst the reasons for their being better we may name that they have more freedom and less patronage, and are capable, for the most part, of shaping their pursuits and studies advantageously without any particular guidance. They have indeed advantages never known before, not only for their intellectual but for their material advancement, and we are amongst those who believe that the race of gardeners now rising will sustain

the high traditions of British horticulture, and carry them forward in the spirit of Lord Bacon's declaration that "the true end of science is to enrich human life with useful arts and inventions."

As regards "our young gardeners' literature," we seriously propose that "popular science" should have a conspicuous place in it. A man is not bound to be a profound geologist, but he is bound to know that the granite is older than the tertiary, unless, indeed, he prefers to be such a fool as Mr. Carmichael would make him, in which case perhaps many good men would loathe his society. The fact is, the current books on popular science are excellent in their way, one of their aims being to present in a striking manner what a man must know if he would become an enlightened citizen, and to suggest merely the weightier matters that the enlightened citizen need not know unless he aims at becoming a genuine scientist. We advise our young friends to obtain a smattering of scientific knowledge, and to be modest in the use of it. They may in the course of recreative reading learn the difference between an endogen and an exogen, and between a phænogam and a cryptogam, and the reason why a common pump will not lift water forty feet. If they are really anxious for knowledge they will appeal to Nature for themselves to

Find tongues in trees, books in the running brooks,
Sermons in stones, and good in everything.

POTATOES GROWN FOR THE PUBLIC MARKETS comprise but few sorts, and those do not in any great degree differ in character. Our report on the London markets in the Christmas week (p. 747) makes mention of only five sorts, of which four are home-grown, and the one remaining is imported. The potato crop of 1881 may be said to have escaped destruction by the skin of its teeth. After a roasting season that checked the early growth, there came a prolonged season of almost continuous rain that caused the crop to grow in a coarse manner for a time, and then promoted a second growth and a considerable spread of disease. The aggregate of the early crop was light, but the quality was excellent, being perfectly finished by the aid of brilliant sunshine. The aggregate of the late crop was heavy, and the quality, generally speaking, rather middling than otherwise; but in many instances the crop was faulty by reason of coarseness, second growth, and disease. These circumstances have been telling against growers in a serious manner, for potatoes are bulky goods, and when the quality is low and the price also low, the cost of sacks and carriage makes a heavy item against the market returns, and the business ceases to be profitable. Our report makes special mention of Red Regent, White Regent, Magnum Bonum, Champion, and German Reds, as having the lead in the London markets. All the sorts grown on light dry lands realize better prices than the same sorts grown on heavy moist lands, as might be expected in a season characterized by excessive humidity in the later summer months. What the heavy land farmers lose now owing to excessive rain-fall they would in a dry season gain, while the case would be reversed for the cultivators of light land. The Regents, Forty-folds, and Rocks, have been so often well-nigh obliterated by disease that it is a matter for surprise to find that they are still largely grown, and the first-named takes the lead for quality amongst what are known as the "good old sorts." The pre-eminence of Regents affords a key to the prevailing public taste. To obtain general favour a potato must be white and mealy, and without any particular flavour. The Fluke will always sell because it has these qualities; it is extremely elegant and almost tasteless. The reason we see it so rarely in the shops is that the disease has spoiled the crop so often that the growers who have commercial ends in view solely have given it up as too uncertain. In respect of these varieties every experienced cultivator can calculate pretty nearly his ratio of chances. But Champion and Magnum Bonum present questions yet to be settled, and it is likely that the markets are now effecting a settlement by the telling agency of the banker's book.

The disease-resisting power of the Champion was subjected to too severe a strain by the weather in the past autumn, and it is now but too plainly declared that it is not so proof against the murrain as had been supposed. It is realizing the lowest price of any sort in the markets, and it is clearly apparent that it can hold its ground only so long as it is not exposed to severe competition. The best samples of Champion that have come under our notice were of excellent quality and of fairly good appearance. But the average stock of this season is notable for ugliness, bad colour, and blight. The Kentish growth is certainly the best in every way, and naturally realizes a higher price than the growth of Essex. The sort that competes the most directly with Champion is Magnum Bonum. This is certainly at its worst this year, but nevertheless it realizes the same rate as the Regent, and generally speaking will make a better return because it is a heavier cropper. As regards disease it is not anywhere seriously touched; but second growth has

damaged the crop considerably, except in cases where the growers had the courage to lift in time and put a stop to it. This sort of precautionary process, however, is more easily prescribed than accomplished, and our business now is to look forward by the aid of the light furnished from experience. The light shines full on Magnum Bonum as the leader in the race. The Champion will be largely planted in the forthcoming season, no doubt; but in all probability Magnum Bonum will be still more largely planted, for it came through the trying ordeal of the rainy autumn of 1881, and is now the best home-grown potato in the market.

The German Reds are in great favour with the middle and working classes, and the importation appears excessive considering the great bulk of home-grown stocks of other sorts. If we put Magnum Bonum before Champion, where shall we put the German Reds? We are very much inclined to put them before Magnum Bonum, for the quality is always good, and this season the second growth of Magnum is a very serious drawback. However, if we do put the German Reds where the public appear to put it—ahead of all the rest, save the Regents, that does not affect the British cultivator in the first hypothesis, whatever it may do in the second. He cannot grow it, and therefore he need not study its character. That is one point settled. But it comes into the market and puts down his prices, and that is a point also settled perhaps, but uncomfortably. The German Reds are the produce of maiden soils on the Rhine, and the centre of the cultivation may be Mannheim or Speyer, where the rental is low, labour is cheap, and the summer is usually propitious. To meet the competition the Champion is simply nowhere, and we do not say that Magnum Bonum is equal to it. But we think it is, for it is the least particular as to soil of any sort in cultivation, and the severe test of the weather of the past autumn has not seriously shaken its reputation.

There is yet another sort that might be and doubtless will be in the close competition. It is Covent Garden Perfection, a variety of higher quality than Magnum Bonum, but a trifle less productive, and less disease-proof. In a thoroughly good potato season Covent Garden Perfection would probably beat Magnum Bonum; in a thoroughly bad season Magnum Bonum would certainly beat Covent Garden Perfection. The last-named variety has been before the public some years, and has obtained less attention than it deserved, its name probably being against it. We believe it will become a general favourite, not only for garden but for field culture; and should this happen it will go hard with German Reds, because Covent Garden Perfection is of higher quality than any popular market variety, and under fairly favourable circumstances makes a great crop and a clean sample.

The raiser of these two remarkably useful varieties is plodding on in the path that led to them, and is likely to do us further service in the way of first-class field potatoes. We have some seedlings of his now under observation that are full of promise for every quality required—heavy croppers, disease-resisting, and of table quality beyond question. It seems likely that individual endeavour will accomplish all that was hoped for by the half-benighted people who called upon the Government to speculate in potato culture. At all events, there is a good beginning made, for neither Magnums nor Champions nor German Reds were brought into existence by a Royal Commission or a Board of Green Cloth, and the less our Government has to do with the raising of new potatoes the better for all national and individual interests. The Government might as properly cook potatoes for every family as charter farms and appoint raisers of seedlings. There is money in the potato, and that carries it round the world. The disease-resister is yet to be found, and it must be confessed we are already very near to it, and the well-tried Magnum Bonum is at this moment the most generally useful potato in cultivation.

THE ANNUAL MEETING OF THE ROYAL HORTICULTURAL SOCIETY will be held on Tuesday, February 14.

BATH ROSE SHOW.—The exhibition of the National Rose Society will be held in Bath, June 28.

THORNTON HEATH HORTICULTURAL SOCIETY.—The third annual exhibition will be held in the grounds of K. T. Oelrichs, Esq., on Wednesday, August 27.

A GIANT APPLE TREE.—The *American Magazine of History* mentions that at Showhegan, Maine, there is standing a russet apple tree, with a trunk 4½ ft. across at the base, and branches which cover a space 63 ft. in diameter. The age is not stated.

"THE ROSARIAN'S YEAR BOOK FOR 1882," edited by the Rev. H. H. D'Ombraun, must be regarded by every true rosarian as a key to the rose garden. It is elegant in appearance, the contents are well chosen, and in respect of utility it is of permanent value. Mr. Baker contributes on the Enemies of the Rose; Mr. G. Paul on *Maréchal Niel* as a greenhouse rose; Mr. E. Mawley on the Weather of the past Rose Year; Mr. J. E. Ewing on Garden Roses, and there are some half-dozen other papers that will be read with delight.

"THE PROFITABLE CULTURE OF LAND IN IRELAND" is the subject of an interesting letter by Mr. Ablett in the *Times* of Monday last. The writer proposes extensive tree planting, more especially on the poorer lands and in places where shelter is required.

THE LATE MR. NIVEN.—The friends of the late curator of the Old Botanic Gardens, Hull, have promoted a fund in recognition of his twenty-eight years' service to the gardens, as also of his "contributions to botanical science." The fund will be applied for the benefit of his widow and children.

THE ELECTRIC EXHIBITION AT THE CRYSTAL PALACE is in a very forward state, and it is now apparent that it will fully justify the labours devoted to it and the expectations of the most sanguine of its promoters. The principal feature, necessarily, will be found in the various systems of lighting.

"PAXTON'S FLOWER GARDEN."—Part 17 of this handsome work contains coloured figures of the copious-flowered Crab (*Malus floribunda*) and Walker's Cattleya (*Cattleya Walkeriana*). The last named, although by no means a new plant, having been described in the *Botanical Register* under the name *C. bulbosa*, is not often seen, and may be regarded as a rarity. As here figured the prevailing colour is a soft mauvy pink, the labellum blotched with pale yellow.

"THE JOURNAL OF THE R.H.S." is not extinct, for we have just received Vol. VI. all in one lump. It contains reports of meetings from September 16, 1879, to August 24, 1880, and outlines of the lectures delivered at the floral meetings by the Rev. G. Henslow. The three lectures delivered by Mr. Hibberd on the Hyacinth, the Daffodil, and the Pelargonium are reproduced in full, apart from the reports of proceedings.

ROYAL BOTANIC SOCIETY'S SPRING EXHIBITIONS will be held on Wednesdays, March 29 and April 26, and the schedules are now being distributed. At the first of the two meetings, classes are provided for hyacinths, tulips, narcissi, amaryllis, lachenalias, cyclamens, azaleas, and hardy and Chinese primulas; and to the second the principal subjects invited are hardy and greenhouse azaleas, rhododendrons, pot roses, cinerarias, auriculas, pelargoniums, and begonias. There is no intimation as to whether begonias grown for their leaves or flowers are to be shown.

THE CRYSTAL PALACE COMPANY are apparently throwing away a golden opportunity for rendering their exhibition of electric apparatus and effects complete for scientific purposes, and peculiarly attractive to the general public. They have made no arrangements for testing or demonstrating the power of the electric light in promoting the growth of plants. A series of experiments open to public observation could no doubt be now arranged with the least imaginable difficulty or expense, and Mr. Head, the horticultural manager to the company, would be just the man to settle all the preliminaries. It is the best time of year for such experiments, so far as the interest of the public in them is concerned, for whatever pertains to horticulture has peculiar attractions for the people in the early months of the year. A little race between solar and electric light might be started with potted strawberries as the jockeys, and in the germination of seeds some useful and immensely interesting experiments might be made. We submit that this matter is worth serious consideration at this particular moment.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—The annual meeting of this society was held a few days since in the Council Room, Oxford, under the presidency of the Mayor. From the report and balance-sheet presented to the meeting, and unanimously adopted, the financial and other results of the work of the society during the past year appear to have been eminently satisfactory. Mr. W. Greenaway, who was appointed secretary some time since in the place of Mr. Hobbs, who retired after forty-five years' service, was re-elected. The committee for the current year was elected, and other routine matters were disposed of with the usual degree of cordiality. It was stated that the fund raised for the purpose of presenting a testimonial to the late secretary in recognition of his services had already reached £50, and that the presentation would be shortly made. It was arranged to hold the exhibitions for the current year as under—Commemoration Show, Tuesday, June 13; Second Summer Show, Wednesday, August 2; and the Third Summer Show, Wednesday, September 6.

THE EARLIEST SPRING ON RECORD is now in all probability in progress, for we must speak of "spring" when trees are coming into leaf and the birds are in full song and even busy nesting, although, as regards the almanac, this is but the middle of January and the "depth of winter." Reference to the *Garden Oracle* will show that the proper mean temperature of this particular 14th of January, as deduced from the observations of forty-three years, is 36.6 Fah. Within the past few days the actual temperature has reached nearly 60 deg. Fah. It is inevitable therefore that vegetation should be aroused, and that unseasonable phenomena are abundant. We could adduce examples of the most interesting character, but it would be waste of time, because they are to be seen on every hand. But one amongst many we must make mention of. We received on Thursday last from Mr. J. C. Clarke a fine bunch of blooms of *Clianthus puniceus*, accompanied with strong healthy leaves, the flowers being fresh, and stout, and bright. These were cut from a plant trained to an open wall in the garden of M. F. Bisset, Esq., M.P. The gardener, Mr. May, has known the plant many years, but has never before seen it flower in January. As regards the general case, many persons will of course be delighted to see primroses and violets in flower, and thorns in leaf, in the first month of the year; but these occurrences will occasion pain rather than pleasure to those who have watched the seasons through many years, and have learned from experience to fear an early spring as the possible presage of disaster. A week or two of frost would even now be beneficial, but in a few weeks hence frost will be simply destructive, and it is but too likely we shall have a taste of it when the weathercock turns to the east.

FRAME CULTURE OF EARLY CUCUMBERS.

By JOSEPH MACDONALD.

As the manner in which we arrange the frame devoted to the early cucumbers is somewhat different to that generally known, I have thought it might be useful if I describe it to your readers. First, it must be stated that those who wish to adopt the plan which will be detailed must be prepared to provide a larger quantity of fresh stable manure than is necessary for a hotbed made in the ordinary way. But the advantage of my plan is so great, that although it does take a larger quantity of fermenting materials it can be strongly recommended. In the first place the heat furnished is more regular, and very much less steam is generated inside the frame, which is a point of considerable importance, and it removes all risk of the roots being burnt by too much heat in the bed.

A frame of any size may be used, or indeed any number of frames. We have two frames with two lights each placed side by side, as we require a large supply, but for a small family one two-light frame will suffice. It is necessary to dig out a pit two feet deep and two feet larger every way than the frame. This is to receive the fermenting materials to furnish bottom heat to the frame, and at the same time it serves the important purpose of reducing the height of the frame, so that neither the bed nor the frame is so much exposed to the wind as when the manure is entirely above. But as it is necessary to carry out this plan in its entirety, some provision must be made for carrying away the water that will accumulate in the pit. A drain will in fact be necessary, and in digging out the soil the bottom should be so sloped as to bring the water to one particular point, and from this a drain must be provided to take the water away. But as the liquid that will accumulate there is too good to be wasted, containing as it does the drainage from the manure-heap, we are careful to preserve it, and to do this we conduct it by means of the drain into a large tank in which it is collected for use as may be required.

To support the frame some brick piers are provided, and these are one foot square. For a two-light frame three piers in front and three at the back will be necessary. A three-light frame will require one additional pier at the back and front; or to put it another way, there should be one pier to every four feet run of frame, and they should be two feet high from the bottom of the pit. They must be quite level on the top, and on them should be placed a thick board one foot wide and just the length of the frame. On this board the frame is placed, and it is necessary that when the frame is in its place the board should project inside of the frame three or four inches to form a bearing for the bottom of the frame, which is formed with boards two inches in thickness and in length equal to the width of the frame. The boards should be placed an inch apart to allow the heat to rise freely between them. It will be seen that the frame has a bottom resting on piers, and I am not sure that it would not be less expensive to have the bottom permanently fixed to the frame. No doubt it will appear to some as a rather expensive contrivance; but really, considering the number of years it will last, it is not so. A good frame properly taken care of will last for twenty years, and the boards for the bottom will remain in good condition for twelve years. The brick piers will of course last a lifetime. The tank for the reception of the surplus water may if desired be dispensed with, but we find it most valuable in supplying the garden with liquid manure. When comparing the cost of this plan with the ordinary hot-bed we must not lose sight of the fact that it is every way more convenient. The frame once put in its position remains so. There is no sinking in the bed itself to take place and a more uniform heat is maintained for the plants.

The preparation of the fermenting materials is the same to a great extent as for an ordinary hotbed. The times to commence operations must be guided by the date cucumbers are required for use. In my own case we require them as early in the season as we can obtain them, and we commence preparing the fermenting materials about the middle of December. The plants are raised in pots in the stove, the seed being sown in November. In dealing with the fermenting materials, it is necessary in the first instance to prepare eight or ten cartloads of fresh stable manure; sufficient, in fact, to fill the pit level with the top of the piers. This must be well prepared by being laid in a heap for two or three weeks, and turned over two or three times at intervals of six or seven days. It is important that the whole of the manure under the frame should be well sweetened, as there is no means after the frame is put on of renewing it. In filling it in it should be well beaten by the back of a fork to make it moderately firm before the frame is put on, although it is not necessary as a support to the frame.

The preparation of the manure for the linings, which are to be made up all round the outside of the frame, need not occupy much time, but much will depend on its condition when brought to the garden. If it is fresh from the stable, it must be laid in a heap and turned over twice, and this should be done so as to have it ready for use as soon as the frame is put in its place; in fact, plenty of fermenting materials must be prepared, so that the pit may be filled with it, and the frame put on and the linings made up at one time. Respecting the linings, much of the success will depend on how thick they are made, and the way in which they are managed. We make our linings four feet wide all round the bed. A few barrowfuls of new stuff will simply be of no use at all, for the cold winds will blow every bit of heat out of the manure. What is wanted is a substantial lining of leaves and manure, and then it will retain a good heat for some time. I do not find it necessary to make up the lining to the height of the frame in the first instance, as the materials in the bottom will furnish the heat required for the first two or three weeks. But as the warmth declines beneath the frame an addition to the linings will become necessary, and additions must be made from time to time as the materials sink down and the heat declines. I do not turn the linings in this case as with the ordinary hotbed, for with a wide lining and good material it is best not to disturb them for some time. It has occurred in my experience that during a spell of cold

weather in May the heat in the bed has been insufficient; when this has been the case I have taken away to a depth of a foot or eighteen inches of the old lining, and put fresh material in its place, and this addition has always brought up the heat again in a few days.

For placing on the top of the linings we have some wood covers, made with feather-edge boards nailed to cross pieces of wood. These covers are the same width as the linings, and we find them most useful in confining the heat about the frame and keeping off the rain. In consequence the linings retain their heat much longer than would be the case if they were fully exposed to the weather.

After the first portion of the linings is made, and the boards put in the frame to hold the soil, the bed must be left for four or five days to allow the heat to rise. In the meantime the soil can be made ready, and a few thin turfs obtained to lay on the boards to prevent the fine soil from filtering through the intervening spaces; or if these are not to be had, rough turfy loam or peat may be laid on the bottom. I find that grown in this way cucumbers will bear a heavier soil than when the roots have the opportunity of pushing down into the manure forming the hotbed, and they feel the effects of bright sunny weather sooner, and require more water. This is accounted for by the fact that the roots are suspended as it were on a bed of soil, for the manure at the bottom sinks away in course of time, and leaves a vacant space underneath the boards.

This will explain why they do better in a soil somewhat heavier than it is usual to provide for cucumbers. One half good tenacious loam and a quarter each of leaf-mould and thoroughly rotten manure, will form a very suitable compost, and before using it should be laid out on the floor of an open shed for a short time to dry if the soil and manure are at all wet when mixed together. A depth of ten inches over the frame will be the most suitable for the bed, and this, with two or three surface dressings at different times during the summer, will be sufficient to support the plants until the end of the season. The compost may be put in the frame as soon as it is ready, because it will require to be warmed before either plants or seeds are put in, and it will probably require four or five days for the heat to pass through it.

The planting may be done as soon as the temperature in the frame rises to 70 degrees. Our plants, as before stated, are raised in the stove, and they are quite ready for putting out as soon as the bed is ready. We put two plants under each light in one two-light frame, and in the other we sow seed. Three or four seeds are inserted in the middle of the light, and if they all grow, the weakest plants are drawn out, leaving two to each light. The next most important step is to keep up a regular heat in the frame. The weather will influence this a good deal, but I do not disturb the linings in any way. I can maintain a day temperature of 70 deg. without sun-heat, and as soon as it declines below that point fresh manure is added. The covering boards are lifted off, and the surface of the old lining stirred to a depth of a few inches, and the new material placed on the top.

The covering of the frame at night must be carefully attended to. A high night temperature is injurious to the plants, and when the bed is first made up night coverings must be sparingly employed in mild weather. So long as the thermometer in the frame registers 65 deg. in the morning without any external covering none should be employed. A mean of 60 deg. is a safe night temperature for cucumbers in a frame up to the end of March, and after that time a rise of 5 deg. by night and day may be safely allowed. But external coverings are sure to be required, and there is nothing better than Russian mats, laid on two or three thick, according to the state of the weather and the warmth of the bed.

Air giving to early cucumbers in a frame is a delicate business in the early part of the year, and its admission must be done cautiously. Ventilation the plants must have to ensure their being kept growing and in good health, and on still mild nights very often it is possible to admit a little air with advantage. During the day every favourable opportunity must be taken advantage of to admit air at the back of the frames, the opening to be from a quarter of an inch to two inches, according to the state of the weather outside. The admission of cold currents of air must of course be avoided. The supply of water in the early part of the season must be considerably less than later on, when the plants are bearing good crops of fruit and when the sun has more influence. Nevertheless, if there is a strong bottom heat the soil will be sure to become dry, and water must be given as often as it is required, to keep the soil moist. In every case the water used should be heated to a temperature of 80 deg.

Shading is very necessary, especially while the plants are young, and unless shading is resorted to when the sun is shining brightly the temperature will increase to an injurious degree, and there will be a risk of the plants being scorched up or seriously injured. Sudden outbursts of strong sunshine after a few dull days must be watched for, and the shading put on immediately, for that is the time when cucumber plants suffer most. These notes have extended to such a length that I can only say, further, that the stopping of the plants and the pegging down of the growth is the same for early cucumbers as for those grown in frames for later crops; and, as these details will be understood by those who are able to follow me so far, I will not now dwell upon them.

ROTTING OFF OF VINE ROOTS.—M. M. Planchon and Millardet have shown that in the South of France the rotting off of the roots of vines without visible cause—those known as “pourridié”—is the work of a large fungus which lives on the roots of various trees, but more especially pine trees. Similar cases of “pourridié” have been noticed in the Burgundy country, where they have been sometimes attributed to the phylloxera. In a recent report to the Academy of Sciences, M. Prillieux shows that in Haute-Marne the evil is caused by a small whitish fungus, *Rosleri hypoxea*, which eats into and disorganizes the roots. He points out that in cases of “pourridié” rooting up and burning the stocks is not a certain remedy, as fragments of the diseased roots are sure to break off in the ground and remain there undetected centres of infection.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, JANUARY 10.

The subjects submitted to the respective committees on this occasion were comparatively few in number, but they comprised several of considerable interest and importance. The most noteworthy contributions were the splendid primulas and magnificent zonal pelargoniums from Messrs. H. Cannell and Sons; the primulas from Messrs. J. Carter and Co.; a series of new azaleas from Mr. Todman, which promise to be of immense value for decorative purposes and supplying cut flowers, and a collection of home-grown oranges from Messrs. T. Rivers and Son.

Messrs. J. Veitch and Sons, King's Road, Chelsea, exhibited a large and densely-flowered bush of the invaluable Bornean jasmine, *Jasminum gracilimum*; a good specimen of *Rhododendron Queen Victoria*, a beautiful variety with orange-coloured flowers; a fine example of the elegant *Davallia Mariesi*, and several novelties which had certificates conferred upon them. Messrs. J. Carter and Co., High Holborn, sent baskets of their fine primulas *Holborn Gem* and *Rosy Morn*, the first of which had a certificate of the first class conferred upon it.

Messrs. H. Cannell and Sons, Swanley, Kent, exhibited two splendid stands of zonal pelargoniums, each containing twenty varieties, and representing the finest single and double zonals at present in cultivation, and a score or so of remarkably fine specimens of *Primula Princess of Wales*. G. F. Wilson, Esq., Weybridge, sent a fine basket of cool orchids, consisting almost exclusively of odontoglossums, all of which were furnished with grandly-developed spikes. From Chiswick came a fine bank of double and single primulas, in which Earl of Beaconsfield, Marchioness of Exeter, and other of the splendid double varieties raised at Burghley, were admirably represented. Amongst others was a plant of Earl of Beaconsfield, bearing equal numbers of white and peach coloured flowers. Mr. W. Allan, Gunton Park, Norwich, sent some splendid sprays of *Lapageria rosea*; and Mr. Green, Pendell Court, Bletchingley, contributed flowering branches of the showy *Bignonia radicans*, for which he received a vote of thanks.

Mr. Todman, gardener to W. J. Connell, Esq., Bushey Down, Tooting Common, exhibited a series of new azaleas, which form a quite new type and are likely to prove most valuable for decorations in a cut state and otherwise during the winter season. The plants are of compact habit, and the flowers are about two sizes larger than those of *Azalea amœna*, of fine form and substance, and produced in great abundance very early in the year. They are indeed so early in flowering that they may be had in full bloom at Christmas with the aid of but little artificial heat. The most valuable of the varieties staged were *Prince Leopold*, bright reddish scarlet, the flowers very stout and beautifully formed; *Princess Beatrice*, pure white, the flowers of medium size, very stout and waxy in texture; *Miss Nellie*, rose-purple, a rich and pleasing shade of colour, and *Miss Annie*, purplish magenta.

Chief amongst the subjects before the Fruit Committee were a collection of oranges grown at Sawbridgeworth, from Messrs. T. Rivers and Son; six excellent baskets of mushrooms from Mr. J. Baxter, Lancefield Road, Harrow Road, N.W.; six fine dishes of apples from the Rev. G. M. Straffen, Tillington Rectory, Petworth; two excellent baskets of Mrs. Pince's Muscat grapes, cut from vines grafted on the Royal Muscadine, from Mr. Burnett; a dish of *Nugget* potato, a handsome white round, from Mr. H. Eekford, Sandywell Park, Cheltenham, and dishes of apples from Messrs. W. Cutbush and Son, Highgate, and other exhibitors.

First-class Certificates were granted as under:—

To Messrs. J. Veitch and Sons for

Lachia anceps Veitchii.—A very beautiful variety; the flowers large, the sepals and petals pure white, the labellum purple veined with crimson and marked with yellow.

Anargyllis Autumn Beauty.—A handsome variety with large flowers of fine form and of a deep blush-pink heavily veined with deep rose.

To Mr. F. R. Kinghorn, Sheen Nursery, Richmond, for

Erica hymetis alba.—A fine variety of this invaluable winter-blooming heath with flowers of the purest white. It is, we understand, a sport from the typical form, and will there can be no doubt be of immense value for decorative purposes in its season.

To G. F. Wilson, Esq., Weybridge, for

Iris Kolpakowskiana.—A dwarf-growing species of great beauty; the flowers are comparatively large, and of a rich purplish blue marked with golden yellow.

To Messrs. J. Carter and Co., High Holborn, for

Primula Holborn Gem.—A superb variety with flowers of large size, remarkably stout in substance, beautifully fringed, and of a rich and pleasing shade of azure-blue.

To Messrs. H. Cannell and Sons for

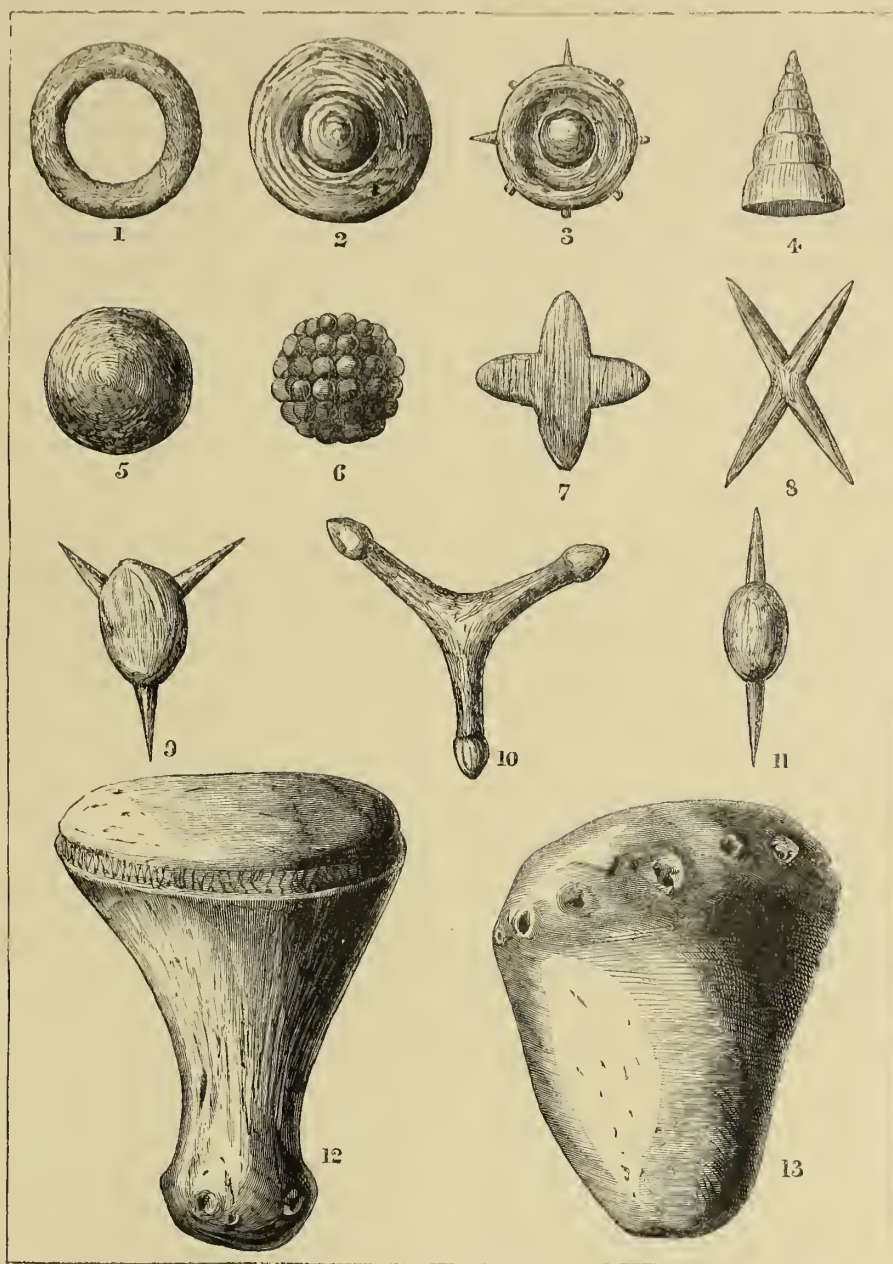
Primula Princess of Wales.—An exquisitely beautiful variety, bearing large flowers of grand form and finish and in noble trusses; the colour is a very distinct and beautiful shade of blush-pink.

A RAILWAY IN THE TREE TOPS.—The following paragraph is from a recent issue of the *Argus* of Petaluma, California:—“It may not be known outside of the neighbourhood where it is situated, but it is nevertheless a fact, that in Sonoma county (Cal.) we have an original and successful piece of railroad engineering and building that is not to be found in the books. In the upper part of this county, near the coast, may be seen an actual roadbed in the tree tops. Between the Clipper Mills and Stuart's Point, where the road crosses a deep ravine, the trees are sawed off on a level, and the timber and ties laid on the stumps. In the centre of the ravine mentioned, two huge rodwood trees, standing side by side, form a substantial support, and they are cut off seventy-five feet above the ground, and cars loaded with heavy saw logs pass over them with as much security as if it were framed in the most scientific manner. ‘All roads lead to Rome’ except this one. The builders never contemplated a terminus at San Francisco, Petaluma, or Chicago, but merely to convey heavy timber from the woods to their mill. There are many places in our rodwood forests where this example might be followed profitably, as it would be cheaper to grade through with a cross-cut saw and lay the ties on the stumps than to remove the trees. We can boast of a broad-gauge, a narrow-gauge, and a road in the tree tops—yet we are not all happy.”

GARDEN GEOLOGY.

"BLESSED is he that expecteth nothing, for verily he shall not be disappointed." So said the sage Sancho, and so say I. There could be nothing more absurd than for me to expect in your Christmas number another delightful paper on "eloquent pebbles," such as the *Pemier Philosoph* gave us last year at page 660. And having entertained an absurd expectation, it was not the less absurd to feel (as I really did) a sense of disappointment when I found the learned man discoursing on storage of force instead of probing, as I had hoped he would, into the bowels of the earth. It is well perhaps that lovers of gardens should be occasionally reminded of the many and great opportunities for the study of nature their gardens afford them, not only as to the trees and flowers and birds, but of the earth beneath, and the waters under the earth. A very considerable progress in the study of geology may be made in any garden, and as a matter of course in some gardens more than others. When I have been wandering in mountainous regions I have thought of the singular attractiveness of the study of geology, because so many kinds of strata are

Oolitic and Tertiary periods, and he has been an assiduous collector of common pebbles bearing casts of echinites, remains of sponges, ventriculites, and other such things. Amongst these are some extremely beautiful objects: one little fossil, indeed, he has had mounted in gold to attach to his watch-chain, and several of the larger ones would make elegant brooches and cabinet ornaments. Proceeding from this to the artist's unseum, I was there entertained with a display of prehistoric implements and ornaments, very many of the stone celts, arrowheads, and knives having acquired beautiful iridescent colours or crusts of lichen growth through the effect of the atmosphere upon them during thousands of years. So far we have points of interest, but the *one* point that fixed my attention was the fact that these gentlemen had, during many years' hunting for the things their minds were set upon, visited the same gravel pits, grubbed at the same heaps of roadside gravel, and scrutinized, in the way of people who have lost something, the same gravel roads and depositories of flinty rubbish. The naturalist had never found in the places frequented by both a single flint implement, and the ethnologist had not found a single echinus, or taken any special notice of the spicule of sponges. It is said the lover can behold only



SPICULES OF SPONGES [AND VENTRICULITES FROM GARDEN GRAVEL.

exposed to view, as we traverse the country and observe railway cuttings, and landslips, and quarries, and the natural peaks and caverns, many of them displaying the work of Time in destroying as well as the power of Nature in building up. But great was my surprise one happy day in the not-long-ago to discover that in the heart of London, where one may say there is no opportunity for an appeal to Nature on the subject of geology, there are nevertheless many and golden opportunities. The museums undoubtedly offer us immense and ready aid, but their help, though precious, is all at second hand. One day, when making some business calls in a northern suburb, I visited two gentlemen, who both possess good private museums, which are none the less worth exploring that they are on a limited scale and restricted in range of subjects, and altogether unpretentious in their general fashion. Now, I shall make a revelation about these gentlemen and their museums that I consider of immense interest. It shows how we may train our eyes to the finding of certain things, and become almost utterly oblivious of other things that are of equal importance, and that we should actually prize if our attention were directed to them. The literary gentleman is rich in fossils of the

one face! is it not true—at least sometimes—that the man of science can see only one thing? or, say, only one thing at a time, and is apt to be blind to things that really ought to interest him? I confess I often think of these two when I come upon a heap of newly-deposited gravel-stones, and endeavour to find both natural and artificial objects, and occasionally make a find that I value. But the two collectors I have referred to gave me the impetus, and I made many a search before I knew how to detect amidst a heap of shapeless pebbles the one beauty on which was written a true chapter of the real history of the life of this glad old planet.

Having been favoured with the subjoined cuts from drawings by the Rev. H. Eley, I wish to introduce to the reader his interesting little book, called "Geology in the Garden," published by Bell and Daldy. Mr. Eley treats the subject in a thoroughly scientific manner, with the aid of maps, sections, and figures. The phenomena of the glacial period and the transport of boulders, the successive depressions and elevations of the land, and the former connexion of Britain with the continent of Europe, are learnedly but most agreeably discoursed upon in this charming book; and we are enabled to connect our fossils of the cretaceous rocks with the scenes and circum-

stances of their origin. Mr. Eley has in view one amongst many practical lessons, and this one is that in every garden considerable progress may be made in the study of geology, and the collection of fossils and casts from the gravel of the garden path is one great step towards genuine study, as also in the acquirement of a real interest in the subject.

In the group of objects presented, figures 1 to 11 represent various spicules of sponges. They are greatly magnified, their natural appearance being that of sparkling sparry dust. By cracking a flint pebble with a hammer we may often obtain from within a grand collection of these spicules, which in truth were the original skeleton of the sponge around which the flint was formed. Figure 12 is a common ventriculite, or "fossil mushroom." The ventriculites are zoophytes allied to the sponges, of which there were many species in the seas in which the chalk formation was deposited. In Mantell's "Geology of Sussex" these are treated of at length. In figure 13 we have probably another species of ventriculite penetrated by distinct foramina around the superior margin, the symmetrical arrangement of which suggests its organic origin. Those who will diligently hunt will not fail to find amongst the commonest garden pebbles very distinctly-marked fossils and casts of fossils, equal in beauty to those now figured, or those figured last year at page 660. S.

ROYAL ACADEMY EXHIBITION OF PICTURES BY OLD MASTERS.

By old masters we are now to understand painters that have passed away, without regard to epoch, era, date, or school. In this exhibition we find pictures by Wilkie, Turner, Constable, Sir Edwin Landseer, Van Os, George Vincent, and James Ward; all painters, as one may say, of yesterday, and all representing scenes and habits with which the present generation is or should be fairly well acquainted. Perhaps of this latest group of "Old Masters" Wilkie takes us more completely into the past than any, because the life of his pictures rests on local customs, costumes, and orders of thought that undoubtedly have passed away with the genius who delighted in depicting them, for the hypercritical may be assured that Wilkie could put "orders of thought" into objective form, as well as customs and costumes, and representative personages. But this is an exhibition of old masters for all that, and a very delightful one and quite up to the annual average, although most certainly it contains no starters, unless Romney's grand portrait of Catherine Lady Rouse-Boughton, full length, white dress, elegant figure, showy, but queenly countenance, that occupies the exact position in Gallery III. where a full-length in white dress appeared last year, and turned the brains of a lot of susceptible people. Yes, this is a grand exhibition, numbering 275 works of art, not one of which will the world willingly let die. Those who can enjoy a feast of first-class pictures, without regard to any particular school or prejudice, will do well to see this collection while there is yet time, for as a matter of course the same lot of pictures will never be brought together again.

The three great guns of the exhibition are Sir Joshua Reynolds, Gainsborough, and Romney. There is but one picture by Canaletto, only two by Botticelli (and horrid things they are), only one by Landseer, only one by Sir Thomas Lawrence, only one by Mulready, only one by Isaac Van Ostade, only one by Piombo, only one by Nicholas Poussin, only one by Salvator Rosa, only one by Antoine Watteau, and only one by Johann Zoffany. But these make a gallery, and happy the man might be who could possess them. But there are four Calcotts, three Claudes, five Constables, seven Cuyps, fifteen Gainsboroughs, three Hals, three Hobbemas, three Holbeins, six Morlands, three Murillos, four Ostades, four Paul Potters, two Raffaelles, six Rembrandts, twenty-four Reynolds, fourteen Romneys, six Rubens, two Ruysdaels, four Jan Steens, nine Teniers, four Turners, five Wilkies, seven Wilsons, and four Philip Wouvermans. The making of galaxies cannot be spoken of as one of the lost arts—they are made here by the wise directors of the Royal Academy.

The exhibition is so rich that it seems a folly to particularize, more especially as tastes differ. But we will venture to say that many will, with us, enjoy immensely Colman's Sea-piece (14), Landseer's Bull (20), Gainsborough's Landscape (18), Morland's Fruit Seller (25), Wilson's Landscape (48), and Constable's Mill (52), which are in the first gallery. In the second gallery probably the favourites will be Jan Steen's Marriage Feast of Cana (55), wherein all the people are as Dutch as possible, and several of them more drunk than desirable. Teniers' Skittle Players (59), Hobbema's Landscape (62), which is very Ruysdaelish; Rembrandt's Daughter (63), a grand bit of solid earnest painting; Mierevelt's Portraits (60 and 67), Potter's Landscape (69), Van der Neer's Skating (73), Teniers' Kermesse (88), a really glorious picture, and one of the rare gems of which the Queen is so rich in the gallery at Buckingham Palace. Gallery III. is the great room. Here are such grand things as Van Dyck's Clipping of the Wings of Love (125), a gorgeous idyll; two fine decorative designs by Sir Joshua, entitled Charity and Fortitude; Murillo's Immaculate Conception (135), a copy of one of the noblest pictures in the world; Gainsborough's Cottage Door (172), and a couple of Turner's and another Constable. Beyond, there are gems and jewels, but of less importance than those in the first three galleries, and so any one reading this may know where to find an hour's delight in the best shilling show in the world.

THE FRUIT OF THE PRICKLY PEAR.—Our correspondent Mr. H. M. Chichester writes:—"The allusion to this fruit in the review of Mr. A. Smith's 'Garden of Hyères,' reminds me of what used at Gibraltar to be thought the correct way of eating it, at least by those who, as Mr. Pumblechook would say, 'cared for such simple fruits of the earth.' The pears were to be picked before the sun was up with the dew well on them, and the prickles were skilfully and carefully removed with a sharp knife, or, better, with the aid of a fork and a pair of tweezers. If not eaten at once the fruit was laid by in a cool dark place until required, when the tops were sliced off, and the pulp, which thus treated certainly possessed a very grateful refreshing coolness, was scooped out with a spoon. Perhaps in England we do not always attend enough to the right temperature of fruit at the time of eating."

Calls at Nurseries.

MESSRS. J. CARTER AND CO.'S NURSERIES, FOREST HILL, S.E.

THE extensive nurseries of Messrs. J. Carter and Co. at Forest Hill are, it need hardly be said, rich in the various tender and hardy plants which usually have a place in first-class establishments, and they contain several special features of great interest to those who are engaged in horticultural pursuits, and to a few of the most important of these we shall briefly refer.

It is probably well known to most of our readers that for many years past the Messrs. Carter have devoted much time and attention to the improvement of the Chinese primula, and the notices that have appeared in these pages from time to time will have conveyed some idea of the success with which their labours in connexion with these beautiful flowers have been attended. It may perhaps be well to state, first of all, that they have not only been successful in improving the size, shape, and quality of the flowers of the white and crimson strains or types, but they have, by judicious manipulation and careful selection, succeeded in introducing several colours that are alike remarkable for their distinctness and effectiveness. There are, for example; Royal Purple, which in its shade of rich crimson-purple is unequalled in depth; and Vesuvius, a bright scarlet variety, which was one of the first of the brilliant-coloured primulas introduced, and is still one of the very best. But the most important of all at the present moment is the blue variety Holborn Gem, which is unquestionably the most distinct break that has yet been obtained. It must not be supposed that it is the result of chance; and it may perhaps be useful in removing some misapprehension, and in conveying a lesson not without value, to state that it represents much judgment and considerable labour. The first plant producing flowers of a blue colour was very different to the superb strain now in the possession of the firm. It was not overstrong in growth, the flowers were comparatively small in size, and the colour decidedly pale, and moreover it produced very little seed as compared with the other strains. After an experience extending over two or three seasons, it became evident that but little success would be obtained from depending upon the blue variety as a seed-bearing parent, and in putting the conclusions arrived at into practice one of the best of the dark crimson types was selected for seed bearing, and the flowers were fertilized with pollen from the blue form. As the result of this cross two very distinct and remarkably fine strains were obtained. One a type representing the pollen parent, but very much improved in growth, and bearing flowers larger in size, stouter in substance, and of a much deeper and more effective shade of blue. The second type partook of the character of the female parent, and now forms a splendid strain with rosy pink flowers. Subsequently, in dealing with the blue variety, close attention has been paid to still further increase the dimensions of the blooms and the vigour of growth and to deepen the colour, and so successful have been the endeavours that the strain, as may now be seen at Forest Hill, is equal in the matter of habit and quality to the very finest of the white, purple, or crimson strains, and bears withal flowers of a very rich shade of lavender-blue. There are at the present moment about five hundred plants, all of which have been raised from seed, in bloom, and, as they are remarkably uniform, and the flowers are produced in large trusses and borne on stiff erect stalks, the effect is exceedingly striking and beautiful. The second of the two types is to be known as Rosy Morn, and is so thoroughly good in every respect that there can be no doubt as to its at once acquiring a high degree of popularity and taking a foremost position amongst the leading strains. The flowers are of a particularly rich shade of rosy pink, very large in size, stout in substance, and, as in the case of the blue variety, they are beautifully fringed, and borne in splendid bouquets well above the foliage. Of this there are from five to six hundred plants in full bloom, and wonderfully effective they are. The general stocks of the other varieties are not yet in bloom, as in growing primulas for the supply of seed the best results are obtained from plants flowering in March. The examples grown for trial purposes are just coming into flower, and as the trial comprises nearly every variety or type at present known, it will form a feature of considerable interest for a month or six weeks hence.

In the pits we made note of a splendid stock of *einerarias*, which in due course will add materially to the attractions of the nurseries, and in other structures we saw, amongst hosts of other things, a stock of the new double white *bouvardia* Alfred Neuner, comprising about 10,000 plants. This variety, which was introduced to this country chiefly by Messrs. J. Carter and Co., is of unquestionable merit both for private and market gardens, for it is most profuse in blooming, and the flowers are of the purest white, and perfectly double. As it has a slight tendency to revert back to the single form, and some shoots will occasionally produce single flowers, no plant is sent out until it has flowered. In the stoves some large and exceptionally fine importations of cycads from the Cape were conspicuous, and outside the magnificent double primrose Cloth of Gold, introduced by the firm a few years since, was already producing a few of its immense flowers, which are of the same colour as those of the ordinary single primrose. As indicating the high appreciation in which this charming spring flower is held, it may be mentioned that it is necessary to maintain a stock comprising from eight to ten thousand plants.

WEATHER PROGNOSTICS.—I was overtaken on December 24, 1881, by a well-to-do energetic native of Cornwall, who has lived many years in this place, when I opened conversation by remarking, "It's a cold morning." "Yes; but I know'd the night afore last there was going to be a change." "How?" "I saw the two moons." "The two moons!" "Yes; a kind of dark moon behind the other, and a little to the left of 'em. I could make out the shape of 'em quite plain; and I said, says I, there'll be a change. It mayn't be much, but there'll be a change." The moon was new at 5h. 7m. a.m. on the 21st, and he had seen "the old moon in the new moon's arms." "There's many little things," my informant added, "that tell what kind of weather there's going to be, and I take notice of 'em, and find 'em very useful. For instance, whenever a planet passos the moon there'll be a change of weather, especially if the moon rides the planet." "Do you mean if the moon is above the planet?" "Yes; 'tis worse then. 'Tis bad enough either way, but worse when the moon rides the planet." I feel confident that by a "planet" my companion meant any conspicuous star.—WM. PENGELLY, in *Notes and Queries*.

A NEW MODE OF GROWING POINSETTIAS.

By ROBERT OUNDRIDGE, Church Walk Nursery, Stoke Newington.

In complying with the request that I should give a brief description of the way in which poinsettias are grown here, it is not necessary that I should dwell upon their value for decorative purposes during the winter season, or suggest that they should be more extensively cultivated than is at present the case. Their usefulness is generally acknowledged, and in most gardens that are furnished with suitable conveniences they are generally grown. We do not so much want the poinsettias to be grown more extensively as we do to see them cultivated with more success, for in taking into account the many indifferent examples that are met with every season it is impossible to avoid arriving at the conclusion that a very considerable proportion of the growers, especially in private gardens, have much to learn before they can produce first-class specimens. Judging from the plants we see in going about, the majority of those who take the poinsettia in hand consider a poor compost best suited to it, and that an abundance of air and light, if not injurious, is quite unnecessary, for the spindling objects which are so plentiful show to the experienced eye that they have been subjected to what may be well described as the starving system. If growers could be persuaded that poinsettias can only be had in perfection by providing them with a generous compost, and placing them where they can enjoy from a very early stage a free circulation of air and full exposure to the light, we should very soon see results very different and far more satisfactory than those now so frequently obtained. In private gardens the mistake is often made of placing the plants in a stove containing a mixed collection when they are first potted off, and keeping them there throughout the summer under the impression that it is the best place for them; and to this mistake are many of the failures due. So far from the stove being the best place, it is quite unfitted for them, as when associated with the subjects usually occupying the stove it is practically impossible for them to enjoy a sufficiency of either light or air. They should have a structure wholly or in part to themselves; and, as a pit of very moderate dimensions will suffice for the accommodation of a comparatively large stock, there ought not to be much difficulty in most gardens in placing them under the conditions most conducive to their welfare.

With these few preliminary observations, which I hope may have the attention they deserve, I shall proceed to deal with the details, and before proceeding to speak of the new mode I shall lightly brush over the old one, which still remains the most generally useful. The work of propagation should, as a rule, commence early in May, and in the meantime the old plants from which the supplies of cuttings are to be drawn must have a thorough rest, and be then started into growth, as it is from the shoots of the current season that the cuttings are made. A stock may be raised from eyes of well-ripened wood, prepared and struck in much the same way as the eyes of the grape vine; but those who have not had much practice will find the cuttings the least troublesome. I shall therefore confine my remarks entirely to the latter, with the exception of stating that the eyes should be inserted a month or so before the cuttings. In dealing with the old plants the first step will be to dry them off gradually, after the heads of bracts have been cut or have lost their brightness; the next step will be to place them under the stage, or in a corner of the stove, where they will not be too prominent, and lay the pots on their sides. In this position let them remain until the first week or so of April, when they must be started into growth to ensure a crop of young shoots sufficiently advanced for furnishing cuttings at the beginning of the month following. It is simply necessary to bring the plants from the place occupied during the resting period and stand them in a light position in a house or pit in which they can have the assistance of a temperature of about 70 deg. No repotting will be necessary, as the plants will be destroyed as soon as enough cuttings have been obtained, and those to be grown on a second year ought not to be disturbed at the roots until they have begun to grow freely. They will require moderate supplies of water, and to be syringed overhead with tepid water once or twice a day. Very little water will suffice at the roots until the young shoots begin to push freely, and then it must not be more than will maintain the soil in a nice moist state.

The cuttings when from two to four inches in length should be taken off rather close to the base, and be inserted singly in thumb pots filled with a slightly sandy soil, and be then placed on a brisk hobbed in a frame, in which they can be kept rather close. With proper attention to shading, watering, and air giving they will be well rooted in from two to three weeks, and may be removed to rather cooler and more airy quarters previous to their being shifted into pots of larger size. The propagation of poinsettias may be carried on from the first of May to the middle of the month following, but in gardens in which a moderate stock only is required three batches of cuttings should be struck—the first at quite the beginning of May, the second a fortnight afterwards, and the third at the end of the month or early in June. By taking this course the cultivator will have in the November following plants ranging from twelve inches to four or five feet in height. Unlike most other plants, poinsettias cannot be stopped without serious injury; and as they continue to increase in height until the autumn, it is only by striking the cuttings at the end of May or the beginning of June that dwarf plants with single stems can be obtained. The dwarf plants are exceedingly useful for indoor decorations, but they ought not to be grown in undue proportions as is often done. For the stoves and warm conservatories plants ranging from two to four feet in height are of great value for associating with other subjects; and it should be borne in mind that it is only from those raised from cuttings struck early in the season and grown on in the most vigorous manner that full-sized heads of bracts can be obtained. Under a good system plants in forty-eights will produce nice heads, but they cannot for a moment be compared with the magnificent examples borne by plants three or four feet high and with stems as stout as a man's thumb.

The young plants will be in proper condition for repotting in a very short time after they are removed from the propagating pit; and as it is most important not to keep them starving in a pot-bound state at this stage, they ought to have attention immediately it is required. The compost we use for the first and subsequent repottings consists of mellow fibrous loam and well-rotted manure mixed together in the proportion of four parts of the loam to one of the manure, and in this the growth is as satisfactory as could be desired. From the pots in which the cuttings were struck transfer to others five inches in diameter, and be careful to provide efficient drainage. After the first shift the repottings must be regulated by the period at which the cuttings were struck and the purpose for which the plants are required. Those forming the first batch should be shifted into eight-inch pots and the second batch into six-inch pots, the repotting of both to be done as soon as the plants are well established. The third batch of plants should remain in the forty-eights, as if shifted on they will not grow to a very large size, and by their remaining in the small pots they can be kept to a height most suitable for the embellishment of the side-board or dinner table, or the decoration of the drawing room. They are also useful for supplying small bracts for arrangements of cut flowers. At the first shift they will receive considerable assistance from the pots being stood upon, or partially plunged in a bed of fermenting materials, but later on bottom heat is not necessary.

We will now proceed to speak of what, for all practical purposes, is a new mode of growing this famous plant. This can be described in a very few words, but it is nevertheless of considerable importance to those who have to produce liberal supplies of bract heads for decorative purposes in a cut state. Practically it is more simple than the old method, for the plants have only to be grown during the earliest stage in pots, and then they are turned out and planted in a bed of soil made up in a light and roomy house. They are raised from cuttings in the usual way and brought along in pots, and about the middle of June they are planted a foot apart each way in a bed of rich soil. The bed is made up in the middle of one of the large span-roof houses, and raised well above the level of the pathway. The compost used is prepared similar to that advised for the pot plants, and the bed is made nine or ten inches in depth, with a layer of some rough material underneath to carry off the superfluous moisture. In arranging the plants the tallest are, as a matter of course, put in the centre. After they are planted out the management is much the same as for those in pots, but they require much less attention, and they make a robust growth and produce heads of bracts of immense size. In the course of the season they form a solid mass of deep green leafage, and when the brilliant scarlet bracts are fully developed the effect produced is of the most striking character.

An excessively high temperature is not required by poinsettias, whether in pots or planted out, during the summer season, and they ought not to be subjected to it. The best practice is to remove them to a light house or pit on their receiving the first shift, and to employ no more fire heat than is necessary to maintain a genial temperature. Very little, if any, fire heat will be required in bright sunny weather, but when dull and cold sufficient must be employed to prevent the temperature falling below 70 deg. by day and 65 deg. by night. The house or pit must be ventilated freely when the weather is favourable to air giving, and during July and August a little air should be left on at night as well as day, even if fire heat has to be employed to maintain a proper temperature. A stout short-jointed growth is of the first importance, and it is only by the practice here briefly described that it can be obtained, with the consequent result of heads of immense size in proportion to the dimensions of the plants. As the autumn comes on it will be necessary to employ fire heat regularly, and from the beginning of the autumn season until the bracts are produced the temperature should range from 65 deg. to 70 deg. by day, and from 55 deg. to 60 deg. by night, according to the period at which they are wanted at their best. The supplies of water must be rather liberal at the roots, and the plants be syringed overhead once or twice a day until the end of the summer, when the syringing should be discontinued and the supply of moisture to the roots be somewhat reduced.

To produce bush specimens, it is necessary to grow the plants on a second year. Thrifty examples should be selected, and where there are any that have branched naturally, as they sometimes will do, they should have the preference, as a much larger number of breaks can be obtained from them. The plants selected must be pruned rather hard back early in the spring, and be started into growth in precisely the same manner as those for furnishing the cuttings. As soon as the shoots are from one to two inches in length, turn them out of the pots, shake most of the soil from about the roots, and then put them into pots of the same size or one size smaller. They must remain in these until they are well established, and be shifted into pots one or two sizes larger, but those in a thrifty condition should have two sizes, more especially if when shaken out they were put into pots smaller than those from which they were taken. These can have the shoots tied out to give the leaves plenty of room and form nice bushes, or compact specimens may be had by tying down the shoots when they are somewhat firm, and so arranging them that there will be an equal distribution of bracts over each plant. Some amount of practice is necessary in tying down poinsettias before it can be done nicely, and it is a good plan to begin with a few plants.

In the matter of watering, temperature, compost, and other details, the examples kept over a second year require the same attention as in the first season, and therefore the general management need not be further alluded to.

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland's Odonto, the purest, most fragrant, and non-gritty tooth-powder ever made. The hair also may be kept beautiful, soft, pliable, and glossy, and its liability to fall during, and become dry during the damp and fog of winter may be arrested by the regular application of Rowland's Macassar Oil. Sold everywhere.—[ADVT.]

PACHYSTOMA THOMSONIANUM.

THIS beautiful dwarf-growing orchid, which Messrs. J. Veitch and Sons have been successful in introducing from the West Coast of Africa, is in general appearance not unlike the pleiones, but it is perfectly distinct in growth and other particulars from them. The illustration given herewith so admirably represents the habit of the plant and the character of the flowers that very few words will suffice to indicate its distinguishing characteristics. The leaves are dwarf and membranous, and the flowers, which are produced during the autumn months, are of medium size and have pure white sepals and petals and a bright purple labellum, the column marked with brown. With reference to this charming acquisition, Sir J. D. Hooker, in the description accompanying the plate in the *Botanical Magazine*, t. 6, 471, justly observes, "The subject of the present plate is a very lovely one; its graceful form, and the purity and brilliancy of its white and the vividness of its red, render it one of the most beautiful orchids of its type and habit, which remind one a good deal of some *coelogynes* (pleiones)."

THE AURICULA AND POLYANTHUS.

By JAMES DOUGLAS.

WITH the advent of the new year, especially if the weather be mild, these very pretty spring flowers begin to demand more attention than they

than good. Remove an inch or less of the surface soil, and press the fresh dressing on rather firmly. After the plants are surface-dressed, the frames must be well protected with mats at night to prevent injury from frost. I find the flowers open best in a heated pit or greenhouse, keeping them near the glass of course, and admitting plenty of air, but taking care that cold winds do not blow directly on the plants when the flowers are opening, else many sorts will not open out flat. Heaps's Smiling Beauty, Hepworth's True Briton, and a few other flowers are very stubborn in this respect. During the spring months the seedlings intended to flower next year will be bursting into life, and must be very carefully attended to. They should be pricked off in a very early stage of their growth and grown in frames, pricking them off and repotting them as they require it; for unless they are really well grown they will not flower strongly next year.

The polyanthus is a very near relative of the auricula, and seems of the two to make up into earlier growth and bloom. We surface-dress our polyanthuses at the same time as the auriculas, and they also require to be kept rather more moist at the roots during mild weather in winter. Of the two the polyanthus is perhaps the more hardy plant, as it stands out of doors well in the north, although it refuses to thrive planted out with us near London. Our own plants were sadly debilitated owing to the great heat of last summer, which brought an attack of red spider. This very troublesome pest favours certain localities much more than others. In the Rev. F. D. Horner's garden, at Kirkby Malzeard, it is almost a stranger, and even spider-infested plants, when sent there, seem to re-



PACHYSTOMA THOMSONIANUM.

have done for the last two months. The weather has been so very mild this winter, that none of them seem to have had really a season of rest; and many plants that ought to have their trusses yet deep down in the centre of the plants and out of sight, as well as out of danger, are bearing their trusses aloft, and the flowers are gradually opening. Indeed, I may say, we have not been without auricula flowers since the exhibition in London last April. The auricula exhibitions have been fixed for a rather later date this year, the London one on the last Tuesday in April, and Manchester on the first Tuesday in May. The dates may be the best for all parties, as one cannot tell what the spring may be, although the flowers promise to be very early by their present appearance. No time should be lost in getting ready the material to surface-dress with, as this will probably have to be done earlier this year, owing to the more forward state of the plants. Nearly all the old outer leaves have now been removed from the auriculas, but there are still a few left that are likely to decay before it is time to surface-dress them about the first week in February. The surface-dressing is an important part of the culture of the auricula, and the compost should be rich; at least half of it should be rotten cow or stable manure, or, what is better, a mixture of both, also some good loam and a little sand. It is better not to dig too deep in amongst the roots; it is not necessary, and may do more harm

cover their health and vigour, and the pest disappears. Many persons fancy that red spider attacks unhealthy plants only. This is a great mistake. It appears on the strongest plants as well as the weakest if the season is favourable to its development. It should be washed off with soapy water to which a little tobacco water has been added. It is very pleasant to record the advent of a fine batch of new polyanthuses from Mr. Samuel Barlow's garden at Stakehill. We are likely now to have flowers that will equal, and perhaps surpass, those of the old days that we sometimes dream about but never see. I have just been reading the account of the Hull Floral and Horticultural Society in 1836, at which some very fine polyanthuses seem to have been exhibited as well as auriculas. Stead's Telegraph and Crownsham's Invincible are described as scarlet grounds. Both are now lost to cultivation. Dr. Horner was the principal prize winner, and he was awarded premium with Parson's Alexander. He had also premium for the auricula with Kenyon's Ring-leader. The only red (or, as old florists were pleased to term it, the scarlet) ground left to us is Lancer (Bullock). Kingfisher, a very fine flower I once saw in the garden at Kirkby, is gone also. Mr. Barlow's new flower Sunrise, so well figured in the *Florist and Pomologist*, is a long way ahead of any red we now have, while his Critorion and John Bright will hold a leading place in the black grounds of the Cheshire Favourite type.

Notes of Observation.

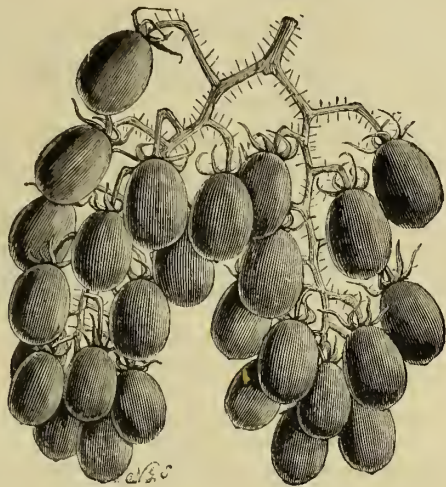
NISBET'S VICTORIA TOMATO.

In a visit to Aswarby Park, I saw a remarkable display of tomatoes. Mr. Nisbet, the gardener there, has raised a variety which he has named *Nisbet's Victoria*: it is a seedling from Vick's Critterion, and, like its parent, has a decided tinge of blue in its rich red colouring. The fruit is quite smooth, elegantly oval, and is produced in immense bunches. The plant is a most vigorous grower, and is well adapted to train up the rafters in the fashion of a grape vine, and it is admirably adapted for winter fruiting where the conveniences exist for its accommodation. For summer fruiting however it will, I am sure, prove one of the very best for the gardener, and will be as acceptable on the table as in the kitchen because of its beauty. A more fruitful variety will not be found, nor one better adapted for all the purposes for which tomatoes are cultivated. W. B.

[We are indebted to Messrs. Charles Sharpe and Co., of Slough, for the three figures illustrative of our correspondent's note. Messrs. Sharpe have the stock of this new tomato, and it will be found duly entered in their seed list for the present year.]

EARLY RADISHES.

Very many country gardeners suffer themselves to be beaten by the markets in early and delicate saladings. It is not well to endure this, for employers see the pretty things for sale, and they say, "Why should I not have such and such fresh from my garden?" It is simply surprising what may be done now by the aid of a well-made hotbed, more especially in raising radishes and other quick-growing saladings. The bed should be of some size, and made of stuff several times turned, and allowed to settle a little and gather a steady heat, and then the seed should be sown on a thin bed of very mellow loam. If the heat is too strong the whole affair will be a failure; a very gentle but steady warmth is required, and any old frames that are fairly weather-proof will answer. Air and light will very materially promote healthy growth; but, as frost will do mischief, the means must always be at hand for covering up and tiding over a bad time. The *French Breakfast*



BUNCH OF NISBET'S VICTORIA TOMATO.

Radish and the *Early Rose Turnip Radish* are the best for forcing. The same bed will accommodate roots of Chicory and Whitloof; and there may be sowings made of Corn Salad, American Cress, Mustard, and Onions for quick supplies that will be appreciated wherever spring salads are in request.

W. B.

THIBAUDIA CORONARIA.

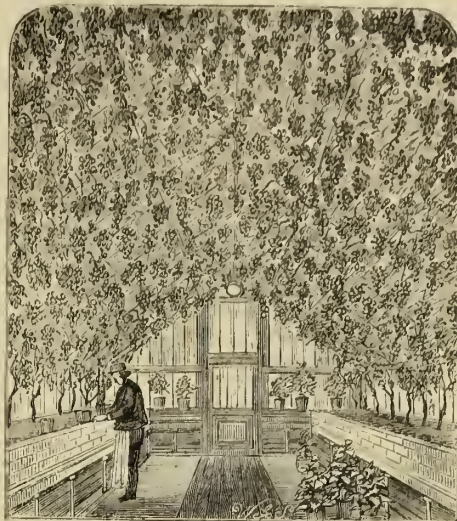
This is comparatively unknown as a winter-flowering plant, and indeed no species of *Thibaudia* can be spoken of as well known. But it is a grand thing, although allied to the humble whortleberries. The growth is erect and elegant, the leaves deep green and glossy, the flowers pendulous, tubular, about an inch long, the colour deep red, and they mostly appear in pairs. This is a true greenhouse plant, flowering naturally in winter without the aid of stove heat, and requiring no peculiar taste for the appreciation of its beauty. It requires a compost of sandy peat and light loam, a moist atmosphere, and in winter warm greenhouse temperature. Under reasonable treatment it is one of the finest greenhouse plants in cultivation. W. B.

ORNAMENTAL-LEAVED BEGONIAS IN THE WINDOW.

When at the seaside last autumn, as is my custom, I found in my apartments a very nice stand of various flowers in pots. The stand was in the front room facing west, and one of the plants that pleased me most was a fine specimen of begonia with ornamental leaves. As I could not learn the name from the landlady of the house, I begged a small portion of a leaf to send home to my gardener, who immediately recognized it as *Begonia Rex*. On inquiry I found that the plant had been in the same room and in the same pot for nearly two years, yet it was in excellent health, and was growing as well as any one could wish. It had large finely-developed leaves, and they were as perfect in their quiet colouring as any I had ever seen grown in a greenhouse. Indeed, I was surprised to see the healthy condition of all parts of the plant. It struck me that those who are fond of having flowers in the window, and have no other place to grow them, might like to know what a suitable plant this begonia is for that purpose. I have been talking to my gardener about it since I came home, and he tells me he is afraid it would not do so well in a window that faces south, unless the blinds are drawn down when necessary to shield it from very bright sunshine. No doubt there are others of the same class of begonias that would do as well as the one above named. LAURA L.

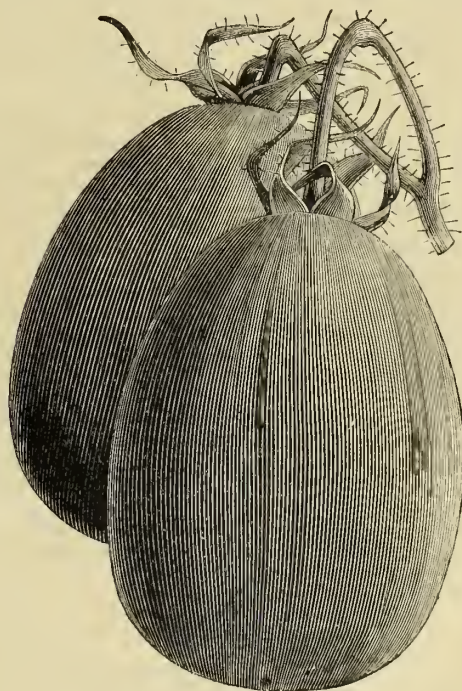
VINES IN THE GREENHOUSE.

For some time past I have not read more sensible remarks on grapes growing than occur at page 762 of the last volume of the *GARDENERS' MAGAZINE*, in which the "Vicar's Gardener" gives advice respecting the cultivation of the grape vine in the greenhouse. He alludes to the difference of opinion amongst practical men as to the expediency of growing grapes and ornamental plants in the same house, and then, in thoroughly sound practical advice, shows how it can be done by planting the vines from six to



TOMATOES GROWN AS GRAPE VINES.

seven feet apart, instead of four feet, as is commonly practised, and by training the laterals somewhat closely to the main rods. To my mind this is just the secret of growing grapes in such houses; but the misfortune is that most people want the full complement of both grapes and plants from the same space, and then they meet with the failure of one, if not both. The idea of expecting flowering plants to do well under vines that are planted four feet apart, and so trained that the branches cover the roof, is altogether an erroneous one; but if they will follow the advice given them they will obtain much better results. My advice to those who have vines and plants in the same house, and the vines four feet apart, is to dig out every other vine. I am quite sure they will not regret doing so; for it will be found that the vines left will do much better, and the plants beneath them make a more satisfactory growth. I have not preached the doctrine that plants and vines could not be grown in the same house, but I have pointed out the generally unsatisfactory condition of the occupants of such houses, and have advocated that the vines be put farther apart to give the plants underneath more light. The more experience I have gained in this matter, the



NISBET'S VICTORIA TOMATO.

more I am convinced that such a view of the case is right. There is not one word in the remarks of "The Vicar's Gardener" that is misleading, and when he said it was possible under good management to get 20 lbs. of grapes of fair quality from a rafter sixteen to eighteen feet long it was quite within the mark. But, so far as my observation goes, the border for the roots of vines in such cases is the worst part of the management. They are not as a rule sufficiently well prepared in the first instance, and they are afterwards frequently neglected altogether in the way of watering and top dressing. Occasionally the border has to produce a crop of vegetables or flowers, and when this is the case neither judicious planting at the right distance nor the most painstaking management inside the house will end satisfactorily. The roots must be cared for as well as the branches to insure a full measure of success. J. C. C.

HARDY ROSE CULTURE.

By WILLIAM H. SPOONER, Chairman of the Committee on Plants and Flowers,
Massachusetts Horticultural Society.

IN looking at a subject so extensive as rose culture from the little spot which limits my own efforts in that direction, I can only offer hints which may be useful to the inexperienced, but can suggest nothing of special value to the professional grower.

It is generally supposed that to attain even a moderate measure of success in the rose garden, all advantages of soil, scientific appliances, &c., are essential; but the amateur will find very satisfactory results even when those conditions are not carried to great perfection. The soil of my garden is not particularly adapted for the growth of roses, being a light loam with a gravelly subsoil, yet from this apparently uncongenial source I succeed in growing a great many very good roses. I am not an advocate of the deep trenching or subsoiling system in the preparation of the ground, considering it entirely unnecessary.

My system of planting was very simple at the outset, the land being already in a good state of cultivation. First preparing myself with a sufficient heap of well-rotted horse manure, the space assigned for the plants was covered with a portion of the compost, spread broadcast, and then thoroughly ploughed in. I may mention here that I have at other times made use of hen manure, mixed with about one-third soil, and consider it a good fertilizer for the rose. The ground was then laid out in rows three feet apart, and the same distance between the plants; the holes for their reception were prepared by throwing out the soil to the depth of one spade from each, and then throwing in two or three forkfuls of manure, thoroughly incorporating it with the soil to the depth of the spade, when all was ready for the plants.

My plants are all the so-called dwarfs, worked low upon the Manetti stock, which I prefer to the Prince's or seedling brier, as it seems better adapted to my light soil. I judge the latter stock may be better suited to a stronger or clayey soil; at any rate, all the plants I had worked upon it have died. My plants were imported, and not received until about the 10th of December, when the ground was closed; so that I was obliged to keep them in snug winter quarters, bedding them carefully into a frame, protecting them very closely with leaves, and covering the frame with boards. They came out in splendid condition in the spring, and were planted with hardly an exception to successful growth, which result has led me to prefer the spring for planting in our uncertain climate, and I have continued to make small experiments of the same kind yearly since my first venture. Having cut back the plant to two or three buds, the stock should be planted with the collar about two inches under the surface, and the soil pressed very firmly about it. Through the summer I apply guano to the surface occasionally—a handful or two to each plant—sometimes in a dry state, and sometimes in water. I use frequently in summer a top dressing of brewers' spent hops, strewn broadcast, not digging it in: it helps to keep down weeds, and has many advantages.

The rose, in a healthful growing state, is a great absorber of water, and the free use of the hose morning and evening has been my most reliable assistant in promoting its health and in freeing the plants from insects. Every fluttering leaf of the plants seems to rejoice as the cool water showers down upon it, and the clean fresh foliage greatly enhances the beauty of the blossoms which it surrounds. But insects are ready to invade every domain of horticulture, and are especially destructive to the perfection of the Queen of Flowers; some of them may be overcome, but as regards the rose-bug or rose-beetle I am in despair. The only remedy for this persistent plague that I have found has been the continuous application of the thumb and forefinger, and that with some severity.

It may be urged by some that the budded rose has entailed upon it the disadvantage of suckers, and endless care to prevent them; but actual experience proves this to be very slight. It is presumed that a lover of the rose is with his pets as often as possible, and these persistent thieves are easily detected and quickly destroyed. I cannot agree with those who claim that the maiden bloom is the best effort with the budded rose, as I am now growing plants on the Manetti stock which have been out eight years, and are producing as fine blooms as ever. The amateur wants results in the shortest time, and therefore must take the budded plant; if sunk deeply enough it soon becomes fixed on its own roots. Few of us can hope to rival the Madame Lacharme and Paul Neron of a Hayes, the Pierre Notting of a Gray, or the Horace Vernet and Charles Lefebvre of a Moore, but I am sure that the Manetti stock will give us an approximation to their high standards.

There is evidently a great difference in the constitution of hardy hybrid roses, as has been proved by success or failure under the varying influences of climate, soil, or stock, and as some results of my individual experience may prove suggestive, I append a list of a few which have been successful under my system of culture.

Abel Carrière.—Moderately vigorous; hardy; beautiful.

Alfred Colomb.—This superb rose is quite hardy and vigorous; its brilliant crimson flowers are unrivalled.

Beauty of Waltham

Bessie Johnson.

Charles Lefebvre.—A very strong and hardy rose; flower large, and beautifully formed.

Comtesse d'Oxford.—Hardy, vigorous, with fine large flowers.

Coquette des Blancs.—A white rose, and a truly perpetual bloomer until late in the autumn; a remarkably vigorous grower, and has proved hardy with me until last winter, when it was killed to the ground.

Dr. Andry.—Hardy, vigorous, and a free bloomer.

Duke of Edinburgh.—One of the strongest and most hardy.

Dupuy Jamin.

Eliza Boile.—Moderately vigorous; hardy, with a very delicate white bloom, shading to flesh colour.

Emily Laxton.—Vigorous; of a climbing tendency; hardy, and very desirable.

Fisher Holmes.

Jean Goujon.

John Hopper.—An old favourite; hardy, and a very fine bloomer.

Jules Margottin.—Of vigorous habit; very hardy, and still one of the best.

Lord Clyde.—A remarkably strong grower; hardy, and a very good rose.

Mabel Morrison.

Marie Baumann.—One of the very best; moderately vigorous, quite hardy, with large and perfect flowers.

Miss Hassard.—Vigorous, hardy; delicate flesh colour, very sweet, and a free bloomer.

Mme. Boll.—Perfectly hardy and vigorous; a free bloomer, and early; flower not the most perfect in form or colour.

Mme. Gabriel Luizet.—Vigorous; hardy; a free bloomer, and I think may prove one of the best.

Mme. Georges Schwartz.

Mme. Rivers.—A fine rose; moderately vigorous and hardy.

Mme. Scipion Cochet.

Mme. Victor Verdier.

Mme. Vidot.—Moderately vigorous; hardy; flower beautiful, and perfect in form.

Mons. Bonnefenne.—A plant of good habit, very hardy and vigorous; the best of its class with me.

Paul Neron.—Vigorous and hardy.

Pierre Notting.—Very hardy; of good habit, and a strong grower, but, alas! how seldom do we find a fully-developed and perfect flower; a bright sun apparently scorches the petals in the bud.

Princess Louise Victoria.

Sénateur Vaisse.

Sir Garnet Wolseley.—A thick bushy plant, rather short-jointed, moderately vigorous and hardy; its large vermilion flowers and profuse bloom are very attractive.

Souvenir de Charles Montault.

Thomas Mills.—Very hardy; a well-formed plant, of great vigour of growth; a very prolific bloomer; flowers very large. One of the best with me.

Triomphe de Caen.

Victor Verdier.—Always good and reliable.

I will now name a few varieties that have not proved hardy, or have been weak in growth, and less satisfactory in general results in my experience.

Cranston's Crimson Bedder.—This seems hardy enough, but is a very poor grower.

La France.—Almost invariably killed.

Louis Van Houtte.—Almost always killed. I only saved it one year.

Madlle. Bonnefenne.—Very beautiful and free in flower, but a poor grower.

Madlle. Eugénie Verdier.—A weak grower, although a beautiful rose.

Madame la Baronne de Rothschild.—Usually winter killed nearly to the ground, and is never a vigorous grower.

Madame Lacharme.—Very tender.

Prince Camille de Rohan.—Is not very hardy. I know this is not the general experience, but I have lost all my plants.

Madlle. Marie Rady, *Vicomte Vigier*, *André Dumand*, and *Captain Christy* have proved tender.

THE MOSS ROSE.—Turning now to the fairest of the rose family, we are reminded of the poetic allegory which accounts for its added beauty, by supposing an angel to have found repose beneath its branches, and to have wished to bestow some gift in recompense, but to have been scarcely able to devise any addition to its charms:—

The angel paused in silent thought:—

What grace was there the flower had not?

'Twas but a moment:—o'er the rose

A veil of moss the angel throws;

And, robed in Nature's simplest weed,

Could there a flower that rose exceed?

I must confess to a great love for this fascinating class, partly for the reason that my light well-enriched soil, with its natural subsoil drain of gravel, tends to bring it to full perfection, and partly because the delicate fragrance of the foliage is peculiar and unique. The ground for moss roses should be prepared in the same way as for the hardy perpetuals, with a larger application of manure; and I also apply a more liberal annual summer dressing during the blooming season. I have always found the moss rose more difficult to successfully transplant than any other, and it starts very slowly on its own roots.

All my moss roses are worked upon the Manetti stock except the common; these I prefer on their own roots. The varieties that have proved best with me are:—

Baronne de Wassenaer.—Perhaps the strongest grower of all; wood very dark and spiny, blooming in large clusters of buds; not as mossy as some other kinds.

Celine.—Hardy, moderately vigorous, spreading; foliage dark coloured, leaves rather small; a profuse bloomer, bud rather soft, and not very double. It would probably force well.

Common.—The best of all; fine double flower.

Crested.—The next best; very double.

Gracilis, or *Prolific*.—This resembles the Common, but has a longer bud.

Lanei.—A vigorous upright grower, and moderately free bloomer.

Perpetual White.—Moderately vigorous; colour pure white; buds small and short stemmed, in rigid clusters of from four to six; foliage pale green, leaves crisped. Not very hardy.

White Bath.—With me the best white.

The so-called perpetual mosses seem to me a myth as moss roses; they may be perpetual, but they possess very little moss, and the only variety that I have been able to save is Madame Moreau, which is a perpetual free bloomer.

The few suggestions I have endeavoured to present to you have been gleaned from personal observation in planting, tending, nourishing, and comparing, with results as here briefly stated.

DISCUSSION.

Hon. Marshall P. Wilder said that he came in specially to hear the essay by Mr. Spooner, who is a practical cultivator, as his ancestors were. Different soils suit different varieties of roses. He agreed with the essayist in regard to the bounty of the moss rose, but thought Lanei the best of all. It roots freely, while moss roses generally have few roots. Mr. Wilder stated that Mr. Thorburn, the New York nurseryman and seedsman, once returned an invoice of moss roses because they had no roots. Mr. Spooner's soil may have been less favourable to the Lanei than the speaker's. The latter desired

lists of the best roses, selected from the thousands on the catalogues, to save cultivating so many kinds; the lists to be composed of such proved varieties as Baron Prevost, John Hopper, Maréchal Niel, and Bon Silène, which hold on perpetually, and Safrano, which is the very thing wanted by the florists and connoisseurs. We are arriving at selections in other flowers, such as the chrysanthemum. In tomatoes, instead of the twenty kinds in cultivation, we want no more than four of the best. The first effort of the American Pomological Society brought down the list of fruits from thousands to a selection desirable for every garden.

John G. Barker said that his experience in rose culture had differed somewhat from Mr. Spooner's. Six years ago he made two beds of hybrid perpetuals, for which he dug out the soil to the depth of eighteen inches, and replaced it with a compost of equal parts of well-decomposed sods, horse manure, and cow manure. The varieties were selected from the roses exhibited in 1872 and 1873. There were thirty plants in each bed on Manetti stocks. The soil was naturally moist, and they were planted so as to root from the grafts. They made a most astonishing growth the first year, and the next spring were pruned severely, and the small wood was thinned out in summer. They made shoots higher than his head, which, when signs of growth appeared in spring, were pegged down to the soil. These two beds were solid masses of flowers; though not of the largest size, there were legions of them. He thought this the most satisfactory result, when, as in the present case, they were for the benefit of the public. Afterwards he made two more beds in the same way, first making diagrams and marking all the varieties on them, for the instruction of the visitors to Pine Grove Cemetery, Lynn, of which he is superintendent. He has never had a rose-bug on his roses, though they destroyed a pelargonium bed not forty feet away from the rose beds. High culture and vigorous growth may have kept them away. He has never been troubled with a rose-slug. He goes over the bed with a scuffle hoe every two or three days: this keeps the ground moist and the surface does not bake after rain, as it does when raked. He adopted this method of culture because he is obliged to choose the cheapest way. He pegs down the shoots after pruning off twelve or fifteen inches of the end, and never covers them. Madame Plantier is one of the white June roses, but needs a little covering, which is a good investment, for it forms a mass of flowers. He has two bushes of the old-fashioned red moss rose in soil which has not been enriched for eight years, but they form masses of flowers.

Charles M. Hovey said that for sixteen consecutive years he took prizes for the best thirty hardy June roses. Many of the old roses of twenty years ago still take the prizes. Bon Silène, Maréchal Niel, Général Jacqueminot, and John Hopper are all good, but have their defects. The best part of Mr. Spooner's paper is that in which he points out what have not succeeded with him. The speaker was the first to import the Madame Plantier, and had found it perfectly hardy, though it may be well to cover it in very exposed situations. The two things which the rose requires are the pump and the manure heap. Mr. Hovey thought the best English cultivators preferred roses on their own roots. All things, with rare exceptions, grow best on their own bottoms; grapes do best on their own roots. We must resort to stocks to rapidly increase the plants of varieties. There are some bad results from grafted roses—among others, suckers from the stock, which gain the ascendancy over the graft. He has a row of hybrid perpetuals, six or seven feet high, on their own roots. In selecting roses we should choose kinds which will stand our hot suns. Mr. Hovey spoke in favour of the class of roses known in England as "decorative roses"—hardy, vigorous, and abundant-flowering kinds; just what everybody wants, and not simply roses for exhibition.

William C. Strong had enjoyed Mr. Spooner's essay. He was surprised to hear such a young and progressive member of the society as Mr. Hovey opposing the introduction of new varieties, particularly since the wonderful progress of the past few years. In the English prize lists there are few varieties of more than ten or twelve years' standing. It is a laborious process to weed out the inferior varieties. He dissented from the views of those who thought it needful to keep fertilizers to rot down; much ammonia is lost during this process. The rose is a gross feeder and will take fresh manure; moreover, it wants a heavy soil, and old compost is light and makes the soil light. In making a rose border in his house he used green cow manure; the mixture laid two or three days and was turned over, and Manetti stocks were planted in the border in March and budded in June, and ripened eight or ten feet of wood. He had seen young roots of the Manetti stock strike into fresh cow manure. He would prefer fresh manure to old, but if he had had time when he made his border would perhaps have turned it over a little more. He dissented from Mr. Hovey's views in regard to stocks; weak growers are vastly benefited by grafting. Tea roses are benefited by being grafted on vigorous stocks. Such stocks impart a vigour to weak-growing kinds which they can never get on their own roots, as the *Magnolia acuminata* imparts vigour to the smaller-growing kinds grafted on it.

Mr. Wilder said that no one is more anxious than he for the production of new varieties. He carries all the time two camel's-hair pencils in his pocket, to be always ready to transfer the pollen from one plant to another. He has repeatedly exhorted to sow perpetually to obtain new varieties, and if he could go back fifty or sixty years, he would practise this more than he has ever done. The world moves, and he wants to move with it; and no one admires the enterprise of the president and others in introducing new roses and plants more than he, but he desires a consolidated list of such standard varieties as he had mentioned.

Rev. A. B. Muzzey said that he could not compete with practical cultivators, but he thought that the comparative value of old compost and fresh manure ought to be ascertained and settled in our discussions. Farmers used to let manure be exposed to the air, at an immense waste of ammonia; but they do otherwise now. He suggested experimenting with fresh manure, but would cover it with soil to save its fertilizing qualities. He remembered the two old roses, white and red, and questioned whether we had improved on them in beauty and fragrance. We should not throw away good things because they are old.

Mr. Hovey said that the best twelve tea roses would include the Maréchal Niel and Niphetos. No white tea rose comes up to Niphetos. Souvenir de Malmaison has never been excelled. It is the same with some of the old hybrid perpetuals. The old moss roses are the best. Princess Adelaide is a good grower and a wonderful bloomer. He would adhere to the good old varieties, and while he would test all the new ones, he would not rely on

them as garden varieties until they have been proved. He visited M. Laffay in 1844, and purchased the first Princess Adelaide Moss that came to America, and the first La Reines.

John B. Moore said that he could find no fault with the directions given in Mr. Spooner's paper. People find in books directions to make rose borders four feet deep of half manure, like Mr. Gray's, but the speaker thought we could do better by following Mr. Spooner's method. When he (Mr. Moore) began cultivating roses it was in a light soil, which absorbed too much water. He objected to clay to make it more retentive, and preferred the strata of very fine consolidated quicksand found in sand pits. They are so hard as to require a pickaxe to break them up, but if spread on the ground they dry and crumble, and when worked into light soils make them permanently more retentive. He agreed with Mr. Strong that roses are gross feeders; they cannot have too much manure. In answer to Mr. Hovey, Mr. Moore said that it was not necessary to have the same things over and over again. Mr. Hovey thinks that roses are best on their own roots, but a large proportion will grow stronger on Manetti stocks. The suckers are so unlike the grafts that any but the most stupid person can distinguish them, and fifteen minutes will suffice to remove them from a large bed. He plants his roses in rows four feet apart; walking between the rows compacts the earth so that it will not absorb rain, and instead of a rake or scuffle he uses a French cultivator drawn by a horse to stir it. He earths up the plants in autumn. Baroness Rothschild kills down to the earth-line. Madame Lacharme is worthless except to collect rose-bugs; they must be shaded; the bush will grow, but fails to give good flowers. In answer to an inquiry how new roses differ from the old, Mr. Moore said that many are more beautiful, and while few of the old roses bloom later than June, with the new ones we can have flowers from June to October, and a few roses in August, when they are scarce, are more desirable than many in June. He has three hundred varieties, but does not propagate above seventy-five. One will mildew; another may be beautiful but fail to grow; another may do both. Coarse strawy manure will lighten the soil more than old compost, and therefore should not be used. It is also objectionable as a covering, for if the wood is not well ripened it is apt to kill it, but after heaping up the earth ten inches high around the bushes in autumn he covers it with manure, to prevent it from freezing and thawing, and throws coarse meadow hay between the rows. Cold weather will not hurt them. There are two sides to the question of ammonia escaping from the manure heap; it is not always ammonia that we smell there. He did not approve of rotting down manure generally, but did not believe in any great loss in doing it.

Mr. Wilder said that our fathers did not appreciate the value of manure, as was shown by their laying it by the roadside to run to waste in the gutter.

President Hayes said that he had not so much experience in rose culture as many others, but he was satisfied that there is opportunity for progress. There is a future before us for the society—for the rose, and for the rhododendron. Mr. Wilder and Mr. Hovey, in spite of loving old things, know there is a future of progress before us. We have all looked with great interest on the new varieties of roses exhibited, and he had ordered all the new kinds, because he desired to have the future of the rose fully illustrated. Many of the very new varieties have succeeded with him; few have been lost in comparison with the whole. Madame Lacharme stood at the head of those with which he took the silver cup for the best three varieties, and though he had to pick rose-bugs from the plants, he produced what was said to be the most beautiful rose exhibited in the hall. He mentioned his success with this variety to show what can be done with a delicate kind. In one place the soil produces perfection in one kind and refuses to give another, and this wonderful adaptation exists so that every one can bring forth something beautiful. The rose is a gross feeder, and will bear fresh manure, and perhaps cow manure is best of all.

Joseph H. Woodford said that though he had had but little experience he had carefully observed the methods of others. He thought Mr. Moore's method of protection best. The soil should be hauled away from the plants, and the manure in the trenches should be forked in in the spring. Most of the tender varieties may be preserved in this way. The speaker had seen a similar method used by John C. Chaffin, one of the best rose growers. He sifted long straw among the bushes so as to afford partial shade in March and April, having found that the hot sun at that time spoiled the buds on the sunny side. Mr. Woodford read the following list of thirty roses noted by him as the best in the exhibition of 1880—

Alfred Colomb,	Jean Soupert,
Caroline de Sansal,	La Rosière,
Charles Lefebvre,	Mabel Morrison,
Comtesse d'Oxford,	Magna Charta,
Dr. de Chalus,	Madlle. Marie Rady,
Dr. Sewell,	Mme. la Baronne de Rothschild,
Duc de Montpensier,	Mme. Lacharme,
Duke of Connaught,	Mme. Prosper Laugier,
Dupuy Jamain,	Mons. Boncenne,
Etienne Dupuy,	Mons. E. Y. Teas,
Exposition de Brie,	Mrs. Baker,
Ferdinand de Lesseps,	Pierre Notting,
Fisher Holmes,	Sir Garnet Wolseley,
Gen. Washington,	Thomas Mills,
Horace Vernet,	Vicomte Vigier.

The above list comprises both old and new kinds, and one American variety. Any one can grow the good old varieties, but not one in a hundred can grow Caroline de Sansal or Madame Lacharme. We should grow both old and new, and select the best. Roses should not be pruned in autumn, for they are then more liable to be killed down, but the wood should be left on.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—"JAMES EPPS AND CO., Homeopathic Chemists, London."—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

The House, Garden, and Home Farm.

SONNET.

THERE never yet was flower fair in vain,
 Let classic poets rhyme it as they will;
 The seasons toil that it may blow again,
 And summer's heart deth feel its every ill;
 Nor is a true soul ever born for naught;
 Wherever any such hath lived and died,
 There hath been something for true freedom wrought,
 Some bulwark levelled on the evil side:
 Toil on, then, Greatness! thou art in the right,
 However narrow souls may call thee wrong;
 Be as thou would be in thine own clear sight,
 And so thou wilt in all the world's ere long;
 For worldlings cannot, struggle as they may,
 From man's great soul one great thought hide away. LOWELL.

THE HOUSE.

It is too commonly the case that cage birds, large and small, are to be found moulting at this time of year. The occurrence, though so common, is altogether unnatural, and is the result simply of bad management. The good folks who see their feathered pets, whether canaries, thrushes, or parrots, casting their feathers now, will be ready to protest that it cannot be the result of bad management, because, &c., &c., &c., &c. Please take note of any such bird, and you shall find it moping and melancholy, a miserable and a helpless prisoner preparing itself for an early grave. It is no use to mince the matter: birds that moult out of season are the victims of bad management; for, after all, cage birds do exceedingly well when well cared for, but the kind of care makes all the difference. Why is this particular bird we have now before us miserable? Why? The proper question is, Why should it be otherwise than miserable? It is fed once a day, and the supply given in the morning is supposed to be enough. And the bird eats its morning meal when the food is fresh, and eats no more until the next morning, when it will again eat because the food is fresh. It is insufficiently nourished because it loathes stale food, and that is one reason why it is miserable and moulting. And why is this other particular bird in a melancholy state? This bird has the singular good luck to be fed twice a day, for at dinner-time there is always something given to it. Yes, but it has no amusement; it leads a life of introspection, it sees no change, hears no cheerful voice, obtains no proper sympathy. Melancholy? Yes, you would be melancholy if stuck in a cage and fed twice a day, and otherwise systematically ignored. With a certain amount of sympathy, prison life may be endurable, but to be fed by system as you feed a chaff-cutting machine is not much better than slow murder to any living creature. And here is another moping bird casting its feathers at a tremendous pace. This poor thing will soon be bare, and then will be unsightly and very soon will perish. Just stand here near the cage for a few minutes. Oh, you find the draught rather too much for you! Now, what do you suppose the poor bird has to say to that? Poor thing, it makes no verbal complaint, but the cruel draught is killing it. To reason out the case might necessitate many words, and, as an argument may be less serviceable than a direction, let it be understood that cage birds exposed to draughts of wind invariably cast their feathers and become miserable objects. You may sometimes find the cage of a cockatoo or parrot strewn with down or with large feathers. Be warned thereby that probably the poor bird has been exposed to a cutting wind, and this unseasonable moulting is the sign that it needs protection. Birds of all kinds should be fed several times every day. It is not needful or desirable to pamper them with sweets or any kind of highly-flavoured food. But they require their food "fresh and fresh," as they say the boy had his salt. And they require amusement. Some birds amuse themselves very well, and some do not. All the parrot tribe should have amusement provided them. A hard cotton-reel is a capital toy for a parrot or cockatoo, and will often put a stop to the plucking out of feathers. Any scrap of clean wood will answer as well, but a cotton-reel seems to have a magical power in amusing the creature, and people who keep many parrots should bargain with their lady friends to save all the reels and bobbins to furnish the birds with occupation. As regards keeping cage birds clean, and supplying them constantly with pure water, it would seem waste of time to speak, because anyone who would neglect these points would never take advice from a book. But the matters we have thus hastily touched upon are such as are properly open to a disquisition intended for the direction of beginners and the comfort of the perplexed.

THE GARDEN.

It is time to make out the seed list, and arrange all the work of the coming season, and whenever a doubt arises as to the relative values of varieties, whether of vegetables, flowers, or fruits, reference to the *Garden Oracle* will in all probability settle it instantly. On this important matter of selecting sorts, we will take occasion to remark that no one needs all that can be got, and wise men are usually content with a few of the very best, leaving the rest to the unwise, who perhaps prefer mere variety to substantial quality. Good things soon become famous; therefore it is a good rule to grow sorts that are in high repute. They may not always answer your purpose, but they will not often disappoint, and in any case a very restricted selection of noted sorts will form a good practical basis, to which you can add at discretion such other sorts as may appear to have special claims on your attention.

THE HOME FARM.

There is a desirable lull just now in the work of the home farm, and that affords opportunity for many odd jobs that in busy times are neglected. The clearing out of the yards, and the repairing of fences, and the regulation of watercourses should have attention now, with a view to make all things square and clean and trim before the spring brings a new pressure of work. We may have some sharp weather yet, so be not lulled into imaginary security by the growing of the grass and the evident inclination of the trees to push their leaves before their time. All lands needed for summer cropping should be broken up without delay, for good winter work goes a long way towards a golden harvest. Grass lands will soon require attention now, more especially such as require a top-dressing preparatory to the hay crop.

Replies to Queries.

Cucumbers.—Southwell.—In the cultivation of cucumbers for market, as for private consumption, atmospheric moisture is maintained by syringing the plants at suitable periods, sprinkling the surface of the beds, and throwing water on the floor.

Pea for Market.—Deanshanger.—The "best pea for market gardens, where sticks are not at command," is unquestionably Carters' Pride of the Market, which has a splendid constitution, is immensely productive, produces large, well-filled, deep green pods, and on the table it has but few equals.

Names of Plants.—J. B.—It is impossible to name all your plants, because in all but two we have leaves only. 1 is *Magnolia grandiflora*; 2, a *Passiflora*; 3, *Eupatorium riparium*; 4, an *Abutilon*; 5, the Scarlet Leadwort, *Plumbago cinnabarina*; 6, a *Silene*; 7, *Sedum carneum*. R. W. Racket.—1, *Zygopetalum brachypetalum*; 2, *Sophranites coccinea*; 3, *Sophranites violacea*. N. N.—*Neottia bicolor*. W. Saxby.—The *sideritis* you inquire about is not worth a moment's attention. The *sibbaldias* must be treated as alpine. J. Porter.—Your plants sent loose in a smashed chip box are scarcely to be identified: 1, *Selaginella caulescens*; 2, *Eranthemum aureo-reticulatum*; 3, *Epiphyllum truncatum*; 4, *Platyloma rotundifolia*; 5, *Begonia semperflorens*; 6, *Polypodium submarginatum*. J. Wheeler.—1, *Gymnopteris acuminata*; 2, *Geranium mexicanum*; 3, *Pothos crassinervis*; 4, *Pilcanthus limacis*. J. R. Z.—The ferns as named are correct, and the apparent error in respect of No. 4 is owing to the difference between the barren and fertile fronds. The *Acacias* are: 1, *A. affinis*; 2, *A. decurrens*; 3, *A. ciliata*; 4, *A. Daviesiaefolia*. J. Tubbs.—They are *potentillas*, *geums*, and *spiræas*. When in flower we will look at them; at present we must deline to look at the dried leaves.

Planting on Sandy Soils.—J. E.—In a climate so favourable to vegetation as that of the district in which you reside, many of the subjects that cannot be grown satisfactorily on sandy soils will thrive. For situations exposed to the sea breezes, and with a light sandy soil, the undermentioned are especially suitable:—The Alder, Birch, weeping and erect; Beech, common purple-leaved and weeping; Thorns, double crimson, double pink, double white, and single scarlet; Scotch Laburnum, Douglas's Fir, Cypressess, Junipers, Austrian Pine, Weymouth Pine, Yews, Thuja, of the trees. Some of the more important of the shrubs are *Arbutus unedo*, *A. magnifica*, Ghent Azaleas, *Berberis aquifolium*, *B. Darwini*, Common Box, Handsworth Box, *Colutea arborescens*, *Escallonia macrantha*, *E. rubra*, *Euonymus japonicus* and its golden and silver variegated varieties, Irish and other Ives, Holly-leaved *Phillyrea*, *Rhododendrons*, *Tamarix gallica*, *T. germanica*, and *Viburnum tinus*, more generally known as the *Laurestinus*. Especially useful amongst the herbaceous plants are *Achillea ægyptiaca*, *A. millefolium roseum*, *Alyssum saxatile*, *Antirrhinum major*, *A. pumilum*, *Arabis albidia*, *Aster discolor*, *Campanula turbinata*, *Geranium ibericum*, *Iberis saxatile*, *Iris germanica* in great variety, *Lupinus polyphyllus*, *Narcissus juncifolius*, *Sedum spectabilis*, and *Thymus serpyllum albus*. The most desirable of the summer bedders will be the *Ageratum*s, African and French Marigolds, *Petunias*, *Tagetes*, *Petunias*, and Zonal *Pelargoniums*. Very few of the vegetables are specially adapted to sandy soils, with the exception of the dwarf French beans, which usually do well when assisted with liberal supplies of manure dug in a short time previous to sowing the seed. Asparagus does well under a liberal system of culture, and a very good substitute for spinach, which requires a deep rich soil during the summer season, will be found in the spinach beet.

TRADE CATALOGUES.

BARR AND SUGDEN, 12, KING STREET, COVENT GARDEN.—*Descriptive Spring Catalogue of Seeds for Flower and Kitchen Garden.*

H. AND F. SHARPE, WISBECH, CAMBS.—*Wholesale Catalogue of Garden and Agricultural Seeds.*

T. O. WEIGEL, KONIGSSTRASSE, LEIPZIG.—*Catalogue of Old and New Books, chiefly Botanical.*

W. CUTBUSH AND SON, HIGHGATE, N.—*Descriptive Catalogue of Flower, Vegetable, and Farm Seeds.*

JAMES FARRAR AND CO., 36, PRIMROSE STREET, BISHOPSGATE, E.C.—*Wholesale Trade Catalogue of Garden, Agricultural, and Flower Seeds.*

W. M. CROWE, UPTON, ESSEX.—*Catalogue of Azaleas, Camellias, Tree Carnations, &c.*

STUART, MEIN, AND ALLAN, KELSO, N.B.—*General Catalogue of Vegetable and Flower Seeds, &c.*

Obituary.

ON the 6th inst., at his residence in Rome, RICHARD HENRY DANA, the distinguished American jurist and politician, author of "Two Years Before the Mast," "To Cuba and Back," "The Seaman's Manual," &c., &c.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPLOUGH'S PYRETIC SALINE restores health and vigour to the system? Headache, fevers, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist, and of the Maker, 113, Holborn, London.—[ADVT.]

CAUTION FOR NEW YEAR.—The recently published reports of Medical Officers of Health show that the mild autumn weather and excessive rainfall have produced an unusual amount of Scarlet and Typhoid Fevers throughout the United Kingdom. There is also in many districts excessive mortality from Measles and Smallpox. Every cautious Householder should use reliable preventive measures, and none are better than Washing with WRIGHT'S COAL TAR SOAP, recommended alike by the entire Medical Profession and the Public. Let the Soap be in every Bed Room, Bath Room, and Nursery, and when you purchase, insist upon being supplied with Wright's. Refuse all imitations.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.			HIGH WATER AT				M. temp. of air at 40° 30' W. of S. W. Wick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sets.	South after Noon.	Rises.	Sets.	After.	Liverpool Dock.	Morn.	After.	Morn.	After.		
1882	S	3rd Sunday after Epiphany.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.	1882
22	M	Duke of Kent died, 1820.	7 54	11 53	4 30	8 51	8 54	3 35	4 0	0 38	1 0	37.7	37.9	Crocus Sieberii, H.	Violet. 22
23	Tu	R. Boyle died, 1827.	7 53	12 9	4 32	9 14	10 16	4 22	4 45	1 25	1 47	37.9	38.3	C. chrysanthus fusco-tinctus, H. Yellow.	23
24	W	Princess Royal married, 1858.	7 52	12 23	4 33	9 38	11 35	5 7	5 27	2 10	2 32	38.3	38.4	Carnations, Tree, G.	Various. 24
25	Th	First Quarter, 7h. 45m. morn	7 51	12 37	4 34	10 5	Morn.	5 50	6 12	2 52	3 15	38.4	38.5	Cyclamen persicum, G.	Various. 25
26	F	Peter the Great died, 1725.	7 50	12 50	4 36	10 31	0 53	6 35	6 58	3 37	4 0	38.5	38.6	Epiphyllum truncatum, S.	Deep Rose. 26
27	S	Battle of Alwal, 1816.	7 49	13 3	4 38	11 5	2 5	7 25	7 53	4 23	4 50	38.6	38.8	Eucharis amazonica, S.	White. 27
28			7 48	13 14	4 40	11 45	3 12	S 23	9 0	5 13	5 43	38.8		Vriesia brachystachys, S. ..	Red & Yellow. 28

The Gardeners' Magazine.

SATURDAY, JANUARY 21, 1882

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Auction Sales for the Ensuing Week.

MONDAY, JANUARY 23, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Rare Lilies and other Bulbs.

WEDNESDAY, JANUARY 25, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Plants and Bulbs.

THURSDAY, JANUARY 26, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

FRIDAY, JANUARY 27, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported and Established Orchids.

SATURDAY, JANUARY 28, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Plants and Bulbs.

THE DISEASES OF PLANTS are less various perhaps than those of animals, but are more perplexing, because less understood. We adopt the expression "perhaps" advisedly, because, although we are familiar with many forms of diseases that affect vegetables, we are acquainted with a still greater number that affect animals, and yet if we knew more of the world we might find that the vegetable kingdom is the most grievously afflicted. However, it is more profitable to deal with the known than the unknown, and with this rule to guide us it may be asked how it happens that we are more perplexed to determine the causes and prescribe the remedies in respect of the diseases of plants than in respect of the diseases of animals? The answer seems to be that man is himself an animal, and sympathy and analogy teach him many things that facilitate successful treatment of the diseases of animals that rank beneath him in the scheme of the world. The plants and the animals appear to agree in this, that cultivation renders them peculiarly liable to disease. But wild plants and wild animals that, so far as we know, are, and ever have been, free from the interference of man, are nevertheless subject to disease, but apparently in a far less degree than those that have been long domesticated. When in a "state of nature," as we term it, "natural selection" and the "struggle for life" ensure predominance to the strongest and extinction to the weakest some time or other, both of animals and plants. It is in the midst of this conflict—a conflict as inevitable as the succession of night and day—that man appears as an intermediary, or a manager, or a meddler. Let us indulge in a supposition. We will suppose that some very weak forms of *Campanula rotundifolia* are in process of obliteration, and that one of the consequences of a decline of health is that the flowers have changed from blue to pink. Should a horticulturist meet with the pink varieties we know what he will say and do. He will certainly declare that he has made a discovery, and he will also endeavour to keep the variety, and will bring to bear upon the task all the skill in growing and propagating of which he is capable. Thus, possibly by the wit of man, a perishing form of a species may be saved from the extinction that was impending, and the gardener will be called upon to nurse a plant that may be said, in rhetorical fashion, to contain within it the germs of dissolution. For the purpose before us we may suppose anything, and we only thought of the pink campanulas because we once met with a lot at the base of the great Kinder Scout in Derbyshire, and failed to keep them, because—so it appeared—they were wanting in constitutional vigour. We might have instanced the common thistle (*Cnicus lanceolatus*) with equal propriety because of a similar experience. Once upon a time we saw thousands of this plant on the roadside between Cheshunt and Little Berkhamstead, nine-tenths of which were absurdly fasciated, and we gathered seeds and raised a lot of plants, and in the course of one season saw that the deformed specimens were deficient of average vigour. But a purely supposititious case answers the purpose as well as a fact, for it does

not need to be demonstrated that man is a persistent meddler with the ways of Nature.

But it is not needful to suppose that man selects debilitated or perishing forms, either of vegetable or animal life, for his peculiar delocation. As a rule doubtless he selects the most vigorous forms, but it is a fact that he is often influenced by motives that for present purposes may be described as adverse to the purposes of Nature. And so, having plunged into the midst of the conflict as a meddler, he soon becomes an active party in a conflict of his own; for having set his heart upon certain things he will strive to keep them, even if the first condition be that he must afford artificial support to organisms that are deficient of average vigour.

It may be that all disease, of any and every kind, is the result or sign of deficiency of vigour. An excess of vigour we cannot regard as possible, although the appearance of excess is comparatively common, and it is the direct tendency of cultivation to develop the appearance of excessive vigour. As a rule, our selected races of animals and plants are "finer," some way or other, in our estimation of things, than their uncultivated prototypes, and we are encouraged by the obvious facts to believe that we have improved considerably upon Nature. But when this faith is strong upon us we may with some advantage perhaps indulge in another supposition. Let us now suppose that man is blotted from the scene, and seriously consider how many of his precious pets will maintain their varietal integrity for a hundred, or for fifty, or for twenty, or even for ten years. As a matter of course, a considerable number would accompany the human biped to oblivion. Others would last, but the most persistent would be always tending to the wild type out of which they originated, and at the end of a century it is probable that the power of man to modify the forms of Nature would be very feebly represented in the aspects of the world.

Thus it seems to be brought home to us that man's place in nature is that of a meddler. He was thereto appointed "to till the earth and subdue it." As a meddler he must take the consequences, and one of the number is that whatever he touches in the animal or vegetable creations becomes thenceforth more liable to disease than it was before he cast favourable eyes upon it. But he need not cease to meddle for that reason. We must pay for our privileges; let us be cheerful when we have to encounter the inevitable. When Nature has things all her own way, she doles out health to one of her children and disease to another. The lion that went to Androcles for relief was not a menagerie beast, but a delightful devil of the desert that had never been caged or harnessed for an old-world Zoo. Our interest however is bound up with the subject, and it seems that we ought to catch at some useful generalization to serve as a moral tonic when the diseases of plants perplex us. Do we not find this in the suggestion of the facts that defect of initial vigour is the basis of all plant disease? The reader may be inclined to answer profanely "Yes, but we have heard of that before." And what of that, let us ask? Did you lay it to heart when you heard it before? Have you always derived from the doctrine the advantage there lurked in it for your especial benefit? No. You have suffered from diseases of hollyhocks, cucumbers, potatoes, carnations, and fifty things besides; and you looked this way for a preventive, and that way for a cure, but all in vain. All we could say, as we have said, and as we say again, in respect of plants afflicted by disease, is and was, *Make them grow!* It cannot be concealed that these words are as weak as water if taken without a grain of salt; but the reader is expected to find in his own head some part, and perhaps the chief part, of the wisdom of a leading article.

The hollyhocks were nearly obliterated by fungus, and we advised the growers to make them grow. Now we can report that the hollyhock is returning to the garden full of health and vigour. Anybody can say, *Make them grow*. But if the words are mixed with faith in the hearts of the hearers there will be something better done for the hollyhocks than belongs to the region of nostrums and abracadabras. The gladioli have been threatened; but if the growers will make them grow this much-valued flower will keep its place and advance in popularity. The verbena was threatened with extinction, but it is now as healthy as ever; it has been saved by conservative treatment, the particulars of which have been carefully explained to our readers. To multiply examples would be waste of time and words, but it will be no waste of either

if we repeat that when garden plants appear to be diseased or tending to a diseased state, the first duty of the cultivator is to make them grow. Thereby hangs a tale, which may be continued as long as man shall last as a tiller of the earth and a subduer of the things that are useful to him.

The first step towards making them grow is to ensure for them as nearly as possible the conditions that appear to suit them best when in a state of nature. It may consist sometimes in giving abundance of food, and at other times in withholding food; but it will always consist in copying as nearly as possible the lessons written in the book of Nature. It is as easy to overdo it as to underdo it in respect of the temperature and food provided for cultivated plants, for as a rule the measure of solar light gives the rule of proportion, and our labours will be aided or thwarted by the seasons. We appear therefore to be powerless; but the truth is we have as much power to keep our varieties as we have to select or make them, and all history goes to prove the assertion. Why do we drain land, plough land, manure land, and pay high prices for selected seeds, if quite unconscious of a power to avert disease from our crops? Our power is indeed but small, but what there is of it is of immense advantage. Diseases come and go with the changing seasons, but there are certain diseases always lurking in our favourite stocks, and the proposal to Make them Grow will at least suggest to the cultivator that, as a rule, the remedy must begin at the root and not overhead, just as in dealing with a sick man we usually begin by putting something into his stomach. After all, probably, in the treatment of the diseases that afflict humanity, beef tea is the best of all medicines; so, in the treatment of the diseases of plants, food of some kind may be of far more importance than dustings, and washings, and prunings, and depletions. Any way, it will be always well to consider all that is implied in the advice to Make them Grow.

The diseases of plants not only vary as the plants themselves, but are characteristic of the climates in which they occur. There are places in the world where the potato is at once prolific and of fine quality, and so rarely touched by disease that for all practical purposes we may say that the disease is unknown. In can never be so in this country, because the climate does not entirely suit the constitution of the plant. Nevertheless there are always to be found professors of cleverness who cannot look at the facts because they are deluded by their own fancies. One such wrote the other day to the Scientific Committee of the R.H.S., recommending the addition to the soil of certain sulphites to destroy the germs of the fungus, and the dusting of the growing plant with sulphur for the same purpose. And the Scientific Committee listened to the nonsense and allowed it to be entered on its minutes of proceedings. The cause of potato disease in this country is the cause also of tomato disease, and gladiolus disease, and many other diseases, besides many failures of crops that do not count as diseases. The arrest of sunshine that often occurs in July, and more often in August, and that occurred last year in June—although in its way a negative phenomenon—is the cause of about nine-tenths of all the failures that occur in our rural industries. The temperature rises with the advance of the summer, but there comes a check; the clouds gather, the wind changes to a cold quarter, thunder, and rain, and a cloudy sky, combine to affect vegetation injuriously. Then the fungus finds the hollyhock, the potato, the grape vine, the ripening plum, and the wheat that would be golden, but is compelled to become rusty. If—we would keep the *Ir* out of the argument if Nature would permit—if the late summer and autumn months were constantly dry and warm we should know but little of potato disease, or hollyhock disease, or tomato disease, or gladiolus disease, or of thin fruit crops, or of the destruction of trees by winter frost. But, as we cannot alter the climate, this view of the case may appear to be wanting in the "practical" element that we never cease to cherish. All truth is "practical," more or less, and we must face the facts that properly belong to our daily work. We will illustrate the case by another reference to potato disease. The professor of cleverness who tells the Scientific Committee (who indeed have been already told a hundred times or so) how to prevent potato disease, may be advised to go up to heaven and turn on the sunshine, and, having thus saved the "taters," come back to earth for a vote of thanks. The practical man will not attempt to rise above his sphere, which is the earth. He will take particular care to have his land well drained, and everything that can promote the health of his plants, whatever they may be, during the trying times of low summer temperature accompanied with hoavy rains, carried out in an earnest manner, consistently with the cost of the work as compared with the value of the crop. Now here we may perceive the proper relation of "theoretic" and "practical" knowledge. In the view of humid autumnal weather the theorist will advise moderate manuring, and will order all his work with a view to ensure perfect ripening of tubers and bulbs below ground, as of boughs and buds above. But the "practical" man, who despises what

he is pleased to call "theory," will labour for a heavy crop, and will perhaps secure it; or, perhaps, will fail to secure it, but will have a diseased crop instead, and then, as a matter of course, he will curse his fate and will declare farming, gardening, floriculture, and perhaps everything else, impossible. We do have dry hot seasons, when everything goes well, save that the saving of hay is smallish; but such seasons are very exceptional. Our normal climate is cloudy and rainy, and the variations of temperature are sudden and extreme, and for the most part destructive of the plants we have collected from all parts of the world to improve our dietary or delight our eyes. The climates and the soils of the British islands are peculiarly adapted for the growth of timber. That is a fact. As for farming and gardening, those arts imply a warfare with the elements, and as the odds are much against us we may properly boast of our talent whenever we succeed in our undertakings. But as the knowledge of first principles is the sole key to their useful application, we invite our readers to consider the general proposal that the average climatal conditions will, as a rule, govern all enterprises that begin and end in the cultivation of the ground. This is a variable climate, and therefore its productions will be variable. But that, for agricultural and horticultural purposes, we could do with less rain and more sunshine is as certain as that two and two make four. We have at our hand, while penning these remarks, a letter from our old friend Mr. Adam Forsyth, who, writing from Awa Moa, Otago, says: "There has been no rain for nearly eight months," but nevertheless the fruit crop in New Zealand is "splendid." As for this old country, its "proper" crops are grass and trees.

NATIONAL AURICULA SOCIETY.—The northern section of the National Auricula Society will hold its annual exhibition at Manchester on Tuesday, May 2.

Mr. M. K. DIXON has left Glenleigh, Hastings, to take charge of the gardens attached to the residence of Sir S. M. Wilson Searles, at Uckfield.

AN EXHIBITION OF ANEMOMETERS will be held by the Meteorological Society at the Institution of Civil Engineers, 25, Great George Street, Westminster, on the evening of March 15.

A SUBSTITUTE FOR THE VINE.—M. Auguste Deleuil, of Gardanne, near Marseilles, claims to have produced a fine wine from the red beet-root.

"CARTERS' PRACTICAL GARDENER," produced and published by Messrs. James Carter and Co., of High Holborn, has been reprinted to meet the demand of the coming spring season.

"CHAMBERS'S JOURNAL" will complete its 50th year of usefulness on February 4. The number to be published on that date will contain some particulars of the formation and progress of the "Journal" from the pen of Mr. William Chambers.

READING HORTICULTURAL SOCIETY.—The spring exhibition of this society will take place on May 18, and the autumn show on August 24. The schedule of prizes has been revised, and the prizes in the leading classes substantially advanced.

ROYAL HORTICULTURAL SOCIETY OF IRELAND will hold its exhibitions for the current year on the undermentioned dates:—Spring show, Thursday, April 20; second Spring show, Thursday, May 18; Summer show, Thursday, July 6; Autumn show, August 31, and Winter show, Thursday, November 2.

A SECOND EDITION OF "TOPOGRAPHICAL BOTANY," on which the author, Mr. H. C. Watson, was engaged at the time of his death, is about to be published by Mr. B. Quaritch. The Rev. W. W. Newbould and Mr. J. G. Baker have been entrusted with the task of superintending the work through the press.

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.—We regret to have to state that, owing to losses through the wet weather, the committee have abandoned the Spring Show in the present year; but the Summer Show will take place in the grounds of Hanger Hill House, Ealing, on Wednesday, July 12th. The Chrysanthemum Show will take place as usual in November, but the date has yet to be announced.

BIRMINGHAM SPRING FLOWER SHOW SOCIETY.—The great success which attended the first Spring Show held at Birmingham, on Easter Monday, 1881, has induced the committee to arrange for another to take place on April 19 and 20 in the present year. This is a distinct organization from that which has so successfully carried out the chrysanthemum shows at Birmingham for a few years past, but it is none the less deserving of support. The show will take place as last year in the Town Hall, and it is certain a very attractive display will be forthcoming, as the schedule of prizes is arranged on a liberal basis, while it is a thoroughly comprehensive one.

THE BAROMETER IS ALARMINGLY HIGH, and we hope it may come down gently; for if it comes down with a run we shall all have to run, and some will certainly stumble on the way to imaginary safety. A quick drop would result in earthquakes, explosions, hurricanes, tree liftings, and the transportation of towers, steeples, and chimneys, and wrecks of ships innumerable. It is no part of our programme to prognosticate anything, much less a torrent of disasters, but the state of the barometer at the present time interferes much with our comfort, and we are bound to communicate somewhat of our distrust to our readers in the hope that words of warning may be of some use somewhere. In any case, it seems likely we shall have a taste of frost.

CLOVER AND GRASS SEEDS are reported by Messrs. Hurst and Son to be comparatively scarce, owing to the deficiency of the yield, both in England and on the Continent, last year; and it is stated that the present high prices are likely to be maintained, if they are not considerably increased, when the demand sets in later on. Messrs. Hurst state, as the result of their experience, that in the matter of clover first-class English-saved seed is decidedly the cheapest in the end, notwithstanding the higher price that has to be paid for it as compared with that saved on the Continent.

ROYAL HORTICULTURAL SOCIETY.—The balloting lists for the meeting of February 14 have been issued to the Fellows. There are three vacancies in the Council; Sir Charles Strickland, Bart., and Mr. Arthur Grote, F.L.S., will retire. The third vacancy is caused by the death of Dr. Denry. To fill these places, the Council recommend the election of Mr. Edmund Giles Loder, Mr. J. H. Mangles, and Mr. William Lee, of Leatherhead. In the list of officers we note two very important changes. We must remark in the first place that Lord Aberdare continues as president. Mr. Webb, as we some time since reported, has relinquished the office of treasurer, and his place will be taken by Mr. Houghton. We have now to report that Dr. Hogg will hand over his portfolio as secretary to Major F. Mason. The Expenses Committee will consist of Lord Alfred S. Churchill, Major F. Mason, and Mr. William Haughton. The auditors are Mr. R. A. Aspinall, Mr. John Lee, and Mr. Harry J. Veitch, F.L.S.

ROYAL HORTICULTURAL SOCIETY'S SCHEDULE for 1882 contains the lists of prizes and regulations of the exhibition of the National Auricula Society's show on April 25, the Pelargonium Society's show on June 27, the exhibition of the National Rose Society on July 4, the National Carnation and Picotee Society's show on July 25, and the Society's Great Summer Exhibition from May 23 to 25. The last-mentioned gathering will be on much the same scale as in previous years, and will include all the leading classes of flowering plants, ornamental-leaved subjects, flowers of various hardy plants, fruits in single dishes, and vegetables in collections. Full particulars are also given of the prizes offered for amaryllis, hyacinths, and tulips, by "An Amateur;" and for vegetables by Messrs. J. Carter and Co., Messrs. Daniels Bros., Messrs. Hooper and Co., Messrs. Sutton and Sons, and Messrs. E. Webb and Sons, and for packed fruit by Messrs. Webber and Co., of Covent Garden.

GARDENERS' ROYAL BENEVOLENT INSTITUTION held its annual meeting on the 12th inst., under the presidency of Mr. Deputy Rudkin. From the report presented to the meeting it appears that there were at the end of the year eighty-five pensioners, of which forty-three were males receiving a pension of £16 annually, and forty-two females with a pension of £12. The gardeners' collection in the course of the summer, which was started with a view to the augmentation of the pensions, produced a sum of £500, which is to be invested apart from the general funds, and the interest is to be added from time to time until the amount is sufficient to admit of the pensions being increased. The list of pensioners was increased by the addition on the day of the meeting, without the anxiety and cost of canvassing, of Abraham Randall, Colebrooke, Copplestone; John Hinds, St. Mary's Cray, Kent; John Buxton, Eltham, Kent; Benjamin Wortley, Camberwell; John Bowen, Southampton; Alice Meldrum, Kendal; Margaret Eagles, Highgate; and Alice Ann Tillery, Welbeck, Notts, they or their husbands having been subscribers not less than fifteen years. The balance-sheet showed that the receipts amounted to £2,734 0s. 11d., and that of this sum £1,200 13s. 4d. had been distributed in pensions, and £650 invested, leaving a balance of £1,441 14s. 10d. in hand. The number of subscribers during the year was 1,113, and of donors 706.

LEEKs.

THE world is familiar with leeks of a certain kind with stout white bottoms and grass-green tops. But there are leeks of another kind that are like small apples, as ivory-white as the club-shaped bottoms of common leeks, or rather say like middling-sized onions with snow-white skins. Those leek bulbs that occur underground are peculiarly solid when fresh and peculiarly tender and delicious when cooked, and the use way to cook them is to stew them in rich piquant gravy. Many readers will say, "We know not of these apple-shaped leeks; tell us where to buy the seed and how to grow the crop, that we may enjoy the dish suggested." Any packet of leek seed of average quality will supply both kinds of leeks, but to obtain two sorts there must be two modes of management. If you have leeks in the garden at this time you may at discretion ensure a plentiful supply of the underground bulbs, and they will come into use at a time when they will (perhaps) be peculiarly welcome. Leave one row untouched for this purpose, and when the flower stems are rising persistently pinch them out. If you allow one to get up you allow that particular stool to go to ruin so far as the present venture is concerned. Pinch them out and pinch them out. Every strong root will show three or four flower spikes when the pinching is in progress, although perhaps if left alone it would only show one, or at the utmost two. Therefore to obtain the coveted prize you must work. But that is of no consequence, because you will never obtain a prize of any kind without work. It is however a very simple matter. Run along the row once a week, for about three weeks, and pinch, pinch, pinch, and then you have done it. The flags will become shabby, as if to say, "We are dead beat." And they are. The life of the plant is coming to an end. No, not to an end. Being baffled in the making of seed, it discovers that Nature provided it with two strings to its bow, and now the other string is in use. Lift a root and you will find one, two, or three nice round or flattish ivory-white bulbs attached to the perishing centre of the original plant. These are the delicacies I spoke of. Take some stout stock, and

stew them in it for half an hour; then flavour with a little Worcester, a shadow of red pepper, and devour at discretion. You may, if you like, serve them in a thick gravy, and you may add one or two mushrooms in the first instance. It is sufficient that you have learned to secure a supply of a delicious and comparatively unknown vegetable, peculiar in flavour and peculiarly wholesome.

Thus far as to the crop in the ground. Now as to the next crop. It is an old subject, but we may return to it now for the sufficient reason that leeks are, as a rule, very badly grown in southern gardens. We cannot pretend to advise the northerners—and indeed we are filled with delight when they kindly advise us; for when we go beyond the border we find an entire population learned in leeks; and in many parts of the extreme west, where gardening is not practised with enthusiasm, leeks and potatoes are admirably grown. It is of great importance to the proper enjoyment of leeks to grow them large and stout, and short and white. This can only be done by sowing early, by planting out in very rich soil, by systematic blanching, and by liberal watering when dry weather occurs in the growing season. The haphazard system will produce useful leeks for soup; in fact, they may be found in the seedbed all through the winter; but fine leeks are the product of genuine cultivation, the plant being hungry, thirsty, and fastidious about trifles. And yet when left in the seed bed uncared for useful partially-blanching leeks will be obtained for soups that will abundantly pay for the trouble of sowing a pinch of seed.

It is well to make two sowings of the seed, one at the end of February or early in March, and the other in the end of March or early in April. Sow in drills in a good seed bed, and when the seed is covered put on a sprinkling of fine wood-ashes that have been preserved under cover. Begin to plant out in June, and continue as the ground can be got ready, always leaving a few in the seed bed to finish there. The taking away must not be roughly done, as it is the wont to pull out winter greens. They must be lifted with their roots intact, and the ground should be first watered if needful, and the plants should be lifted with a small hand fork or trowel, rather than mutilate the roots. The ground made ready for them should be deep and rich, and rather light in texture, a piece of old well-worked garden soil heavily manured being better for the purpose than stiff newish soil that has not been much cultivated. Plant them six to ten inches apart in the rows with a dibber, remembering that if very large leeks are wanted plenty of room must be allowed. Plant deep, so that the neck will be blanched, and you may trim the tops a little, but that is of no great consequence. The main point is to encourage vigorous growth, which means that there must be no check, and that the plant must have plenty of food. The leek grows slowly, and makes but little show until the season is far advanced. Nevertheless, if well managed, it comes to a great bulk at last, and this bulk will in a very great degree depend on the feeding given in its earliest stages; therefore, in dry weather water freely, and if possible give liquid manure, taking care that it is not so strong as to do mischief. It is customary to shorten back the flag occasionally to cause the neck to swell, but I never saw any very striking proof that the extra growth would pay for the trouble.

LILIUM AURATUM.

NEWLY-IMPORTED bulbs of this lily are now offered by many of our principal seedsmen at a price that is really astonishing, seeing how many thousands of miles they have to be brought, and the excellent condition in which they are received; the condition is indeed so good that it leaves but little to be desired. The object of this note is to advise those who contemplate obtaining a stock of this beautiful lily to do so without any delay. I do not mean to say that any one should be in too great a hurry, but if I am permitted to advise according to my own experience, I should suggest that all purchases should be made within the next two or three weeks. The first consignments are generally the best, and when the bulbs are once unpacked the sooner they receive attention from the hands of those who hope to see them flower the better. From what I know of the requirements of this lily, I am quite sure that the shorter the time the bulbs are out of the ground the better and stronger will they grow and flower. Those who can depend upon obtaining fresh-imported bulbs in March and the early part of April may wait until then, and at the same time secure very good results, but the chances are that they will lose the first pick of the largest bulbs.

As soon as the bulbs come to hand the best course will be to place them in shallow boxes on a bed of cocoanut-fibre refuse, and so pressed into the material as to bury about half an inch of the base of the bulb, leaving the other part uncovered. Then cover the boxes with boards or slates to keep them in darkness, and place in a greenhouse in which no more fire heat is employed than is necessary to keep out frost. They should not receive any water, for if the fibre is damp it will hold enough moisture to encourage the production of roots. Any excess of moisture at this stage would probably cause the bulbs to rot. After they have been in the boxes a fortnight I give them a sprinkling of water from a can to which a fine rose has been attached, and every week they are examined. Those which have made a few roots are carefully lifted out and put singly into pots. It will probably be six or seven weeks before the whole of the bulbs are ready for potting, even if there be only one dozen in a box. But that should make no difference. I am satisfied that it is much safer to see them showing signs of new growth before they are finally potted or planted in a damp soil, and during that time it is much better to keep the material about them only just moist. If cocoanut-fibre refuse is not to be had, probably rather dry fine soil would do as well, but the fibre should have the choice when available. Bulbs dealt with in this way may be either grown in pots or be planted out, but they should not be exposed to severe frost when they are making young growth, for although they are quite hardy they must be handled tenderly during the first year.

J. C. C.

LOCAL FLOWER SHOWS.

Now is the time to begin establishing these most useful and pleasant institutions. I can think of no moral lever so useful in the hands of the proper workers of a parish as a properly-conducted "Local Floral and Horticultural Society;" and it has been proved over and over again that neither Temperance Societies nor Working Men's Institutions approach in popularity and lasting usefulness the properly-conducted Village Flower Show. I have laid great stress on the "proper working" and "conducting" of the institution because, failing these the real objects fail. These are, 1st, promoting a kindly good feeling and social interest in the whole community; 2nd, encouraging the cultivation of the most useful of the fruits and vegetables; 3rd, proving to those most concerned—the working classes—that pleasant and profitable employment for their spare hours is the surest means of making them not only forget, but positively hate, the public house and its associations; and, 4, by fostering a love for the beauties of nature, and especially those of the floral kingdom, inducing more serious impressions, and thoughts, and aspirations, leading up to, finally, a greater admiration and appreciation of the Great Creator, who has for our pleasure and our good thus clothed the earth. I must quote Cowper's fine lines in support of this object:—

Not a flower
But shows some touch in freckle, streak, or stain,
Of His unrivalled pencil. He inspires
Their balmy odours and imparts their hues,
And bathes their eyes with nectar, and includes,
In grains as countless as the seaside sands,
The forms with which he sprinkles all the earth.
Happy who walks with Him! whom what he finds
Of flavour or of scent in fruit or flower,
Or what he views of beautiful or grand
In Nature, from the broad majestic oak
To the green blade that twinkles in the sun,
Prompts with remembrance of a Present God.

Now, presuming that I have named some of the chief objects for which flower shows are promoted, I trust that the same reasons will induce others to attempt, each in his own neighbourhood, with similar views, to establish a local institution, either on the lines that I now wish to lay down, or any other that he finds better suited. I should like to subdivide my subject under the following heads:—Proper Workers; Rules; Funds; Judging; Schedule; and General Management; but I am doubtful whether the Editor will allow me space for the whole in one paper.

First then: Proper Workers." No one can have a greater contempt than myself for "pot-hunters;" they are the ruin of many a good show, and should be avoided like the plague. Wherever detected let them be at once debarred from all share in the management. The fewer the number of directors, there will be less prospect of disputes at the meetings. Where possible, by all means induce the clergyman of the parish, or local gentleman, or magistrate to act as chairman of the committee; it gives prestige, and breeds confidence in the subscribers. If practicable, have one or two other gentlemen on your working committee, and make up the remainder from amongst the gentleman's gardeners, market gardeners, and tradesman in the neighbourhood. Six or eight workers will be quite enough for all purposes. Where possible, elect for treasurer one of the chief subscribers; and for secretary try to get a man of sound sense and good general knowledge; not necessarily a horticulturist, but one who possesses tact and energy in carrying out the details of the affair. The village schoolmaster would be almost sure to be willing and able to undertake the office, and would be most suitable. Avoid paying officials; there are always in every district men sufficiently disinterested to gladly undertake work of this kind for the benefit and pleasure of their friends and neighbours. Besides, directly a man becomes a paid official he is a servant to the rest, and loses that love of the work that he at first undertook for the good of others and for the pleasure of being usefully and pleasantly employed. Readers must bear in mind that I am now advocating the cause of small local shows only.

Rules.—It will be admitted that rules are useless unless they are properly carried out; and that if a committee have rules they do not carry out the fault lies either in the rules or in themselves. Let the rules then be few, brief, and to the point, and let them never be broken. Circumstances will have to be considered in each locality, and the rules made to meet them; but the following will generally apply:—That the district be limited to a certain radius, say three or four miles. That members of the committee be limited to a certain number of entries—say, ten? That not less than half of the prizes and prize money offered be kept for the cottagers' class solely. That every entry be made and paid for fourteen days before the show day. That every exhibit be viewed on the exhibitor's premises prior to the show day. That every exhibit be staged on the show day by a certain hour—say, nine o'clock. That no article be allowed to take two or more prizes. That no intoxicating drink be allowed on the show ground. That the show ground be closed within half an hour after sunset. That no article be moved at the close of the show till the secretary gives the signal. That all prize money be paid at a certain hour on the show day—say, four o'clock. That no award be altered unless the judges be satisfied that a mistake was made by themselves. That all offers of special prizes that would otherwise come in the schedule be declined, and the money solicited instead, and that all other special prizes be declined unless as auxiliaries to other prizes. No doubt some of the above suggestions will read oddly to many of your readers, but the writer has frequently come across and had to deal with troublesome cases arising from want of similar rules, and met them best in some such way. A great deal more may be written on the subject of rules, but a glance at those of any good flourishing society will be perhaps the best guide, and the writer will be happy to send any one copies of those now in use by some of the local societies he is acquainted with.

And now we come to the question of Funds. It is difficult to fix a precise sum here, as there is no limit to the outlay if the money is only there, and as good a show of its kind may be made with £20 as will be got up for £200. I may however lay down one guide in the matter of funds, and that is, always be on the safe side; always put by a surplus at the end of the year. Now, the best way to do this is to keep it in view all through the season from the very first. I think it would be a very poor neighbourhood in which £50 could not be raised, and that sum ought to cover all the cost of a nice

little local show and leave a neat surplus to carry over. The portioning of this amount would be the next question; and first, I should say, take just half of it for the prizes, work up a schedule (of which I will give a few outlines when I come to that subject), and keep within the limits. Tents should not cost more than £5; tabling, &c., £2; music, £2; printing, &c., £4; judges, £1; leaving £6 for incidental expenses. In many places some of these items will be considerably less; as, for instance, where there is a local band, or where a village carpenter happens to be on the committee, and charges only for his labour and time in fixing the tables, &c. I shall be able to show how to keep within the sums named for the various items when I come to the "general management." I will now mention the various plans for raising the necessary funds. First, as the most popular, I will place public entertainments, in the shape of concerts, balls, lectures, &c., to be held in the winter and early spring. These give fine opportunities of introducing and keeping before the public the real objects of the society, and are generally well patronized. Next, annual subscriptions. In these we have the chief source of income; and if a district be only well worked by good collectors it is surprising what large sums may be got together. The writer knows of one collector who last year collected over £25, chiefly in crowns and half-crowns, and that in a purely agricultural district. Then donations from tradesmen in the neighbouring towns, local magistrates, county members, and other gentlemen connected with the district must all be tried as likely to help in raising the total. Besides these, we have the fees and gate money.

Now, bearing in mind that the cottagers' class will get quite half the prize money and that the show is really for their special benefit, it is not advisable to fix the entry fee too low. Let there, then, be one even fee to all exhibitors—say, 2s. 6d.—and let that include membership of the society. Should a cottager wish to compete in any other class let him also pay the fee for that class as though he had not paid for the other. Every little helps. Gate money will be another good source of income, but must not be relied on too much. It is a good plan to have the show open by one o'clock at the latest, and to fix a good fee at the gates for the first two hours (say 2s.), admitting subscribers and exhibitors by ticket of course. After three o'clock 6d. for the rest of the day will be enough. Don't make a 3d. fee for the last hour. It brings in a crowd that blocks the place up just when you wish to be clearing out, and perhaps makes you lose a pound or two as well. Only those who can well afford it will pay for the first look, and that is exactly what you want. They are the people who will subscribe next year, and have a pleasure in bringing their friends and acquaintances too. But I must now leave this very important branch of the subject, feeling sure that those who take up the business of flower-show management will not leave a stone unturned in the way of raising funds. OBSERVER.

NEW PLANTS OF THE PAST YEAR.

THE list of ornamental plants that were introduced, exhibited, figured, or described during 1881 occupies no less than sixteen pages of the current issue of the *Garden Gracile*, and affords ample testimony to the steady and substantial progress of horticultural science, and to the unceasing activity and remarkable enterprise of the leaders of commercial horticulture. In this list some three hundred and thirty subjects are enumerated, and if but few are of so great importance as to command universal attention, and to be worthy of being described as "great acquisitions," a very considerable proportion possess much merit, and will be regarded by cultivators as welcome additions to their respective classes. As usual, orchids and other plants requiring the temperature of a stove for their successful cultivation largely predominate; but hardy plants are somewhat more plentiful than usual, and there are a few greenhouse plants that are full of promise. Ferns are plentiful, but not excessively so, and the majority are so good that they are likely to make their way into general cultivation.

STOVE PLANTS grown for their flowers are less numerous than those cultivated for the beauty of their leafage, but they are sufficient to constitute an important group. First to claim attention are *Zebrina hystrix* and *Æ. Lindenii*, the first of which has the bold character of *Yucca gloriosa*, and a striking inflorescence consisting of pale-coloured flowers and brilliant red bracts; and the second elegant leafage, and a fine spike of yellow flowers enclosed with bright red bracts. *Anthurium Scherzerianum maximum* is remarkable for the immense size of its bracts, and so far superior to the known forms of this valuable and much-appreciated plant that it will be found indispensable to cultivators for exhibition purposes. *Begonia socotrana* is deserving of special notice for its usefulness in augmenting our stock of winter-flowering plants, and the promise it gives of being the forerunner of a quite new type of these beautiful flowers, which have undergone such remarkable development of late years. *Caliphurria subdentata* is a beautiful amaryllid, bearing pure white flowers in rather large umbels, and will, in all probability, acquire popularity for supplying cut flowers for hand and table bouquets. *Crinum Forbesianum* and *C. purpurascens* are two notable additions to the genus; both are bold in character, and the first mentioned has long tubed flowers striped with white and rose; and the other white flowers lightly suffused with purple, and of the two is decidedly the best. *Izora Burbidgei* is a splendid species in the way of *I. salicifolia*, but perfectly distinct from it, and far superior; the leaves are long and narrow, and the flowers are produced in large axillary clusters, and of the most dazzling scarlet, quite eclipsing in brilliancy of colour all the *ixoras* at present in cultivation. *I. Pilgrimi* is a fine garden hybrid, bearing immense globular trusses of flowers of an orange-red colour. *Jasminum gracillimum* well deserves the praise that has been bestowed upon it, and it would be well within the mark to describe it as the most valuable white-flowered stove plant that has been introduced to cultivation of late years; it is indeed so free in blooming, and the flowers are so admirably adapted to decorative purposes in a cut state, that it will in all probability soon find its way into the hands of the market growers. *Lindenia rivalis* is one of the most distinct and remarkable plants of the year, and very attractive; the flowers are long, tubular, and pure white, and produced very freely. *Lysionotus serrata* claims attention for the beauty of its leafage and flowers, and will be much appreciated by cultivators of gesneriaceous plants. *Quesnelia rosea-picta* is a striking bromeliad; the leafage yucca-like, and the flowers bright blue enveloped in large crimson bracts. *Tillandsia Lindenii Regeliana* is remarkable in being the most free-flowering of the several forms of this elegant species. *Friesia Falkenbergii* combines an elegant habit with a bold and attractive inflores-

cence, and *Wormia Burbridgei* is an interesting shrub allied to the hibbertias, and bearing large pale yellow flowers.

ORNAMENTAL-LEAVED PLANTS comprise numerous subjects of special importance. *Agave Huntii*, *A. Parryi*, *A. Peacockii*, and *A. Tonelliana* form a group of species that will be highly appreciated by cultivators of these interesting subjects, for they are of medium stature, and possess more than an ordinary degree of beauty. *Alocasia Johnstoni* and *A. Thibautiana* are two grand aroids for the furnishing of large structures and for exhibition specimens. *Aralia Chabrieri* may be described as the most elegant of the many beautiful aralias at present known, and will be of special value for the dinner table. *Kentiopsis divaricata*, plentiful as are first-class palms, well deserves attention, for in beauty it has but few equals. *Pritchardia grandis* is a palm of great importance, and moreover it is so distinct and beautiful that no cultivator can afford to be without it. *Pothos aurea* and *P. celatocaulos* are two strange-looking aroids that will be found useful for covering bare wall spaces in plant stoves.

GREENHOUSE PLANTS include *Bomarea conferta*, a distinct plant of scandent habit, and bearing flowers of a rich crimson colour, which will form a most valuable companion to *B. Cardoni*, which attracted so much attention on its first introduction. *Calochortus pulchellus*, a charming species with nodding yellow, but its proper place is the cold frame rather than the greenhouse. *Fuchsia penduliflora* is a distinct and handsome species bearing large corymbs of long crimson-scarlet flowers, and valuable for spring flowering. *Impatiens Marianne* is a fine species with lilac-purple flowers. *Montbretia crocosmiflora* is a decided acquisition, and likely to prove of much value for decorative purposes during the summer; the flowers are of a bright orange-red, and produced in long spikes, and the leafage is exceptionally elegant. *Mutisia decurrens* is another cool-house plant of exceptional value. *Nerine filifolia* is a pretty little species with rosy red flowers, and well worthy of attention where collections of these plants are grown. *Nolina Georgiana* will probably be found hardy on dry warm soils in the western counties, but for the present it must be classed with the subjects requiring more or less protection; it is a beautiful liliaceous plant, and produces large panicles of white flowers. *Statice tatarica* bids fair to prove useful for exhibition, as it produces fine heads of flower, and is very effective when cultivated with a fair amount of skill. *Zephyranthus macrosiphon* is remarkable for the large size and brilliancy of its flowers, which are of a bright red colour.

HARDY PLANTS comprise *Abronia latifolia*, a pretty plant, bearing fragrant flowers of a bright yellow colour. *Anemonopsis macrophylla*, a fine herbaceous plant with purple and lilac flowers. *Aquilegia formosa*, an effective species allied to *A. canadensis*. *Argemone hispida*, a strong-growing biennial, bearing large pure white flowers. *Astilbe Thunbergii*, a handsome species with bold leafage and an elegant pure white inflorescence. *Cereus Fendleri*, a bold-growing cactus, remarkable for its large rose-coloured flowers and its hardness. *Clerodendron trichotomum*, a Japanese shrub of great importance; it attains a height of from eight to ten feet, and blooms most profusely in September, the flowers white with a red calyx. *Eremurus himalaicus*, a handsome herbaceous plant, bearing large star-shaped flowers of the purest white. *Lemoine's Double Lilac*, a valuable variety, both for the shrubby border and forcing. *Nymphaea tuberosa*, a beautiful water plant from North America, with tuberous roots. *Senecio stenocephala comosa*, an attractive variety, bearing showy yellow flowers in erect spikes; and *Vitis striata*, an elegant climber, which has been distributed also under the name of *Ampelopsis sempervirens*.

ORCHIDS are so numerous that it is not possible to do more than briefly mention the most important. *Angreecum Kotschyi*, a small white-flowered species, deserves mention both for its beauty and distinct character, and it has already attracted much attention. *Calanthe Barberiana* is a beautiful garden hybrid with pure white flowers, and *C. Sandhurstiana* is a hybrid of great merit, in the way of the well-known and much-appreciated *C. Veitchii*. *Cattleya Chamberlainiana*, *C. Manglesi*, and *C. Mastersoni* are three hybrids, the two first with purple and the last mentioned with rose-coloured flowers, and all of great merit. *Celogyne cristata alba* is a pure white variety of one of the finest of winter-flowering orchids, and it is not surprising that it created much interest when exhibited at the metropolitan shows in the early part of the year. *C. Massangeana* is very distinct in character, and its long pendulous spikes of creamy yellow flowers are remarkably handsome. *Cypripedium Burbridgei*, *C. calurum*, *C. grande*, and *C. tessellatum porphyreum* are valuable additions to the list of lady's slippers. *Odontoglossum vexillarium rubellum* is remarkable for the depth of colour of its flowers, and for blooming in the autumn. *O. Williamsi* will be found a fine companion to the well-known *O. grande*, to which it is closely allied; and *Oncidium pretextum* is unquestionably one of the finest species that has been added to the genus for some years past.

FERNS include several novelties of great merit, the following, taking all points into consideration, being the most important:—*Adiantum ancileense*, an elegant species with creeping rhizomes, and spreading freely under favourable conditions. *A. cuneatum grandiceps*, a beautiful variety of this popular fern, with bold tasseled fronds. *Asplenium apicidens*, an elegant species of moderate growth. *A. Baptisti*, a bold and handsome species from New Caledonia, of especial value for specimen culture. *Davallia elegans polydactyla*, a fine crested form of the most handsome of the davallias. *D. gibberosa*, a strong-growing species with large handsome fronds, very striking in character, and not unlike an asplenium in general appearance. *Lastrea Richardia multifida*, a stove fern of great beauty; the fronds bold and terminating in elegant crests. *Polypodium Kramerii*, an elegant little Japanese fern closely allied to *P. phegopteris*. *Polystichum tripterum*, another fine species from Japan, which will form a valuable addition to the numerous beautiful ferns we have already received from that country. *Sagenia Lawrenceana*, a bold-growing fern of great elegance, and well able to produce a striking effect in the intermediate house.

NEPENTHES have had some notable additions made to them during the past year, and of those described in the *Garden Oracle* the most important are unquestionably *N. Rajah*, a magnificent species, producing pitchers of immense size and of a rich red colour. *N. madagascariensis*, a very handsome species, with pitchers of large size and of a bright crimson colour. These are undoubtedly the most important Indian pitcher plants introduced for many years past, and they should at once receive the attention of cultivators of these interesting subjects. Several good garden hybrids have been introduced, and as they are remarkable for their free yet neat habit of growth and the freedom with which they produce their pitchers at an early stage, it will be safe to predict a high degree of popularity for them.

SPECIAL PRIZES

FOR COMPETITION AT THE MEETINGS OF THE ROYAL HORTICULTURAL SOCIETY.

The following special prizes will be offered for competition at the meetings and exhibitions of the Royal Horticultural Society during the current year. For conditions we must refer intending competitors to the schedule of the society, which is now ready for issue, and may be obtained on application to the Secretary at South Kensington.

AN AMATEUR'S.

March 28.—Nine Hyacinths, single spikes, distinct, and nine pots of Tulips, not less than three kinds, £4, £2, £1.

For "the best seedling" *Amaryllis*, with reference to which it is said, "fine form and substance are the points especially aimed at in offering the prizes. To be eligible, the flower must be smooth in petal, of good firm substance, without the unevenness of the *Marginata conspicua* type, and as little pointed in the petal as possible. Colours will not be considered unless two flowers should be, in other points, considered equal in merit; the better coloured of the two would then receive the higher prize." £2, £1, 15s.

For the best six *Amaryllis*, named, to consist of equal numbers of light and dark varieties, £2, £1.

For "the best variety selected from among the plants exhibited" in the sixes. Dark varieties, £1, 10s.; Light varieties, £1, 10s.

MESSRS. J. CARTER AND Co.'s.

May 23.—One fruit of Blenheim Orange melon, £2 2s., £1 10s., 15s., 10s. 6d., 7s. 6d.

June 27.—Four dishes of peas, consisting of Stratagen, Telephone, Telegraph, and Pride of the Market, fifty pods to form a dish, £5, £3, £2, £1, 10s. 6d.

August 3.—Six "pots of Tomatoes," selected from specified varieties, the plants to be in eight-inch pots, £3 3s., £2 2s., £1 1s., 10s. 6d.

December 12.—Collections of twelve dishes of vegetables without restrictions as to varieties, excepting onions, which are specified, £5, £3, £1 10s., £1, 10s., 7s. 6d.

MESSRS. DANIELS BROS.'

May 23.—For the best brace of Daniels' Defiance cucumber, £1 1s.

MR. J. E. EWING'S.

For collection of shoots or twigs of twenty-four varieties of ornamental-foliaged trees and shrubs, hardy, in British gardens, £2, £1.

MESSRS. HOOPER AND Co.'s.

June 27.—One dish of Laxton's Earliest of All pea, to consist of twenty-five pods, £1 10s. 6d., £1 1s.

July 25.—Three heaviest fruits of Abundance tomato, £1 1s., 10s. 6d. Handsomest dish of nine fruits of the same variety, £1 1s., 10s. 6d.

October 10.—One dish of Queen of the Valley potato, £1 1s., 10s. 6d. The heaviest tuber of the same variety, 15s., 7s. 6d.

One dish of Adirondack potato, 15s., 7s. 6d.

MESSRS. SUTTON AND SONS'.

May 23.—For four dishes of peas, to include two varieties introduced by the firm, each dish to consist of half a peck, £3 3s., £2 2s., £1 1s., 10s. 6d.

June 27.—Collection of vegetables, to consist of twelve distinct kinds, without restriction as to variety, £5 5s., £4 4s., £3 3s., £2 2s., £1 1s., 10s. 6d.

July 11.—For half a peck each of President Garfield and Reading Giant peas, £2 2s., £1 1s., 10s. 6d., 7s. 6d.

August 3.—Two kinds of Melons, two fruits of each, and two kinds of Cucumbers, one brace of each, to include specified varieties, £5 5s., £3 3s., £2 2s., £1 1s., 10s. 6d.

August 7.—For collection of vegetables, six kinds, competition restricted to cottagers and artisans, £2 2s., £1 11s. 6d., £1 1s., 15s., 10s. 6d.

November 14.—For collection of vegetables, twelve kinds, without restriction as to varieties, £5 5s., £3 3s., £2 2s., £1 1s., 10s. 6d.

For twelve Improved Reading onions; for a dish each of Early Border and Prizetaker potatoes; for a dish each of Reading Russet and Fiftyfold potatoes; for a dish each of Woodstock Kidney and Reading Hero potatoes; and for a dish each of Magnum Bonum and First and Best potatoes. The prizes in each of the five classes are £1 1s., 15s., 10s. 6d., 7s. 6d.

MESSRS. E. WEBB AND SONS'.

June 27.—For a collection of vegetables, six distinct kinds, without restriction as to varieties, £3 3s., £2 2s., £1 1s., 10s. 6d.

November 14.—For twelve tubers of Schoolmaster potato, £2 2s., £1 1s., 10s. 6d.

MESSRS. WEBBERS'.

June 27.—For packed fruit, to consist of one box of grapes of not less than 14 lb.; box of peaches not less than 24 fruits, and one box of strawberries not less than 2 lb. The fruits are to be booked, carriage paid, at any station irrespective of distance, and delivered by railway company to the Superintendent at the Society's Gardens, South Kensington. £5 5s., £3 3s., £2 2s.

DRIED FRUITS.—The great popularity which dried fruit acquired a few years ago, when prices were about 50 per cent. lower than they have been this season, seems for a time at least to have passed away; and although many causes have been at work to bring about this undesirable state of things, there is no doubt that the principal reason of the high price of currants has been the demand which of late years has sprung up from the wine-making industries of France. Between the gathering of the crop in August and the end of the year, the quantity taken for this purpose has annually been growing, for whilst in 1879 only 6,000 tons were taken, it rose to 13,000 tons in 1880, and this year it has still further increased to 17,000 tons. The prices obtained in recent years by the Greek growers for their fruit has placed most of them in a far better monetary position than was the case a few years ago, and they are consequently enabled to warehouse the fruit until they consider they are obtaining its extreme value.—*The Grower*.

ANGRÆCUM KOTSCHYI.

To the comparatively small group of angræcums that have a place in English collections this species is a most welcome addition, and has already attracted much attention from those who are interested in orchids, as cultivators or otherwise, both for its extreme beauty and the structural peculiarities of the flowers. Amongst the members of the genus to which it belongs there is a remarkable diversity of character. On the one hand, we have the erect-growing and stately *A. eburneum*, and the magnificent *A. sesquipedale*, with its large long-tailed white flowers, and on the other, the small-growing and exquisitely beautiful *A. citratum*. In *A. Kotschyi* we have a species as unlike any of the others as it well could be, and bearing flowers that at once attract attention from the striking appearance presented by the remarkable spurs with which they are furnished, as well as for their beautiful appearance. Like *A. citratum*, the species under notice is dwarf in growth and has broad spatulate leaves; and, as so well shown in the accompanying illustration, the flowers are borne in long pendulous racemes. The flowers are of a clear ivory-white, and the long much-twisted spurs are of a rosy flesh colour, and the size of the one and the length of the other are indicated by the bloom on the right hand of the figure. In the Chelsea Nurseries it is grown on small blocks of wood, upon which it does remarkably well, and it usually produces its flowers during the autumn months. It remains to be said that

THE GLADIOLUS.

It is a question of some importance whether the gladiolus has been injured, both in health and name, by careless cultivation. It belongs to the large class of *nearly hardy* plants, of which we possess so many, and which we are to some extent tempted to abuse. Requiring but little aid to ensure its full development, there is perhaps a tendency to deny it that little, and thus, escaping as it were by the skin of its teeth, its constitution is injured, and a weakly plant is the consequence. This is not meant as a declaration: it is simply a speculation. It suggests however another speculation. Is not the gladiolus injured in many gardens by having too much done for it? If some blow cold, do not others blow hot, when it would be better for both to blow gently and avoid all extremes?

From such speculations and surmises I will turn to facts. Some few years since I obtained from my friend Mr. Barr a very large collection of gladioli comprising, in fact, all the sorts he could purchase without paying fancy prices for any. They were divided into two lots, each lot comprising the same number of bulbs of the entire collection. One lot was treated on the careful conservative plan, the other on a very rough-and-ready radical plan.

The first lot were potted singly in February: the pots were thumb size or the smallest sixties, the soil a mixture of mellow loam and very gritty leaf-mould. These were started in a cool house and made slow but



CRINODENDRON HOOKERIANUM.

it was introduced from the eastern part of the African continent by Messrs. J. Veitch and Sons, whom we have to thank for the figure given herewith.

CRINODENDRON HOOKERIANUM.

It is so rare an occurrence for a first-class hard-wooded plant thriving in the temperature of an ordinary greenhouse to make its appearance that the introduction of the "*Chequehue*," as *Crinodendron hookerianum* is designated by the Chilians, merits special attention. It is a free-growing shrub of compact bushy habit, and has short-stalked smooth bright green leaves, the margins distinctly toothed towards the points. The flowers are produced singly or in pairs at the axils of the leaves, and are suspended in a remarkably elegant manner by the comparatively long and decidedly slender stalks; they have a five-toothed calyx, and five fleshy petals, much hollowed at the base. In size they are about equal to an ordinary walnut, and are of a similar texture to the flowers of the *lapageria*; the colour is a very beautiful shade of crimson-scarlet. It is not less remarkable for its profusion of flowering than it is for the great beauty of the individual blooms, and when staged at one of the summer exhibitions of the Royal Botanic Society a certificate was conferred upon it, and deservedly so. This beautiful *crinodendron* was introduced from Southern Chili, where it is said to be very rare, by Messrs. J. Veitch and Sons, who, with their usual courtesy, have afforded us an opportunity of giving a portrait of it.

healthy progress, and were planted out in April, and were occasionally sheltered until they began to grow freely and take care of themselves. When put out they had grown two or three inches with stout spears, and the pots were full of roots. They had not a drop of water until they showed their green points, and then were watered very moderately, but were never allowed to be in the least distressed for moisture. They were in a full light and had plenty of air, and thus their progress was slow, and the growth was stout, and short, and healthy.

This first lot were planted in beds made up for the purpose. The stiff clay of the lower garden was taken out to a depth of one foot, and the bottom of the bed was broken up with some good manure from a half-rotted heap, as it was intended to prepare the spot ultimately for asparagus. This being done, a mixture of turfy loam and leaf-mould, and the red and black earth from a heap of burnt rubbish that had smouldered for a fortnight was put in to form the top crust of the bed. When the work was done this mixture made a bed about eighteen inches deep, on a substratum of the original clay broken up with fat stable dung.

The season was favourable, the showers were sufficiently frequent to render watering unnecessary. There was no check by frost, and no distress by drought, the leafage was healthy and the bloom was superb.

We now turn to the second lot. There was a long bed that had been well made a few years previously for lilies. It was however rather heavy, for much of the original staple had been broken up with the turf and leaf-mould and manure employed in the first instance. Several crops of flowers

had attained to perfection in this bed, which was sixty feet in length, and had a sheltered and sunny position, and was sufficiently well drained for summer plants.

In the month of March the second lot of gladiolus bulbs were planted out in this bed without being first started in pots. They were taken direct from the seed room to the bed and planted with the dibber, the ground being first well dug, and the work being finished neatly. Most of them were on the move when planted, and there appeared every reason to expect a good growth and a satisfactory bloom.

But this lot failed to give satisfaction. The growth was irregular. Some started away with vigour and proved in the end as good as their brethren in the better bed. Some came up with reluctance, and grew slowly and flowered late. Some did not show a spear until the middle of June, and were in the end worthless. A few did not appear at all, and when I dug them up I found the bulbs as hard as flints, and as dead as the megatherium. There was not one found that could be called

chance of surviving it. Many of them were green until near Christmas, and a few of the latest spikes were attractive when seen from a distance, but were not good enough to be worth cutting. After Christmas the weather oscillated from frost to rain and from rain to frost. It was an average winter, neither very mild nor very severe. There was nothing done to protect the gladioli, although in former years clumps of *Brenchleyensis* left out had been protected with cones of coal-ashes. In April I began to look for green spears, for vegetation was forward. But none appearing I made a search, and finding nothing concluded the roots had rotted in the ground. In the middle of May a more careful search was made, and we easily found the remainders of the dead roots, and properly concluded the entire collection in both beds had perished utterly. So it proved: the beds were dug up, and not a living root of a gladiolus was found. We were thus taught by a practical lesson that on our heavy land the bulbs must be lifted in the autumn or they will be likely to mingle with the earth in the course of the winter. I have known collec-



ANGRECUM KOTSCHYI.

rotten; there was not one that appeared touched with mildew; the dead roots were simply hard and dry and had made no growth at all. In the first lot the hard bulbs that refused to grow numbered only two or three per cent. In the second lot they numbered about ten per cent, and those that did grow were irregular. We had to patch the bed with a reserve lot of potted *Brenchleyensis* turned out of forty-eights. The best bed did not require patching.

Thus in this particular case the conservative treatment was eminently successful. The radical treatment however was not an utter failure, because, as remarked above, a proportion of the plants flowered very well, and a further proportion flowered middling well. But the gaps were many, and the latest spikes came to no good.

On several occasions clumps of *Brenchleyensis* left out have appeared again and flowered in the most splendid manner. It was determined therefore to leave these two lots to endure the winter and take their

tions to survive mild winters on light dry soils, but there is nothing gained by the rough-and-ready treatment, for the subsequent growth is never satisfactory, and gaps occur, however favourable the circumstances.

Two matters of importance have been forced on my attention in the cultivation of the gladiolus. You may ensure a fine bloom by growing in land heavily manured with fat stable dung. But the bulbs produced in a rich soil are likely to be large and weak and of poor quality. A good turfy loam inclining to sandy is the best possible soil for this beautiful flower. Turfy peat answers well. Leaf-mould comes in usefully to temper a heavy soil; and where the staple is sandy manure from the cow byre may be liberally employed. But clay, and chalk, and strong manures are better adapted to destroy than to sustain the gladiolus. When on a dry soil a mulch of three inches of half-rotten dung may be spread on the bed in the month of May with advantage, and weak liquid manure may be given, and any amount of soft water also during hot dry

weather; for this fastidious plant cannot endure drought any more than it can endure to be in soil that is sour and waterlogged. But our practice comprises but small use of the water pot at any time, perhaps because the land is naturally moist and strong, and all our best crops come in droughty seasons. To ensure a fine bloom and a healthy stock, there should be a very cautious employment of stimulants. Large bulbs are not to be desired, but well-ripened bulbs of moderate size; for these keep well and make a good growth, and flower as nobly as the largest, and very often surpass the largest in the size of their spikes and the splendour of their flowers.

Another matter of importance is to start them under glass preparatory to planting out, as by this course of procedure the failures are reduced to a minimum. In some seasons the bulbs that are planted without being started do well; but should cold rains occur before they have begun to grow many will perish, and the worse the conditions the more numerous will be the losses. Planting out on the radical plan is not to be condemned, because if often answers; but the conservative plan is the best, and gives but little more trouble. It is not needful to pot the bulbs, for if they are put into shallow boxes with an inch depth of cocoa-nut fibre refuse under them, and are occasionally very lightly sprinkled, they will start well and make nice tufts of roots ready for planting. As a matter of course, these rooted bulbs should be planted with care that not a fibre is injured. The depth should be three inches, neither more nor less.

When planted in clumps in mixed borders, the stations should be prepared by turning over and mixing some old manure with the staple. If the bulbs are planted without being started, it will be advisable to spread a little sharp dry sand in the hole, and place the bulbs upon it, and then cover rather lightly; for if the soil is pressed down it may retain too much moisture, for damp is deadly to the root when in a dormant state. When once fairly in growth, water is a great friend to the gladiolus, but there should never be any water given after the spikes are fairly forward and are showing colour.

TRY AGAIN.

THE POPPY ANEMONE (*ANEMONE CORONARIA*).

THE familiar name of this fine border flower is admirably descriptive, especially for the crimson and scarlet varieties with black centres that very closely resemble poppies, but show themselves six weeks or more in advance of any true poppy, either in field or garden. And it is not far removed from the poppy in its essential characters, although in the books the dillennias, the magnolias, the berberies, and the water-lilies come between them. In his "Vegetable Kingdom" (p. 430), Dr. Lindley, speaking of the order of poppies, says:—"The greatest affinities are with the crowfoots, from which it is sometimes extremely difficult to know this order without ascertaining that the juice is milky and narcotic." All the crowfoots, comprising the ranunculus, anemone, clematis, hellebore, and aconite, have watery and acrid juices, while the poppies are characterized by milky and narcotic juices.

Garden anemones may be readily separated into two classes. In one class we have the poppy anemones, *A. coronaria*, natives of the mysterious country called the Levant, as also of many regions that fringe the Mediterranean on its very irregular northern boundaries. In the other class we have the star anemones, *A. hortensis*, in which occurs that splendour of the spring garden *Anemone fulgens*, a very fiery star, and one that never fails to surprise us when we see its first flowers in the forward spring. These are garden anemones *par excellence*, and one cannot have too many of them if life is to be made endurable in these hyperborean regions. As for other anemones, their name is not Legion; but there are many that may properly demand a place in the rockery, and, while the opportunity offers, it may be proper to offer the reader a list of the "indispensables." *Anemone alpina* comes near to *A. coronaria*; the flowers are white and sulphur-yellow, growth vigorous. *Anemone angulosa* is our sweet old friend the blue hepatica; plant it anywhere on rockery or border, and take care not to disturb it for at least ten years. *Anemone apennina*, a lovely starry blue flower that appears at the same time as the early daffodils. *Anemone hepatica*, the common hepatica, with flowers of many colours; it requires a deep strong loamy soil, and to be left alone, for if moved often there will soon come a time when there remains nothing to move. *Anemone japonica*, of which there are two varieties, the red and the white, both grand border plants for autumn flowering. *Anemone nemorosa* is our own wild wood anemone, one of the loveliest flowers in the whole world. The double variety makes an exquisitely beautiful rock plant. Have as many more as you like, but you must have the foregoing, because they are distinct and good; but the word "good" is very poor in this connexion. The anemone now before us is a "florist's flower," consequently you may, if you choose, form a collection to name; and time was when the named sorts realized prices running into gold and at least two figures. But times are changed, and it is no longer necessary to have a deep purse to enjoy fine flowers—even green peas in April are at the command now of an honest man who makes umbrellas. The poppy or garland anemone appears to have been introduced in 1596, just in time to be included and faithfully figured in Johnson's *Gerarde* and other of the grand old books that may be spoken of as the bibles of the florists. Parkinson enumerates sixty sorts of anemones, but these include sorts that are far removed from *A. coronaria*. Mr. Carey Tysoe, of Wallingford, published some twenty-five years ago a treatise on this flower, with a list of the best varieties, and this must be regarded as the latest authentic work on the subject from the florists' point of view.

The poppy anemone varies in colour immensely, but its structural characters are constant. Experience has taught the writer of this exactly why the named varieties are not much cared for, and it is that seedlings can be easily raised, and will give abundant variety and fine quality, provided only that the seed was taken from first-class varieties. Now here comes in the argument for the florists' named sorts, however costly. In the subject now under consideration the cost is of no consequence, because named anemones are extremely cheap. But as florists' flowers are not much desired by boobies who know nothing about them, we feel bound to say that they serve the purpose of thoroughbred horses in stud stables, and of Duchess shorthorns, and podigroo Jerseys, and Jonas Webb's fleecy lords of the flock. The lurid lights that are trying to shine in the garden of hardy flowers only want a little knowledge; and then, if their vanity failed, as it generally does when knowledge expands the mind, they would extinguish themselves and be heard of no more. To the amateur who would raise a nice lot of poppy anemones our advice is, begin

with a collection of named varieties, save seed from these, and then take the advice of St. Paul, and "go on unto perfection."

This anemone requires a rich, deep, well-drained loamy soil. When raised from seed sow in large pans or boxes in February, using rich light soil, and place the seed pans on a gentle hotbed. As the season advances give them more and more air, and let them finish their growth in full exposure. In September plant the roots in beds of light rich loam in an open exposure, and wait for the result. It will gladden you in any case—it may even surprise you. When the leaves die lift them, store them in paper bags or in boxes with dry sand, and every year plant in September, and every year raise a fresh batch of seedlings. Fine flowers will not come into any man's garden without labour.—*Familiar Garden Flowers.*

RAISING SEEDLING RANUNCULI.

PROCURE some good seed; sow in February in boxes filled with fine light loamy mould. Press level with a board; sow thickly, and water with a small rose-pot, to make them lie flat. Sprinkle with fine dry mould just sufficient to cover the seed; water again, and place the boxes in the shade. The seed will come up in a month. Protect from heavy rains and slugs; keep the surface moist by frequent waterings from a finely-pierced rose-pot. Take the roots up in July, when the grass is withered; preserve them in bags or boxes in dry sand. Plant them in the succeeding February six inches apart every way; for though the seedling roots be small the first year, yet they require more room than the old varieties. In June they will bloom profusely; select and mark the best by tallies, and preserve each root separate in order to test their qualities; then treat them as you do the old sorts. Or to save a year (which is an important portion of a man's life), procure some good seedlings; these will flower the next season, producing semi-double, and some few double flowers. Some of the best seedlings will send up a pericarp, but they seldom produce anthers. This circumstance suggests the propriety of impregnation; therefore, when the plants are in bloom, take a large camel's-hair pencil brush, and apply it to the anthers of the semi-doubles, to collect the pollen or farina from them; then apply it to the pericarps of those that have good properties which are nearly double. This operation will fertilize the seed vessels, so that they will produce seed of a superior kind.

The seedlings have all the vigour of youth, and with this they are playful and sportive; sometimes they come spotted, at another time edged, sometimes with a great pericarp, and at other times perfectly double; but they generally improve in three or four years, and become more steady in their habits, though now and then there is a renegade among them, which we are obliged to consign to perpetual banishment. But let not the inexperienced grower condemn any variety too hastily; those which produce pericarps or seed-vessels, commonly called eyes, are among the best show flowers; but they must be exhibited a day or two before the bloom is completely expanded. Their showing the pericarp is an innocent trick of youth, but, as they advance in years, it will decrease, and at length entirely disappear. Such is the superiority of the seedlings in size and beauty, that persons who cultivate them are sure to excel those who grow only the old varieties. R.

A BLACK WALNUT STORY.—The financial harvest reaped by Americans through the prevailing fashion for black walnut may be gathered from this cutting from an American paper:—"The smartest Texan I ever met is old Sam Graves in Central Texas. After Mr. Graves had shown me his cattle and cotton, he took me over to see his woods. 'Well, what of it?' I asked, as he pointed out a ten-acre forest. 'What of it? Why, them's black walnuts, sir. Ten acres of 'em. Planted 'em myself ten years ago. See, they are ten inches through. Good trees, eh?' And sure enough there were ten acres of hand-planted walnut trees. They stood, about 200 ft. apart, 200 to the acre—in all 2,000 trees. 'Well, how did you get your money back?' I asked. 'Black walnuts are worth 2.50 dols. a bushel, ain't they? I'll get 400 bushels this year. That's 1,000 dols. 100 dols. a year is good rent for land worth 15 dols. an acre, ain't it?' 'Well, what else?' I inquired, growing interested. 'The trees,' continued Mr. Graves, 'are growing an inch a year. When they are twenty years old they will be nineteen inches through. A black walnut tree nineteen inches through is worth 15 dols. My 2,000 trees ten years from now will be worth 30,000 dols. If I don't want to cut them all I can cut half of them, and then raise a bushel of walnuts to the tree—that is, get 2,500 dols. a year for the crop. 250 dols. an acre is a fair rent for 15 dols. land, ain't it?'"

NEW YORK AS OTHERS SEE IT.—No description of New York can be perfect which omits the superlative adjectives; for one of the foremost ambitions of the builders of the city has been to secure superlative effects. Nor are the standards of comparison American only; for the harbour is more beautiful, the streets more unclean, Broadway more brilliant, the municipality more corrupt, the commercial buildings more pretentious, the tenement houses more crowded, the parks more lovely, than the similar appurtenances of the cities of Europe and Asia, with but a few exceptions. Pope's celebrated characterization of Lord Bacon, superlative in praise and in censure—wisest, brightest, meanest—might be paraphrased as an epigram on New York. It is popularly known as the Empire City; but Irving, its most honoured son, also called it "*Gotham*, the Home of Wiseacres," after the stupid old village of Nottinghamshire, and this title, too, is in common use. As Mr. G. J. Holyoake has expressed it: "New York itself is a miracle which a large book would not be sufficient to explain. When I stepped ashore there I thought I was in a larger Rotterdam; when I found my way to Broadway it seemed to me as though I was in Paris, and that Paris had taken to business. There were quaintness, grace and gaiety, brightness and grimness, all about." Mr. Moncreux D. Conway says: "There isn't a city so attractive elsewhere on earth. 'See Naples and die' was an adage before New York became so beautiful, but should be changed to 'See New York and live.'" As Colley Grattan saw the town, it "looked half Dutch, half French, something between Paris and Rotterdam." In the quieter streets, M. Ampère fancied that he "found once more the ancient little Hollandish city, as calm, as phlegmatic, as the American city is active and ardent." The Marquis of Lorne saw it as "an odd mixture of all sorts of European towns, but unlike any one of them." Anthony Trollope wrote that "no other American city is so intensely American as New York."—From *Cities of the World* for January.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasants, Avianaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

Notes of Observation.

THE LYON LEEK.

It is a well-known fact to every grower of leeks for exhibition purposes that there are strains of this esteemed "poor man's vegetable" amongst a few amateurs in the south of Scotland which, compared with the Musselburgh or Carentan leeks, dwarf these into insignificance when placed amongst them on the exhibition table. Of the most noted of these strains, the illustration here given from a photograph gives some idea of the enormous dimensions of the variety named above. The plants were lifted from a border in the Kelso Nurseries, where there is a batch of some hundreds of plants for seedling purposes, and if the summer of 1882 proves propitious for saving, a new leek will be placed at the disposal of those who like a vegetable that is nutritious and wholesome, and yet hardy, and will stand the most severe winter, which will create a sensation far greater than a dozen new peas or potatoes. The Lyon Leek was raised and has been cultivated and exhibited in the Border counties for a good many years, but it was never named, nor was seed in any quantity to be had for distribution. It was not until the spring of this year that Messrs. Stuart, Mein, and Allan secured a small parcel of seed, named it after its raiser, and introduced it to their customers, who with one accord give it the greatest praise; for it has eclipsed every other exhibition leek wherever shown. From two to two and a half inches in diameter, and fourteen inches in length, it can be grown in ordinary soils and without any trouble; but when carefully grown in well-prepared soil, and the young plants got out in good time, huge leeks of three or three and a half inches in diameter, and twenty inches in length, blanching as white as ivory and crisp as celery, have been produced by noted exhibitors here. And the plant too is perfectly hardy, which is not always the case with big leeks, having stood out and unprotected even by snow when the thermometer stood at 12 deg. below zero. The usefulness of the leek as a poor man's vegetable for winter is not half so well appreciated in the south as in Scotland, where every cottager has, besides his "Curly Greens," a good patch of leeks, which, along with the inevitable potato pit, constitutes his winter supply for the "kail pot;" and a very good supply it is. No vegetable could be more wholesome or economical for a large family than a patch of leeks. We would recommend every one to try them.

J. THOMPSON.

WINTER ROSES.

I have been more fortunate than "J. C. C.," for I have had beautiful roses all through this winter. I have had blooms of all the following kinds, some in profusion:—Anna Alexieff, John Hopper, La France, Gloire de Dijon, Homer, Sénateur Vaisse, Marie Baumann, Countess de Sereyne, Baroness Rothschild, and Captain Christy. Of the last I gathered a rose on November 14, both in foliage and flower conspicuously beautiful; and I have now before me lovely blooms of John Hopper and Gloire de Dijon. Of the latter I brought in some branches with two or three flowers and buds on each, and as I think it may be interesting to some of your readers to know of a pretty and easy arrangement, I describe what I did with them. Into a dark blue china flower-pot I placed a deep tumbler filled with wet sand, into which I stuck my "Gloire" branches, Japanese fashion, then covered the whole of the top of the pot with fresh green moss, and the effect was delightful. These "Gloires" grew on standards, which I budded myself about eight years ago on two-foot wild brier stocks. They are now from eight to ten feet high, and at least five to six feet through their heads. Rarely a week passes from May to November that I do not gather roses from them. I often wish when I read unsparing condemnation of standards that the writers could see my beauties. They grow in a mixed border not a mile from the sea, but they are well sheltered by dense shrubberies. A true lover of roses will grow them in all possible ways, and find some special virtue in each, though the best of all is doubtless on their own roots. I have raised a few this year from the buds only, by the very interesting method so graphically described by the Editor in one of the summer numbers of the *G. M.*, and having succeeded so easily, I intend to carry it out more largely in the coming summer.

Cilfig.

SEASON IN THE WEST OF SCOTLAND.

Mention has been made of the activity of vegetation in the Isle of Wight and other favoured parts of the south and west of England, owing to the mildness of the weather, and a note on the state of vegetation so far north as on the Forth of the Clyde may not be without interest. First, I

M.

would state that I gathered a nice handful of roses on Christmas Eve; now I observe that the laurestinus is coming freely into bloom, and that the common laurel is showing signs of flowering. The buds of deciduous trees are swelling so fast as to make one feel rather uncomfortable as to the results of this activity thus early. Primroses are to be found in the locality. The weather has been very wet during the two past months, and heavy gales have followed each other in rapid succession.

Buthkollidar, Dunoon, N.B.

THOMAS LOWE.

PROFITABLE USE OF GAS-LIME.

Referring to the inquiry of a correspondent of the *GARDENERS' MAGAZINE* a short time since, I would state that according to my experience gas-lime is the best of all the waste products for application to ground devoted to esculents. I have employed it for many years, and have found it to answer admirably on all kinds of soil, and have used it as a fertilizer in the culture of turnips, carrots, potatoes, all the members of the great brassica family, and oats. As a top-dressing to pastures and clover leys nothing can surpass it when mixed with other materials as I shall advise. On light soils it most effectually eradicates insect pests, such as the wireworm and slugs; on calcareous soils it has the effect of materially increasing the bulk and improving the quality of vegetable crops; and on cold, heavy, wet soils it quickens the growth of the crops very materially, as its stimulative or forcing power is

about equal to nitrate of soda. Besides its calcareous qualities, it is very rich in ammonia, the value of which as a fertilizer is well known. Any one who may wish to determine for themselves whether or not ammonia is present in appreciable quantities may be advised to make some such experiment as this. Procure a few tons of the gas-lime that has been recently removed from the purifier, and place it where it can lie undisturbed for some time and be protected from the weather. The ammonia will soon concentrate, and in a comparatively short space of time lumps of it will be found in the mass. This will at once show that this waste possesses manurial value of a high order. No one need be afraid to use gas-lime in gardens in which it is desired to obtain the finest crops of vegetables of all descriptions. But it must be stated that it ought not to be put in close proximity to fruit trees—say, not within four feet of the stem. The plan I usually adopt is to dig the ground and then spread over the surface as much as will cover it thinly. I sometimes procure a few loads of lime bottoms from the tannery, and a similar quantity of gas-lime, and with them well mix all the weeds and other garden rubbish available. After the mixture has lain for a few months it is turned over once or twice and is then quite harmless, and may be used as a top-dressing for any crop, especially grass. I would caution any one against sowing seeds for a few weeks on ground that has been dressed with gas-lime fresh from the purifiers. November is the best time for applying it to quarters wanted for early cropping, and previous to the seeds being sown, or the plants put out, fork over the surface to mix the lime with the soil. Seeds may be sown with safety immediately after the application of the mixture of lime and vegetable refuse. By taking the course here briefly pointed out I have not once found this product of the gasworks to fail as a fertilizer or as a destroyer of vermin which

usually infest ground devoted to the production of esculents.

Buthkollidar, Dunoon, N.B.

THOMAS LOWE.

A LARGE MIGNONETTE PLANT.

I am visiting a house in the country, and am so much struck with the size of a plant of mignonette, that I wish to know whether you would not consider it remarkable? It measures eight feet in circumference, thirty-four inches across, and I counted 138 spikes of bloom, besides others inside which I could not count. I think it would be more generally grown as a winter plant if gardeners knew the amount of pleasure to be derived from one single plant of it. It was grown by Mr. Thomas Wood, gardener to J. F. Maingay, Esq., Ewell, and I have ascertained from him that the variety is "Miles's Hybrid."

M. R.

[It is a fine plant certainly, and creditable to the cultivator. But we occasionally see such specimens at exhibitions, and they are always appreciated for their real beauty as well for their perfume.]

MR. SAGE will shortly leave the kitchen gardens at Ashridge Park to take charge of the gardens of Belton, near Grantham, the residence of the Earl Brownlow.

The House, Garden, and Home Farm.

HIC JACET.

So Love is dead that has been quick so long!
 Close then his eyes, and bear him to his rest,
 With eglantine and myrtle on his breast,
 And leave him there, their pleasant scents among,
 And chant a sweet and melancholy song
 About the charms of which he was possessed,
 And how of all things he was loveliest,
 And to compare with aught were him to wrong.
 Leave him beneath the still and solemn stars,
 That gather and look down from their far place,
 With their long calm our brief woes to deride,
 Until the sun the Morning's gate unbars,
 And mocks, in turn, our sorrow with his face—
 And yet, had Love been Love he had not died.
 LOUISE CHANDLER MOULTON, in the *Athenæum*.

THE HOUSE.

In the management of window plants that are at rest it will be necessary to exercise due care, to avoid the soil about the roots being maintained in too moist a condition. As a general rule it will be safer to err on the side of keeping them too dry than to use the watering pot too liberally. Zonal pelargoniums may be allowed to become dust dry and remain so for a considerable period without any injury, and it is a safe plan in the case of those grown entirely indoors to keep the soil about the roots perfectly dry in severe weather. Hyacinths, tulips, and other bulbs potted up, or put in glasses in the autumn for the production of a display of bloom in the spring, must be examined occasionally, and as they commence to grow freely remove to a suitable position, where they can enjoy a fair share of light to ensure a strong compact growth. As they begin to grow moderate supplies of water will be necessary, and if applied in a tepid state it will be a decided advantage. To grow hyacinths in glasses from the first is quite unnecessary, for in common with tulips they can be taken out of the pots when in bloom, have the whole of the soil removed from about the roots, and be put into glasses or fancy baskets, or other receptacles, without any risk of the shortening of the flowering season. The chief point in handling them is to avoid bruising or otherwise damaging the flowers.

THE GARDEN.

ANNUALS, half-hardy and otherwise, may soon be sown in plenty for early bloom, provided there is room enough for them to be grown properly. There are a few choice kinds which should be grown to bloom in large pans or in pots for the drawing room, such as *Nemophila insignis*, *Fenzlia dianthiflora*, *Iberis kermesina*, *Gypsophila muralis*, *Silene armeria*, and *Mignonette*. Half-hardy annuals, such as *Thunbergia*, *Scabanthus*, *Phlox Drummondii*, *Balsams*, *Datura Wrightii*, *Eccremocarpus scaber*, *Ten-week Stock*, *Cockscomb*, and *Celosia pyramidalis* may shortly be sown in heat for early flowering, but there ought not to be any hurry.

CELERY may now be sown in small quantities for early supply. Let the soil be rich and fine, the seed to be very lightly covered. If the soil is reasonably moist in the first instance it will not require to be watered till the plants are up. To prevent evaporation lay a square of glass over the pan after sowing the seeds.

DAHLIAS may be started in a gentle heat for cuttings. The simplest way is to place the tubers on the soil over a bed of warm hops or dung, and when the shoots are two inches long take them off and strike them. Seed of the single varieties should be sown at once to ensure plants strong enough to bloom early in the summer.

GREENHOUSE AND CONSERVATORY.—Fire heat must be used sparingly in these structures, but the frost must not be allowed to enter them. Soft-wooded plants must be kept near the glass, or they will become weak. If any appearance of mildew, dust with flowers of sulphur immediately; if any fly, fumigate with tobacco. As there is necessarily a mixed collection of flowering plants in the conservatory during the present month, some requiring a higher temperature than others, a little attention is necessary in their disposition and arrangement to make all comfortable. Hard-wooded plants should be arranged at the cool end; forced bulbs and primulas, justicias, euphorbias, violets, lily of the valley, and poinsettias should be kept at the warmest end. Water early in the day, and keep the atmosphere dry, to prolong the beauty and freshness of the plants in bloom as long as possible.

HOLLYHOCKS in cutting pots to have a shift to 48-sized pots, and the soil to be chiefly loam. Keep them in the greenhouse or warm pit for a week after shifting; then they may go to a cold frame. Strong plants in pots may be planted out as soon as the weather and soil are favourable. Seedling plants produce flowers of very excellent quality, provided due care has been taken in saving the seed; and, owing to the difficulty experienced in obtaining healthy plants from cuttings, cultivators will do well to raise a stock of seed annually. In raising seedlings, sow in pans in January or February, and as soon as large enough pot singly into thumb pots. Repot the plants as they gain strength and size, and plant out into well-trenched and highly-manured borders about the middle of May, selecting showery weather if possible. They will then flower the same year, and thus save one season's growth.

HOTBEDS are of so much value in the gardens of all classes that their formation constitutes one of the most important operations of the season, and one that is worth mastering, for in one sense at least it is the foundation of first-class work in the garden. A well-managed hotbed will produce the finest cucumbers and melons, and early supplies of several other good things, besides forwarding young plants from seeds or cuttings for planting out in the kitchen or flower garden. There are two points of primary importance in making up a hotbed: one is to employ a considerable bulk of material, and the other is to have it moderately moist throughout, and the first fire taken out of it by judicious handling. An experienced gardener can do something with a mere handful of stuff, but a beginner should begin with four cartloads at least of stable manure. This should be laid up in a heap by regularly forking it over, and if dry should be sprinkled with water to make it uniformly moist throughout. After lying in a heap for a week, the whole mass should be turned over and made into a heap again. The exact moment for making up the bed has to be learned by experience. So long as

the mass heats rapidly and fiercely it is unfit, and must be again turned, and all the dry lumps and flakes should be broken and wetted. This of course must not be carried too far, because you want all the heat you can obtain with safety. Therefore as soon as it appears that the stuff is getting mellow, and the heat is moderate, make up the bed about two feet larger every way than the frame by throwing the stuff together with a fork and taking care not to tread on it, but let it sink down in its own way, as it shrinks naturally. Put on the frame, and adjust the lights, and shut it up. The next day draw down the lights, and if there is much steam and a strong heat leave it for a few days. But if the heat is not more than about 90 deg. put on a sufficient depth of light rich mould for the business in hand, and in the course of another day or two sow seeds or put in cuttings as may be required. A foot depth of mould is enough, generally speaking, to begin with, and it must be remembered that more can be added as required. A moderate lasting heat is the end to aim at; hence the necessity for taking the first rush out of the fermentation by twice or thrice turning, because too much heat is really more injurious than too little. If you sow seeds on a cold bed they will simply be slow to start; but if the bed is too hot they will be killed right off, and labour and money and time will be wasted. If a hotbed rises to 90 deg. when the work is finished, it will soon drop to 70 deg., and then you may sow with safety. In growing cucumbers and melons, the bed made now will suffice to raise a nice lot of plants from seed, and you will want another or several when the plants are forward, and on these new beds they must be planted for fruiting. Well-managed hotbeds pay well, because when you have turned the heat into money, you have some first-rate rotten manure which you can also turn into money.

Roses to be planted should have attention as soon as possible. In light soils standards will thrive better if some clay is dug in with the manure. Roses on their own roots need a lighter soil than briars, and it must be borne in mind that roses will not thrive unless the ground is effectually drained, deeply stirred, and liberally manured.

THE HOME FARM.

FARM work comprises hauling out and spreading manure, lime, marl, &c.; the repairing of roads, drains, and fences; ploughing clover leas, and making land ready for beans, peas, and roots. On warm dry lands peas and beans may be sown, as may also wheat, parsnips, and spring vetches, but there is a good deal of risk about such proceedings at present, and the circumstances should be peculiar to justify the putting of seed in the ground anywhere. But seeds should be got ready, and whatever work can be done at the fireside or in the office should have attention now, so as to anticipate as far as possible the spring rush. Of turnip seed you will want about 3 lbs. per acre; of mangold, 5 lbs.; carrot and parsnip, 7 lbs. each; kohlrabi, 4 lbs. for sowing to stand, or only one pound if to be transplanted; cabbage, 1 lb.; clover, 15 lbs.; grasses, 3 bushels; beans, 2 bushels; peas, 3 bushels; oats, 6 bushels; barley, 3 bushels. As soils and seasons and methods vary much, these quantities must be taken *cum grano*, but for general purposes they are safe standards. The Jerusalem artichoke is well worth a place amongst farm crops. The roots are less nutritious than the potato, but for that they make amends by their immense productiveness, complete freedom from disease, and their thorough adaptation to any soil from the most stubborn clay to the most starving sand. In common with many other good things, a good soil suits them rather than a bad soil, and manure and good tillage may be advantageously bestowed. They are relished by all kinds of stock, and may be taken up as wanted, if it is more convenient to leave them in the ground than to store for the winter.

WINTER FLOWERS.

FLOWERS met with in the vicinity of Hastings:—*Apocynaceae*—*Vinca major*, *Vinca minor*, *Vinca alba*. *Araliaceae*—*Hedera helix*, *Adoxa moschatellina*. *Boraginaceae*—*Myosotis palustris*. *Caryophyllaceae*—*Cerastium vulgatum*, *Cerastium semidecandrum*, *Cerastium tetrandrum*, *Lychnis diurna*. *Compositae*—*Tussilago farfara*, *Petasites vulgaris*, *Bellis perennis*, *Solidago virgata*, *Centaurea nigra*, *Centaurea cyanus*, *Leontodon Taraxacum*, *Sonchus oleraceus*, *Pyrethrum inodorum*, *Achillea millefolium*, *Chrysanthemum leucanthemum*. *Cruciferae*—*Capsella Bursa-Pastoris*, *Sinapis arvensis*, *Cheiranthus Chieri*. *Cupuliferae*—*Corylus avellana*. *Caprifoliaceae*—*Lonicera Periclimenum*. *Dipsacaceae*—*Scabiosa columbaria*. *Eriaceae*—*Erica cinerea*, *Erica tetralix*, *Calluna vulgaris*. *Rumicaceae*—*Sisymbrium officinalis*. *Geraniaceae*—*Geranium Robertianum*. *Gentianaceae*—*Erythraea centaurium*. *Gramineae*—*Anthoxanthum odoratum*. *Leguminosae*—*Cytisus scoparius*, *Lotus corniculatus*, *Ulex europaeus*, *Trifolium orithopodioides*, *Trifolium repens*, *Trifolium subterraneum*, *Trifolium pratense*, *Vicia lathyroides*. *Labiatae*—*Prunella vulgaris*, *Lamium album*, *Lamium purpureum*, *Glechoma hederacea*, *Teucrium scorodonia*. *Liliaceae*—*Ruscus aculeatus*. *Hypericaceae*—*Hypericum perforatum*. *Malvaceae*—*Malva sylvestris*. *Polygalaceae*—*Polygala vulgaris*. *Euphorbiaceae*—*Euphorbia peplus*. *Primulaceae*—*Primula vulgaris*, *Anagallis arvensis*, *Anagallis coerulea*. *Ranunculaceae*—*Ranunculus ficaria*, *Ranunculus bulbosus*. *Rosaceae*—*Rubus fruticosus* (and ripe fruit), *Rubus idaeus*, *Fragaria vesca* (and ripe fruit). *Scrophulariaceae*—*Veronica Chamædrys*, *Veronica Buxbaumii*, *Veronica Beccabunga*, *Veronica polita*, *Linaria vulgaris*, *Linaria oymbalaria*. *Solanaceae*—*Solanum dulcamara*, *Solanum nigrum* (and ripe berry). *Umbelliferae*—*Anthriscus sylvestris*, *Anthriscus vulgaris*. *Violaceae*—*Viola canina*, *Viola odorata*, var. *alba*, *Viola tricolor*.

St. Leonards, Jan. 9, 1882.

W. P. KIRKMAN.

THE STRENGTH OF TOADSTOOLS.—Mushrooms, toadstools, and the like are known to scientific men as "fungi." They possess a remarkable power of raising enormous weights, a fact of which Dr. M. L. Cooke has given several curious examples. A few years ago a town in Hampshire was paved, and shortly afterwards certain streets showed signs of unevenness that could not well be explained, until some of the heaviest stones were at length seen to be completely raised by the growth of toadstools under them. In another case a kitchen hearthstone was lifted out of its setting three times, and was only righted by digging up the old bed and laying down a new foundation. Sir Joseph Banks records one of the most extraordinary instances of this power. The wine in a cask kept in a cellar for three years was, at the end of that period, found to have leaked away, and to have produced gigantic fungi, which filled the cellar, and lifted the cask to the roof.—From *Little Folks Magazine* for January.

Literature.

THE VOYAGE OF THE VEGA AND THE NORTH-EAST PASSAGE.

The Voyage of the Vega round Asia and Europe. By A. E. NORDENSKIÖLD. Two volumes. (Macmillan.)—Baron Nordenskiöld has made a very substantial addition to the important and fascinating literature of adventures and explorations within the arctic circle. And he has had the singular good fortune to solve a geographical problem, to lay the foundation of a new commerce, to accumulate valuable information in respect of places and peoples comparatively unknown, and, though last not least, to discover a new mode of treating what may be termed an old subject, for arctic exploration is an old subject; although the regions we are now taken to by the bold Baron we have not heard much of before. These two beautiful volumes will rank with those containing the records of the voyages of the *Alert*, the *Challenger*, and the *Tegethof*, and will compare with them with no disadvantage to the learned and intrepid Swede, who has clearly shown the way to the far East along the northern coasts of Europe and Asia. The water way has, indeed, been known for any length of time, for it is described, in a fashion, on the commonest of maps. But this book tells the story of the very first scientific and practical tracing of it in detail, and contains also the very first correct mapping of it, and thus all our maps will have to be remodelled, as regards their delineations of the coasts of Lapland and Siberia. A more remarkable voyage has not been accomplished, and a more delightful book has not been written, and never surely have greater pains been taken by all concerned—the author in the first instance, and subsequently the translator, the engravers, and the publishers—to render it worthy of its historical and geographical importance. It is sometimes said that truth is stranger than fiction, and we confess that a book of this kind, loaded with facts and rich in surprises, is calculated to dwarf into abjectness all possible kinds of fiction and all fancies whatsoever. The admirable manner in which the whole history of arctic adventure, as regards the European and Asiatic coasts, is piece by piece dovetailed into the narrative of the voyage of the *Vega* gives a fulness and completeness to the work that render it unique, both for present entertainment and for strictly historical purposes as a book of reference.

The expedition of which Baron Nordenskiöld had the general direction comprised four vessels, namely, the *Vega*, which circumnavigated Europe and Asia; the *Lena*, the first vessel that reached the river *Lena* from the Atlantic; the *Fraser*, that kept pretty close to the *Vega* in the voyage; and the *Express*, the first which brought cargoes of grain from the Yenisej to Europe. With the *Vega* almost exclusively we are concerned in this work, and we invite the reader who has not the present book at command to spread out the map, and make a rough draught of the passage from North Europe to Behring Straits. The course from Tromsø hugs the shore as far as North Cape. Thence it proceeds in a right line, or nearly, to Novaya Zemlya, which it touches at the western bow of the coast, called Goose Land. Thence it follows the coast in a south-easterly course, and passes through the narrow strait at the south of Waigatsch, and then proceeds in another right line direct north-east to round the great peninsula of Yahual. From this point the coast-line is pretty closely followed to Behring, beyond which the course is less interesting, because it is over familiar ground. The rectifications of the mapped coast-lines effected are of great importance; some few discoveries were made, and certain observations and calculations tend to show that the way to the pole will ultimately be found by way of Spitzbergen or Novaya Zemlya rather than by way of Greenland.

The *Vega* left Tromsø on the 21st of July, 1878, and reached the mouth of the Yenisej on the 6th of August. On the 19th of August she rounded the most northern point of the old world, and got amongst the New Siberia islands on the 6th of September. By the 28th of September she had—as the map might show—completed her voyage, and had but to run through the straits into the Pacific and make holiday all the way home. But she did nothing of the sort, for the simple reason that on the old-world side of Behring Straits she was caught in the ice, and there she remained until July 18, 1879, when away she went for Japan, and thence to the Suez Canal, and so triumphantly homewards, making morning calls at Falmouth and London on the way to Stockholm, where the voyage terminated on the 24th of April, 1880.

It is interesting to learn that the zeal of England in sending out vessels in search of a new passage to India and China “gave the first start to the development of England’s ocean navigation.” It is true, however, that all the maritime greatness, as we now know it, of this country is of late date. In the year 1540 London, exclusive of the royal navy, had no more than four vessels whose draught exceeded 120 tons. The first maritime expedition on a large scale was that sent from England in the year 1553, under Sir Hugh Willoughby. This expedition reached the White Sea, and accomplished results favourable to commerce; but the commander and sixty-two companions perished on the coast of Russian Lapland, probably of scurvy, the common scourge of the winter in high latitudes.

It will be remembered that the speedy return of the *Alert* and *Discovery* from the north coast of Greenland was due rather to the prevalence of scurvy than to the conviction of the commanders that there was nothing more to be done in the way of pushing further northward. The voyage of the *Vega* was characterized by a winter in the ice, but no case of scurvy occurred. Baron Nordenskiöld makes frequent reference to the subject however, and ascribes its outbreak in many instances to the custom of securing warmth in ships locked up in the ice, by closely sealing up the sleeping apartments and abstaining from outdoor exercise. In these instances, it is the result of debility engendered by the constant breathing of a vitiated atmosphere, accompanied, as a matter of course, by despondency, lassitude, and indifference. At page 11, vol. i., he describes the dietary provided for the expedition. It included, as a matter of course, many kinds of tinned meats, biscuits, flour, and so forth; but also fresh ripe potatoes from the Mediterranean, and cranberry juice from Finland. “The potatoes were to be delivered at Gothenburg on the 1st of July. In order to keep, they had to be newly taken up, and yet ripe.” They were therefore procured from the south through Mr. Carl W. Boman, of Stockholm. Of these, certainly one of the best of all anti-scorbutics, we had still some remaining on our arrival at Japan.” As Yokohama was reached on September 2, 1879, and the potatoes were lifted about the middle of June of the

previous year, some fourteen or fifteen months elapsed between the harvesting of the crop and the eating of the “last of the Mohicans.” The constant cold will account for the long keeping; but it must be a matter of some difficulty to keep large stocks of things so exceedingly susceptible to injury from the slightest touch of frost.

Having touched on the “noble tuber” in connexion with the book before us, we note that Maosoe, in N. L. 71 deg., is an island in proximity to the northernmost promontory of Europe, the inhabitants of which live almost exclusively on fish. The author declares (vol. i., p. 40) that “all agriculture is impossible here. Potatoes have indeed sometimes yielded an abundant crop on the neighbouring lugos (N. L. 71 deg. 5 min.), but their cultivation commonly fails, in consequence of the shortness of the summer; on the other hand, radishes and a number of other vegetables are grown with success in the garden beds.” The Skopt Colony at Selivaninskoj (N. L. 72 deg.) grow potatoes, turnips, and cabbage, although there is no proper grain cultivation till we come to Sykbatka (N. L. 60 deg.)

The countries visited by the *Vega* voyagers are full of interest for the naturalist and full of hope for the crowded populations of Europe. To speak of Siberia as a country to which one may look for rising cities, the growth of freedom, and the production of plenty, seems absurd; but the careful reader of these volumes will not fail to note that a political change is all that is needed to convert many vast tracts of these northern deserts into earthly paradises, suited for prosperous and happy populations of intelligent men. There are no such forests as here, there are not many such hunting grounds. There are tracts of uncultivated but highly fertile soil extending over a million square miles, and while the climates vary they are mostly salubrious, and the plateaux are at almost regular intervals divided by navigable rivers. The Russian empire is not without mighty resources that lie untouched and, to a considerable extent, unknown, even to those who should be most interested in their development.

Amongst the many interesting particulars for the naturalist, the position of the mammoth up there is full of importance. The mammoth was a huge hairy elephant that roamed in herds over these plains many long ages ago. Very many complete carcasses have been met with in places where the soil is permanently frozen, and a very considerable trade is carried on in mammoth tusks. Of these there are brought into the market an average of one hundred pairs yearly, and it may be inferred that during the years that have elapsed since the conquest of Siberia useful tusks of more than 20,000 animals have been collected. And yet they still occur in plenty, and are often found attached to mammoth mummies, the flesh of which is still so far sound that it is greedily eaten by dogs.

Some interesting particulars are given of a cetaceous creature called the sea-cow, something between a seal and a whale. This was only a century back prized for its milk and its flesh, but now appears to be, like the mammoth, no longer existent in the living state, unless, as is not unlikely, the herds have shifted their quarters into some no-man’s-land where they are safe against being milked and murdered for the present. On the subject of “self-dead” animals, or in plainer English, animals that die a natural death, the Baron has some strange remarks, the tendency of which is to show that their carcasses are “spirited away” in some manner unknown to us. It is a remark often made by naturalists that, even in a populous and much-observed country like our own, the remains of dead animals are but rarely met with; but the fact does not appear to us to belong to the region of the wonderful, because of the many agencies that are for ever in action to remove them, or convert them, or conceal them from human observation. One might as well propound a problem as to the preservation of the mammoths; for if certain races disappear, here is a race that remains, though as regards vitality extinct. The mammoths remain where they have been permanently frozen, and where they were not frozen they decayed in common with their extinguished companions of the primeval forest.

There are many notes on the plants met with, but we have not noted any new facts or specially interesting observations. The lists are such as we have been long accustomed to, including saxifragas, drabas, potentillas, stellarias, cardamines, and other common denizens of the arctic circle, which have their counterparts on all the higher ranges of the Alps, the Carpathians, and the Pyrenees. Baron Nordenskiöld is of opinion that Siberia has not known a glacial period, and that opinion might, perhaps, be severely tested by an analysis of the botany of the Voyage of the *Vega*.

A NEW WINE-PRODUCING FRUIT.—Among the exotic plants experimentally grown in the Trinidad Botanic Gardens are some specimens of the Chinese “litchee” or “lychee” (*Nephelium litchee*), which have produced from time to time a crop of fruit. The dried “litchee” has of late years been introduced into the English market—a small round brown-coloured hard-skinned fruit, looking something like a rough-shelled nut, but tasting very like the Muscat grape. The well-known universal spread of the vine pest, *Phylloxera vastatrix*, whose ravages in Europe have resulted in annihilating the vine-growing industry of some districts, and which has also attacked the vineyards of Australia and America, has suggested to Mr. Prestoe, the Government Botanist of Trinidad, the possibility of utilizing this fruit as a substitute for the grape in wine making. The skin, though hard and somewhat shell-like, is easily broken by treading, and contains a small proportion of tannic acid, which would probably be useful in making wine. A possible objection may be found in the seeds, which are large and acid; but Mr. Prestoe states that unless the seeds are crushed their acidity is not perceptible, and that, as a matter of fact, they are not easily bruised in the process of pressing the fruit. The litchee has been acclimatized in Mauritius, Singapore, and in several of the West Indian Islands, where it might be cultivated on a large scale. The requirements seem to be a limestone or volcanic soil, good drainage, and not too great heat, conditions which the high land of most of the West Indian Islands possess, and which are also to be met with in Australia and New Zealand. The small experiment made by Mr. Prestoe was sufficiently successful to warrant a trial on a more extended scale in China or Mauritius, where the fresh fruit is abundant, and suggests the possibility of a new and unlooked-for addition to the list of natural wines.—*Colonies and India*.

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland’s Odonto, the purest, most fragrant, and non-gritty tooth-powder ever made. The hair also may be kept beautifully soft, pliable, and glossy, and its liability to fall during, and become dry during the damp and fog of winter may be arrested by the regular application of Rowland’s Macassar Oil. Sold everywhere.—[ADVT.]

Correspondence.

YOUNG GARDENERS' BOOKS.

Most heartily do I thank you—and if there is any pith and marrow in the land, thousands will thank you—for denouncing the bosh of Mr. Carmichael. Yes, pitch over popular science, and read Virgil and Tennyson! Pitch over facts, and live on fancies, and cultivate æsthetics, and go to the workhouse, or a worse place. Such a pack of trash as Mr. Carmichael's letter I have but rarely read—has any one seen its equal for stupidity? The last little fling in your leader, where you say a man may with advantage know why a pump will not pull forty feet, touches the centre of the question. Gardeners should be botanists, says Mr. Carmichael. Well, I have no objection to that, although I am sure very few gardeners will ever become botanists in the thorough, comprehensive, exhaustive, and “high falutin” sense that would satisfy the new denouncer of popular science. But let it be so. Are they to live on botany and Ruskin? It would be better, I think, if they were to master some of the serious facts of Nature, as Mr. C. advises them to master the “elements of heat.” The first duty for a gardener is of the same kind as the first duty of any and every man who has to earn his living, it is to know how to do it. Thence it follows that a gardener should understand gardening, and a builder building, &c., &c. A good book on “popular science” may be of incalculable service to a gardener, if it only teaches him that the earth is round, that the atmosphere presses on the earth at the rate of fifteen pounds to the square inch, and that therefore a pump will not pull forty feet. Instead of denouncing books on “popular science,” Mr. Carmichael would have done a better service for young gardeners by suggesting a list of such books as they might with advantage buy and read; but it is fair to assume that he knows so little of this part of the subject that it is out of his ignorance, and not out of his knowledge, that he has spoken out of season and out of sense.

AN OLD GARDENER.

THE BOROUGH OF HACKNEY AND STOKE NEWINGTON CHRYSANTHEMUM SOCIETIES.

In a recent number of the GARDENERS' MAGAZINE appeared a report of the annual dinner of the Stoke Newington Chrysanthemum Society, held at the Weavers' Arms, High Street, Stoke Newington. This doubtless is strictly accurate as a record of a very pleasant and successful meeting of chrysanthemum growers and their friends, yet in the short sketch of the society and its history there are several inaccuracies, such indeed as seem to demand a correction from those who are perhaps better informed than the reporter. In the first place, we hope it will be thoroughly understood that this communication is made in no spirit of antagonism to a contemporary society which is doing so much in its own sphere towards promoting chrysanthemum culture and developing a love for that now popular flower, but simply with the intention of preserving to the Borough of Hackney Chrysanthemum Society its rightful prestige as the parent and original organization.

Briefly, the true history runs as follows:—In the year 1847 Messrs. Tant, R. James, and W. Holmes competed each with a stand of twelve blooms in a room of the Rochester Castle, Stoke Newington, and this formed the first exhibition of what was then, and for a considerable time afterwards, known as the “Stoke Newington Florists' Society for the Cultivation and Exhibition of the Chrysanthemum.” The next year we find the exhibition took place in the skittle ground of the same Rochester Castle, and it was then that specimen plants of the chrysanthemum made their *début* to the public, at once proving themselves to be most attractive and worthy the attention of the skilful cultivator. In the year 1849 the society began to develop its resources, and a fairly successful show was held in the Manor Rooms, Church Street; and it was also in this year that the first essay on the flower was written and read by Mr. Wm. Holmes, this being a considerable period in advance of the work alluded to by your correspondent as emanating from Mr. G. Taylor.

In the year 1851 Mr. Nichols, who had acted as honorary secretary since the commencement of the society, retired from his position, and Mr. E. Sanderson, the present president of the Borough of Hackney Society, was at once appointed to the office, and it is to his wondrous enthusiasm and stupendous exertions from time to time called forth that very much of the success of the society is due.

The exhibition now year by year increased in popularity, until in 1852 no less than three silver cups and £36 11s. were awarded as prizes; no small amount for a society to pay at that period.

From that time the society had a varying amount of success, sometimes holding good exhibitions and in a fair pecuniary position; and at others, dependent almost entirely on a few fast friends, who still stood by it and kept it afloat, until in the year 1874 it was resolved to break fresh ground, and hold the exhibition at the Hackney Town Hall, and also to re-designate the society as the “Borough of Hackney.” This decision was not arrived at until almost every measure had been tried to induce the inhabitants of Stoke Newington to accord a sufficient support to maintain the society in its old locale; but unfortunately all efforts failed, and in the years 1874, 75, 76, the exhibitions were held with very considerable success at the Town Hall, Hackney; none whatever being held in Stoke Newington by any society.

In the year 1877 a suggestion was made to again try fresh ground, and eventually an offer to hold the show at the Royal Aquarium, Westminster, was accepted by the unanimous vote of the society. This arrangement however failed to commend itself to some of the older members resident in Stoke Newington, and after a lapse of four years, by their renewed efforts, a new society was formed and an exhibition held, this being the first show of the present “Stoke Newington Chrysanthemum Society.”

The above necessarily very limited glance at the history of the two societies will, I think, conclusively prove, 1st, that the “Borough of Hackney” is the original society, and did not “grow out from any split” or from any other organization, but simply remains, as it ever has been, the parent; 2nd, that the annual dinner, held at the Weavers' Arms, in December last, so far from being the thirty-fifth, is only the fifth; and further that the first work on the chrysanthemum was written by Mr. William Holmes in 1849, and not by Mr. Taylor, whose essay was not produced until February 27, 1851.

It may be well just to say that books and documents are in possession of the secretary of the Borough of Hackney Society that will prove each of the assertions herein made, and that they are open to the inspection of any one who takes sufficient interest in the matter to give him a call.

Let it be reiterated that the members of the old society are most glad to note the success of the new and flourishing Stoke Newington Society, but cannot permit without contradiction your correspondent to borrow from us aught of our time-honoured history and associations.

E. SANDERSON, *President*.
R. BALLANTINE, *Vice-President*.
WILLIAM HOLMES, *Honorary Secretary*.

The Householder.

USES OF TINNED TOMATOES.

IN all the notes I have hitherto supplied on the cookery of Tomatoes, I have referred to the fresh home-grown fruit, the use of tinned tomatoes not having occurred to me. But I have lately had to give attention to the tinned fruit, and I gladly confess I was delighted at its excellent quality and very convenient form. Any one may make a first-class tomato soup in winter now that we have these excellent supplies of them in tins, and they cost so little that they certainly come within the range of popular luxuries for all who keep comfortable tables. So far as I can judge of the tinned tomatoes, they are adapted for all the various dishes, sauces, &c., for which tomatoes are required, and they therefore take the place completely of fresh fruit for winter use. The most important matter at this time of year is undoubtedly tomato soup, which I will speak of in detail.

WINTER TOMATO SOUP.—It is necessary to have some very stout stock for this soup, because the tomatoes are of a watery nature. The soup can be made in five minutes, and will be delicious if made as follows:—Turn out the contents of a tin into an enamelled iron pot, and add to it an equal quantity or strong stock, and about one cubic inch of loaf-sugar. While this is hotting, mix in a basin one tablespoonful each of flour, Worcester sauce, Harvey's sauce, and vinegar, and beat smooth. Add a very little salt and a very little red pepper. When the soup has boiled about two minutes add the flavouring, and boil up again for one minute, then pour it through a gravy strainer into the tureen and serve. This is the quick way and answers admirably. The mixing of the flour and the flavourings is all the head cook need do, the rest can be left to the under cook. By this arrangement three minutes is sufficient for the business.

We will now describe a better way, requiring more time. Put on, in a little water or stock some onions, carrots, and turnips, roughly chopped up, and let them stew for half an hour. Then prepare a good heap of scraped carrot, which put into the pot with the tomatoes and the stock, which, as before, should be strong, and in bulk about the same as the tomatoes. Strain off the liquor from the herbs, and with it mix two tablespoonfuls of flour and one large tablespoonful each of Worcester, Harvey, and vinegar. Add a little salt, a cubic inch of loaf-sugar, and red pepper. When the soup has boiled a few minutes add this flavoured thickening and boil up again. Then strain, and serve with small nicely-made croquettes of buttered toast.

Well-made tomato soup should be clear, smooth, of a nice red colour, and a little piquant, but as a matter of course the delicious flavour of the tomatoes should predominate. Care should therefore be taken not to thicken it or flavour it immoderately, for any excess of the adjuncts will render it coarse, and will obscure the proper flavour of the tomatoes. It is not needful to employ thickening, but a little gives smoothness of character without impairing the flavour. If the stock is poor a lump of Leibig extract should be added.

TINNED TOMATOES AND BREAD CRUMBS.—Directions were sent to me for a dish consisting mainly of tinned tomatoes and bread crumbs. I found it good, but there was room for improvement, because the directions did not provide for the removal of the skins of the fruit. I therefore proceeded as follows:—Having minced very fine the tender centres of three onions, and prepared a small cupful of scraped carrot, I put them into a pot with the contents of one large tin of tomatoes, and boiled the whole for a quarter of an hour. While this proceeded, I prepared a teacupful of fine bread crumbs. The contents of the pot were then well stirred up and passed through a gravy strainer. This removes lumps and skins, and occasions no loss whatever of eatable fruit. The bread crumbs are added to the strained liquor with a lump of sugar, a lump of butter, a very little red pepper, and a tea-spoonful of vinegar. Boil up, stir well, and serve. This is a good accompaniment to a dish of outlets or a roasted chicken.

The following are the directions I obtained with my supply of tinned fruit: they occasion less labour than the plan I recommend, and may therefore be more useful:—“Take a tin of whole tomatoes, empty contents into a saucepan, add three tablespoonfuls of bread crumbs, one tablespoonful of butter, and one tablespoonful of sugar, boil briskly for twenty minutes, mash and stir thoroughly while boiling till no lumps remain. Serve hot as a vegetable.”

The tomatoes I have used are labelled “Kensett's Imperial, Baltimore.” Probably all the tinned tomatoes on sale are good, but these I can vouch for as excellent. They are in large tins containing, I should think, a quart each, and I obtain them at the low price of six shillings and ninepence per dozen. A friend who saw me open a tin said “They are cheap enough to eat.”

X. Y. Z.

LAMPLOUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sea or Bilious Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff-coloured wrapper. 113, Holborn, London.—[ADVT.]

Replies to Queries.

H. H.—Your trees will do better for a season if not pruned. You might add to your list of strawberries Keen's Seedling for its earliness, but probably President will pay you best of any.

Kidney Bean.—The variety is known as Minor's Victoria, Holmsley's New Dwarf, Dunnett's Hybrid, and Dean's Exhibition. It is a good one, which accounts for its many names.

Paln Seeds.—W. H.—Seeds of palms other than those mentioned in your letter may occasionally be obtained of the leading nursery and seedsmen, and your best course will be to write to a few of the principal firms with reference to the matter.

Poinsettias.—J. W.—Your bract heads are remarkably good, and represent high-class cultural skill; but examples exceeding them in diameter by two or three inches are occasionally met with in gardens in which these showy subjects are especially well done.

Books.—R. Palmer.—For handy reference and comprehensiveness you know of nothing so useful as the "Cottage Gardeners' Dictionary," published by Bell, which you can obtain for about seven shillings. The most compact treatise on the culture of vegetables and general garden management is the "Amateur's Kitchen Garden," published by Groombridge, price 6s.

Gr. house.—Tenant's Fixture.—So far as we are able to gather from your letter, it appears to us that it will be a very nice question whether your greenhouse is a tenant's fixture or not, should the landlord object to its removal. We are inclined to the opinion that it is so built as to form a part of the freehold, but the information is not sufficient to enable us to speak positively upon the point. It is quite certain that you should have obtained an undertaking from the owner of the premises to allow you to remove the house as well as the permission to build it. If this reasonable precaution was taken by tenants much vexation and loss would be avoided.

Unhealthy Cucumbers.—Eight Years' Subscriber.—Your cucumber plants are suffering severely from the disease which does so much mischief annually to the cucumber crop. As yet no efficient means of coping with the disease has been devised beyond the rough-and-ready method of "stamping out." This consists of course in destroying the plants, remaking the beds with fresh soil, and commencing with a new stock of plants. After the materials with which the bed is formed have been removed, the interior of the pit should be well washed with hot lime. Judging from your letter, it will be a waste of time to allow the plants to remain with the hope of obtaining a few fruits from them; but of this you will be the best judge.

Trees for a Moist Position.—W. L. H.—The undermentioned are suitable for planting on the banks of a large sheet of water:—Common Alder, *Alnus glutinosus*; Cut-leaved Alder, *A. glutinosus laciniata*; Deciduous Cypress, *Taxodium distichum*; Abele Poplar, *Populus alba*; Balsam Poplar, *P. balsamifera*; Lombardy Poplar, *P. fastigiata*; Black Italian Poplar, *P. monilifera*; Black Poplar, *P. nigra*; White Willow, *Salix alba*; White Weeping Willow, *S. alba pendula*; Weeping Willow, *S. babylonica*; Goat Willow, *S. caprea*; Kilmarnock Weeping Willow, *S. caprea pendula*; Crack Willow, *S. fragilis*, and the Common Elder, *Sambucus nigra*, and its cut-leaved and golden-leaved varieties.

Names of Plants.—R. P., Tottenham.—The second parcel reached us in a good condition. 1, *Epiphyllum truncatum*; 2, *Eranthemum aureo-reticulatum*; 3, *Platyloma rotundifolia*; 4, *Acacia longifolia*; 5, *Begonia semperflorens*; 6, *Selaginella caulescens*; 7, *Onychium japonicum*; 8, *Selaginella Mertensi*; 9, *Aloe variegata*; 10, *Cacalia cylindrica*; 11, a begonia that cannot be named from a single half-grown leaf. T. Dawson.—1, *Acacia Ricana* (figured in "Maund's Botanist," t. 135); 2, *Begonia incarnata*; 3, *Euphorbia punicea*; 4, *Epacris impressa*; 5, *Correa pulchella*. R. W. P. T.—*Begonia Dregei* is of smallish growth; the leaves nearly equal and unequally triangular; the flowers small and white. We think it likely your plants will prove to be the well-known *B. nitida*, but in such matters guessing is waste of time. When in flower send it.

Alocasia and Cissus.—A. H., Farnham.—*Alocasia metallica* requires a decided season of rest, and this it should have by being placed at the coolest end of the stove, and by being kept somewhat drier at the roots. It must not be dried off, as you suggest, in the same manner as a caladium. *Cissus discolor* should be kept dry enough at the roots to cause it to lose the greater part, if not all, of its foliage; but, like other deciduous climbers that have not tuberous or bulbous roots, the soil should not be kept in a perfectly dust-dry state for any considerable period; but at the same time very little moisture will suffice to prevent injury to the roots. A month or so hence the cissus should be pruned, and when it commences to make new growth turn it out of the pot, reduce the ball of soil considerably, and put it into a pot of the same size, or one size larger, as may appear to be the most desirable. It is only by keeping the plants well furnished with new and vigorous growth that this beautiful climber can be had in perfection, and there is no better means by which the desired end can be attained than by thoroughly resting the plants during the winter, and then pruning them rather hard back to obtain breaks from well-ripened wood.

Heating Small Greenhouse.—Cheap Gardener.—Although not equal to a hot-water apparatus, a flue would answer very well in your little house. The flue may be formed with bricks and slabs of earthenware or stone, or with stout glazed earthenware pipes. A flue made with the bottom and sides of bricks, and the top of slabs of earthenware, such as strong paving tiles, or of stone, should be about six inches square inside measurement, and have the joints made with cement in the most careful manner. The fireplace should be about twelve inches below the flue, with a gradual rise into it, and there should be a slight rise from the fire to the chimney. The furnace, and about two feet of the flue immediately connected with it, should be formed with fire-bricks to reduce the risk of the work cracking when the fire is being driven in severe weather. A flue made with pipes should have a furnace precisely the same as one of brick, and the part likely to become very hot ought also to be formed with fire-bricks. The pipes should be strong, and of the best quality, be six inches in diameter, have the joints carefully made, and rest upon low piers near enough together to afford them efficient support. The work should be done by a competent builder, for if weak at any point the smoke will make its way into the house and quickly destroy the plants.

Obituary.

On the 14th inst., at Burnaby Street, Chelsea, RICHARD KIPPERT, A.L.S., aged 71, above fifty years Librarian to the Linnean Society.

Markets.

COVENT GARDEN.			CORN.—MARK LANE.		
FRUIT.					
Apples.....	per ½ sieve	1s. 6d. to 6s. 6d.	Wheat, Red, now.....	per qt.	35s. to 57s.
Cobs.....	per lb.	0s. 9d. to 1s. 0d.	Wheat, White, now.....	per qt.	38s. to 58s.
Grapes.....	per 100	1s. 6d. to 8s. 0d.	Flour, town-made whites, per	ack of 280lbs.	41s. to 47s.
Lemons.....	per 100	4s. 0d. to 6s. 0d.	Flour, householders.....	per sack	39s. to 49s.
Oranges.....	per doz.	1s. 6d. to 4s. 0d.	Flour, country households, best	makes	37s. to 41s.
Pears.....	per ½ sieve	2s. 6d. to 7s. 6d.	Flour, Norfolk and other seconds	per qt.	32s. to 36s.
Pears.....	per lb.	1s. 6d. to 2s. 0d.	Barley, Malt.....	per qt.	36s. to 54s.
Pine-apples, Eng.....	per lb.	1s. 6d. to 2s. 0d.	Barley, Grindling.....	per qt.	24s. to 30s.
Pine-apples, St. Mich's, en	per lb.	7s. 6d. to 15s. 0d.	Malt, English.....	per qt.	35s. to 40s.
Walnuts.....	per ½ bush.	3s. 0d. to 4s. 6d.	Malt, Scotch.....	per qt.	40s. to 49s.
VEGETABLES.			Malt, old.....	per qt.	28s. to 34s.
Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.		Malt, brown.....	per qt.	30s. to 34s.
Asparagus, French, per	bundle	4s. 0d. to 6s. 0d.	Oats, English.....	per qt.	22s. to 30s.
Asparagus, Sprue, per bun.	1s. 3d. to 1s. 6d.		Oats, Irish.....	per qt.	22s. to 24s.
Barbe de Capucina.....	per lb.	0s. 8d. to 0s. 9d.	Oats, Scotch.....	per qt.	24s. to 32s.
Beans, French.....	per lb.	1s. 0d. to 1s. 6d.	Rye.....	per qt.	42s. to 45s.
Beet.....	per doz.	1s. 0d. to 1s. 6d.	Tares.....	per qt.	50s. to 64s.
Brussels Sprouts.....	per doz.	2s. 6d. to 3s. 6d.	Beans, English, Mazagan	per qt.	36s. to 40s.
Cabbages.....	per doz.	1s. 0d. to 2s. 9d.	Beans, Tick.....	per qt.	38s. to 44s.
Carrots.....	per bunch	0s. 4d. to 0s. 6d.	Beans, Winter.....	per qt.	39s. to 41s.
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.		Peas, Grey.....	per qt.	30s. to 36s.
Celery.....	per bundle	1s. 6d. to 2s. 6d.	Peas, Maple.....	per qt.	40s. to 45s.
Cucumbers.....	each	0s. 9d. to 1s. 6d.	Peas, White.....	per qt.	36s. to 41s.
Endive.....	per doz.	1s. 0d. to 1s. 6d.	SEEDS.		
Garlic.....	per lb.	0s. 10d. to 1s. 0d.	Mustard, brown, per bush.	9s. to 16s. 0d.	
Herbs.....	per bunch	0s. 2d. to 0s. 4d.	Mustard, white.....	per bush.	5s. to 14s. 0d.
Horse-radish, per bundle	3s. 0d. to 4s. 0d.		Canary, new, per quarter.....	45s. to 50s. 0d.	
Leeks.....	per bunch	0s. 3d. to 0s. 6d.	Canary, fine.....	52s. to 56s. 0d.	
Lettuces, Cabbage, per dz.	0s. 9d. to 1s. 6d.		Cloverseed, red, old, per cwt.	35s. to 70s. 0d.	
Lettuces, Cos.....	per doz.	1s. 6d. to 3s. 6d.	Cloverseed, red, new.....	60s. to 90s. 0d.	
Mint, Green.....	per bunch	1s. 0d. to 1s. 6d.	Cloverseed, white.....	50s. to 95s. 0d.	
Mushrooms.....	per basket	1s. 6d. to 2s. 0d.	Coriander, per cwt.....	23s. to 25s. 0d.	
Onions.....	per bushel	4s. 0d. to 5s. 0d.	Hempseed, small, per 336 lb.	34s. to 35s. 0d.	
Onions, Spring, per bunch	0s. 4d. to 0s. 6d.		Hempseed, Dutch.....	36s. to 37s. 0d.	
Parsley.....	per doz.	1s. 0d. to 1s. 6d.	Tares, winter, new, per bush.	6s. to 7s. 6d.	
Parsnips.....	per lb.	0s. 4d. to 0s. 8d.	Trefoil, per cwt.....	18s. to 22s. 0d.	
Potatoes, New.....	per lb.	0s. 2d. to 0s. 6d.	Trefoil, new, per cwt.....	25s. to 32s. 0d.	
Radishes.....	per bunch	1s. 6d. to 2s. 0d.	Ryegrass, Italian, per qr.	24s. to 32s. 0d.	
Salsify.....	per bundle	1s. 6d. to 2s. 0d.	Linseed, sowing, per quarter	51s. to 63s. 0d.	
Seakale.....	per pun.	0s. 2d. to 0s. 4d.	Rapeseed, new, per quarter.	46s. to 62s. 0d.	
Small Salad.....	per bunch	2s. 6d. to 3s. 0d.	Caraway, Calcutta, per cwt.	27s. to 30s. 0d.	
Spinach.....	per bushel	1s. 0d. to 1s. 6d.	Alsike, per cwt.....	50s. to 90s. 0d.	
Tomatoes.....	per lb.	1s. 0d. to 1s. 6d.	GAME AND POULTRY.		
Turnips.....	per bunch	0s. 4d. to 0s. 8d.	Blackcock.....	each	1s. 6d. to 2s. 6d.
FLOWERS.			Capercailzie.....	per doz.	3s. 0d. to 5s. 0d.
Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.		Geese.....	per doz.	5s. 6d. to 10s. 6d.
Azalea.....	per doz. sprays	1s. 0d. to 1s. 6d.	Partridges.....	per doz.	1s. 6d. to 2s. 0d.
Bouvardias.....	per bunch	4s. 0d. to 6s. 0d.	Pheasants.....	per doz.	2s. 0d. to 3s. 3d.
Camellias.....	per doz.	1s. 0d. to 2s. 0d.	Plovers.....	per doz.	0s. 8d. to 0s. 9d.
Carnations.....	per doz. blms.	0s. 3d. to 0s. 6d.	Plovers (golden).....	per doz.	0s. 10d. to 1s. 0d.
Cyclamens, per doz. blms.	0s. 3d. to 0s. 6d.		Ptarmigan.....	per doz.	1s. 0d. to 1s. 2d.
Epiphyllums.....	per doz.	0s. 9d. to 1s. 0d.	Turkeys.....	per doz.	6s. 6d. to 11s. 9d.
Eucharis.....	per doz.	5s. 0d. to 7s. 6d.	Wild Ducks.....	per doz.	2s. 6d. to 3s. 6d.
Gardenias, per doz. blooms	10s. 0d. to 21s. 0d.		METROPOLITAN MEAT MARKET.		
Heliotropiums.....	per doz.	0s. 6d. to 1s. 0d.	Beef, Prime.....	per 8 lbs.	5s. 6d. to 5s. 4d.
Hyacinths.....	per spikes	5s. 0d. to 8s. 0d.	Beef, middling.....	per 8 lbs.	4s. 8d. to 4s. 8d.
Hyacinths, Roman, per	doz. sprays	2s. 0d. to 3s. 0d.	Beef, inferior.....	per 8 lbs.	3s. 0d. to 4s. 0d.
Lapagerias, per doz. blooms	1s. 0d. to 6s. 0d.		Mutton, first qty.....	per 8 lbs.	6s. 0d. to 6s. 4d.
Lilac, French, per bunch	5s. 0d. to 8s. 0d.		Mutton, middling.....	per 8 lbs.	5s. 4d. to 5s. 8d.
Marguerites, per doz. bun.	0s. 4d. to 0s. 6d.		Mutton, inferior.....	per 8 lbs.	3s. 0d. to 4s. 8d.
Mignonette.....	per doz.	4s. 0d. to 8s. 0d.	Veal, first quality.....	per 8 lbs.	5s. 4d. to 5s. 6d.
Pelargoniums, Zonal, per	doz. trusses	1s. 0d. to 1s. 6d.	Veal, middling.....	per 8 lbs.	4s. 4d. to 4s. 8d.
Poinsettias, per doz. heads	3s. 0d. to 12s. 0d.		Veal, inferior.....	per 8 lbs.	3s. 4d. to 3s. 8d.
Primulas, double, per bun.	1s. 0d. to 1s. 6d.		Pork, prime, small.....	per 8 lbs.	5s. 0d. to 5s. 4d.
Primulas, Single, dz. bun.	6s. 0d. to 9s. 0d.		Pork, middling.....	per 8 lbs.	4s. 4d. to 4s. 8d.
Roses.....	per doz.	3s. 0d. to 7s. 6d.	Pork, inferior.....	per 8 lbs.	3s. 4d. to 4s. 0d.
Roses, Tea.....	per doz.	2s. 0d. to 3s. 0d.	COAL MARKET.		
Stephanotis, per doz. sprays	6s. 0d. to 10s. 0d.		Beside West Hartley.....	per ton	14s. 3d.
Tropaeolum, per doz. bun.	1s. 0d. to 3s. 0d.		East Wylam.....	per ton	17s. 0d.
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MANURE FROM REFUSE OF GAS MANUFACTURE.

LORD PALMERSTON'S definition of "dirt" as matter out of place is curiously illustrated by the utilization of the refuse of the manufacture of gas. Once upon a time the gas companies poisoned rivers and wells with their refuse, as dyers and paper-makers continue to do with the refuse of their works, and as town councils are for ever doing with the sewage of towns. But step by step the gas companies have managed to turn all their refuse into money, and the greatest bit of all was in the manufacture of aniline dyes. Another and very important "utilization" has been effected in the collection of ammonia, hitherto wasted in the purification of gas. This is called the dry ammoniated superphosphate process. It consists in placing superphosphate of lime in purifiers, and passing the gas through it till it becomes charged with ammonia abstracted from the gas in the operation. This in no way deteriorates the value of the tar or other products, while it removes all the ammonia, and the costly "scrubbers" are not needed. The product, that is, the superphosphate plus the ammonia, is dry and easily broken up, and thus the farmer has ready for use in a powder form, compact and convenient for transit, a manure of rich value. The effect on gas companies and gas consumers, so far from being ill for them for the sake of good to the farmer, is

just the reverse. Gas of better quality, obtained with greater certainty as to purity, results, and at a less cost, as less coal is required for its production, while the capital required for all the plant of the "scrubbers" is wanted. Many of the objections raised on sanitary grounds to gasworks are obviated. The great boon to the agriculturist is that he obtains a manure the chemical value of which can be guaranteed, and being in powder form it can be economically employed just where it is wanted, as for example in furrows, and without waste, while it is also so free from unpleasant odour that it can be used near houses. It is just possible that we might have found in our coal-fields an equivalent for all the guano that has been imported, and it does appear that we have a substitute for guano in the future.

A FACT WORTH KNOWING.—The recently-published reports of Medical Officers of Health show that the mild autumn weather and excessive rainfall have produced an unusual amount of Scarlet and Typhoid Fevers throughout the United Kingdom. There is also in many districts excessive mortality from Measles and Smallpox. Every cautious Householder should use reliable preventive measures, and none are better than Washing with WRIGHT'S COAL TAR SOAP, recommended alike by the entire Medical Profession and the Public. Let the Soap be in every Bed Room, Bath Room, and Nursery, and when you purchase, insist upon being supplied with Wright's. Refuse all imitations. —[ADVT.]

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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg of 10 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; s, Stove.	Day of Yr.	
			Rises.	Souths after Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG		1882		
29	S	4th Sunday after Epiphany.	7 48	13 25	4 42	—	4 10	9 45	10 28	6 25	7 10	38.9	Cypripedium villosu[m], s.	Red-orange.	29
30	M	Martyrdom of King Charles I.	7 45	13 34	4 44	1 27	5 2	11 10	11 48	7 53	8 35	38.9	Dendrobium monitiforme, s. ..	Purple.	30
31	Tu	Length of Night, 14h. 57m.	7 43	13 43	4 46	2 28	5 43	—	0 20	9 13	9 45	40.0	Epacris Fireball, G.	Scarlet.	31
		FEBRUARY.													
1	W	George Cruikshank died, 1878.	7 41	13 51	4 48	3 29	6 17	0 50	1 15	10 15	10 40	39.1	Epacris Exquisita, G.	Pink.	32
2	Th	Purification of Virgin Mary.	7 40	13 50	4 49	4 35	6 46	1 35	1 55	11 0	11 20	39.2	Helleborus niger maxima, H. ..	White.	33
3	F	Full Moon, 6h. 68m. moru.	7 38	14 5	4 50	5 39	7 9	2 15	2 30	11 40	11 55	39.2	Lachenalia quadricolor, G.	Itod.	34
4	S	Fair on the Thames, 1814.	7 33	14 11	4 52	6 45	7 30	2 45	3 2	—	0 10	39.3	Pelargoniu[m], Zonal, G.	Various.	35

The Gardeners' Magazine.

SATURDAY, JANUARY 28, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2jd.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum. Post Office Orders payable to E. W. Allen.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2jd.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

Auction Sales for the Ensuing Week.

MONDAY, JANUARY 30, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.
WEDNESDAY, FEBRUARY 1, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.
THURSDAY, FEBRUARY 2, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Lilium auratum.
SATURDAY, FEBRUARY 4, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THE COURSE OF READING FOR YOUNG GARDENERS recommended by Mr. Carmichael is worthy to be once more considered, and the consideration acquires seasonableness by the publication of his letter. That in respect of his argument he does not budge an inch is acceptable evidence of his sincerity; and that he regards our "vivacious onslaught," published January 14, as "decidedly shallow" and "inaccurate" is according to the regular course of things when an inexperienced disputant has thrown down the gauntlet, and is somewhat perplexed as to what he shall do should the challenge be accepted. Disputation being part of our trade, we have long since been convinced that in matters of opinion there are commonly two sides, and that the honest way of procedure is to grant as much as possible to the "other" side with a view to narrow the argument. Reference to our leader of the 14th will show that we yielded much in mitigation of the onslaught; in fact, we accepted all Mr. Carmichael's positive proposals, and only objected to those that appeared to be of a strictly negative character. He advised young gardeners to read first-class poetry and criticism; and we joined him in the recommendation. We repeat that we should like to see the rising race of gardeners interested in the great books, whether poetical, historical, or critical; and we are satisfied that a certain degree of familiarity with the works of the principal British poets is necessary to give any man a claim to be regarded as an enlightened citizen. But when we find a man of much experience in the world, and who is moreover much respected as a leader in horticulture, advising young men to abjure "popular science," we feel bound to protest that such advice tends directly to the injury of those the writer seeks to influence. As for the "misprint," that is of no consequence. An "abortive causal nexus" does not run in the grooves of common sense any better than an "abortive casual nexus," and a better argument than Mr. Carmichael has to advance would be damaged at the outset by the use of such eccentric language. He nails his colours to the mast. We do the same; and it is in the interest of gardeners alone that we take any notice of this matter.

But in the interest of gardeners there is, perhaps, at this juncture much to be said. It may not be apparent to all our readers, or to the horticultural community at large, that great changes are impending, and the young gardeners are likely to be considerably influenced by them. Whether they will be influenced beneficially or injuriously will in some part depend upon themselves, but we incline to the opinion that the tendency of the tide will be against them. Therefore, if our words are reasonable and seasonable, they may prove useful, both as giving warning and suggesting means of escape from danger. Let us for a moment ignore opinions and give heed to facts.

Within the past few years the educational system of this country has been completely revolutionized. A more tremendous change is being wrought in our social system, and in our status as a people, than any change of any kind since the days of the Reformation in religion. The collective result will be manifested suddenly, and the manifestation is near at hand. It will affect all industries and all pursuits, and assuredly gardening will not escape when the boys from the Board schools go into the world and compete with their elders for a living. It is particularly worthy of attention that endowed schools, and denominational schools, and proprietary schools have all been influenced by the national movement in favour of a higher education, and the teaching of science is everywhere regarded as a matter of primary importance. This is an age of intellectual activity; the race is to the swift and the battle to the strong. The boys will very soon look over the men's heads, and those who do not understand the relationship of the pump to the barometer, and of both to the weather and the act of breathing, and of all these things to the general scheme of the world, will be supplanted by young men who have given attention to "popular science," and have perhaps contrived to gild the pill of life by reading the poets also. Comparatively few men of mature years are fairly well aware of the scope of contemporaneous teaching in schools. The schools in which the children of the wealthy are taught are, as regards the comprehensiveness and solidity of the teaching given, far in arrear of the times; while the schools provided for the middle and working classes are pretty well abreast of the times, and certainly are not far behind them. According to our judgment of the matter, the work is, generally speaking, too severe. But that is a matter of detail, and our opinion may be worthless. Let us therefore keep the facts in mind; and as the rising race is receiving what may be termed, without extravagance, a scientific education, it will be well to advise young men to gather up scientific knowledge while their minds are plastic and their powers of observation are still fresh and impressionable. For some time past there have been blazing in the sky above us three of the most interesting planets of the solar system. But very few amongst our enlightened citizens could point them out or give them names when attention was directed to them. But any moderate master of "popular science" could have named those planets and added some particulars of their history. It may be of small consequence to a gardener perhaps to be able to discourse upon the heavenly bodies, but the man who can do it will not in these days incur any special degree of contempt for his knowledge; he will perhaps be all the more respected for it, because everybody knows that a little knowledge is not a dangerous thing, provided it is not paraded vainly, or made a cover for deceit and trickery. It is just possible that in the battle of life the man who can name the principal constellations, and point out the course of the planets with relation to the ecliptic, may have considerable advantage over the man whose soul is saturated with Tennyson and has happily learned Virgil by heart. The man who would dissuade the young gardener from giving attention to "popular science" may be advised to think twice before speaking once. Poetical fancies are delightful as adornments of human life, but the substratum of real prosperity and of all healthy happiness is to be found in Facts. We advise our young friends to gain knowledge from Nature and from Books, and to seek, as opportunities occur, to compel them to illustrate and explain each other.

THE TRADE IN CUT FLOWERS was very much influenced in the spring of the year 1881 by the exportations of the Dutch bulb growers, who sent vast quantities of hyacinths and tulips to the English markets, which brought prices down to zero. As a matter of course, the Dutch growers have found the sale of bulbs influenced by the necessary reaction, and they have seriously considered how the case stands. The immediate result is thus set forth in a communication from Messrs. Krelage, of Haarlem:—"There have been serious complaints from the English horticultural trade that last year, during the flowering period of hyacinths, tulips, and other Dutch bulbous and tuberous plants, the English markets have been overstocked by large quantities of cut flowers of these plants sent from Holland. Thereby the price of English-grown flowers was in many cases so much depreciated that, instead of giving any profit, there was a great loss in this branch of cultivation. The majority of Dutch bulb growers and exporters have thought it necessary to interfere in the matter, and in consequence of this, at a general meeting of the General Association for the promotion of Bulb Cultivation at Haar-

lem (a society which has nearly five hundred members, in twelve different sections), resolutions have been passed against this trade in cut flowers, because it is considered to largely damage the trade in bulbs. The society wishes every bulb grower or exporter, whether a member of the society or not, to give a declaration to the following effect.—1. To send out, neither in the interior nor abroad, any cut flowers of hyacinths, tulips, narcissuses, anemones, ranunculuses, or gladioli, except—*a*, As samples in cases under five kilogrammes; *b*, without charge for exhibition purposes. 2. Neither to sell nor to give to others any such cut flowers as an article of trade. The signatures to these declarations will be collected by the officers of the sections of the society. It may be expected that this measure will have the desired effect."

THE NATIONAL DAHLIA SHOW will be held September 8 and 9.

FARNINGHAM ROSE SOCIETY will hold its exhibition on Thursday, June 29, instead of on Saturday, July 1, in consequence of the Crystal Palace rose show being fixed for that date.

MR. RICHARD LYE has left Brooklands, Dorchester, to take charge of the gardens of Sydmonton Court, Newbury, the residence of W. A. Kingsmill, Esq.

MR. H. YOUNG, from Rolleston Hall, has taken charge of the gardens of Downside, Stoke Bishop, Bristol, the residence of W. E. George, Esq.

NATIONAL AURICULA SOCIETY.—The annual meeting of the Northern section will be held at the Old Bull's Head, Manchester, on Wednesday next, February 1, at 3 p.m.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—The Spring Show will be held April 5 and 6. The International Fruit Show will be held September 13 and 14.

DENDROPHILICAL AUTOGRAPHS.—A hint to gentlemen who like to score their names, &c., on trunks of trees in our public parks and haunts comes from Marylebone, a person being fined 30s., or seven days, for injuring certain trees in Regent's Park.

IGHTHAM COTTAGE GARDENERS' ASSOCIATION.—From the *Kent and Sussex Courier* we learn that Mr. J. Haiseman, the late secretary of this society, was a few days since presented by the members with a silver teapot and a well-filled purse, in recognition of his services during the past twelve years.

THE OLD HOUSE OF BUTLER AND McCULLOCH, Covent Garden, has once more made a figure in the newspapers. At Bow Street Police Court two men have been charged with annoying the firm by sending threatening letters, and by publishing hoax advertisements, and by other devices. The accused men are committed for trial.

MESSRS. HOOPER AND CO.'S SPECIAL PRIZES for Queen of the Valley potato are for the heaviest tuber £1 1s. and 10s. 6d.; and for the best dish of nine tubers 15s. and 7s. 6d., instead of those mentioned at page 23. In the class for Abundance tomato, to be judged by weight, the prizes are for the one heaviest fruit, not the three heaviest fruits, as given in the schedule of the R.H.S.

THE SPECIAL EXHIBITIONS OF THE ROYAL BOTANIC SOCIETY for the current year will comprise a display of camellias and hyacinths, from March 8 to 18, from the nurseries of Messrs. W. Paul and Son, Waltham Cross; Mr. Anthony Waterer's usual exhibition of rhododendrons and azaleas, in May and June, and a display of roses from the Cranston Nursery Company's nurseries, Hereford.

THE PROPOSED PADDINGTON PARK meets with no support from the Metropolitan Board of Works, a fact very much to be regretted. In this case, although the Board has in view the interests of the ratepayers at large, and objects to impose a rate for the advantage of one particular district, there can be no doubt the Board takes an injuriously narrow view of the case. Every day's delay in this matter tends to render a park for Paddington an impossibility.

THE POTATO TRADE.—Potatoes are still being shipped from the Clyde and some other ports to New York. There must be a considerable dearth of potatoes in the United States this season, as the following facts will show:—Scotch Regents are sold wholesale in our markets at from 70s. to 80s. a ton, and Champions at about 50s. per ton. They are thus delivered free on board ship. The freight and the ordinary charges amount to 25s. a ton; but the Customs dues in landing at New York are nearly 25s. a ton. The prices of Champions in New York are thus double what they are in our own markets.

THE WEATHER has taken the course that we anticipated on the accession of the anti-cyclone. The southern counties and London in particular have had much fog and a little frost. In the north the weather has been fine and cold. It is late to look for a really severe frost, but nevertheless there is plenty of time for it, and if it means to come the sooner it comes the better. The look-out however is towards a mixture of unpleasant phenomena, but a great frost is not indicated, and we can do very well without one. At the moment of writing this the barometer seems inclined to go up rather than down.

OXFORDSHIRE CHRYSANTHEMUM SOCIETY.—The annual meeting of this society was held in the Council Chamber, Oxford, a few days since, under the presidency of Mr. Sheriff Wheeler, who was supported by a large number of members. From the report read by Mr. W. Greenaway, the indefatigable secretary, and unanimously adopted, we learn that the past year had been one of the most successful the society had experienced since it was established, about twenty years since. The list of members had been materially augmented, the exhibition had been of exceptional excellence, and the sum taken at the doors considerably above the average.

AN INTELLIGENT SNAIL.—The *American Naturalist* publishes an account of a snail of which a lady had made a pet. This snail, it is asserted, learned to know its mistress, and would come to her when she talked to it, but would withdraw into its shell if any one else spoke. Such a development of intelligence among molluscs, says Mr. Dall, who vouches for the truth of the story, has not hitherto been reported. [We do not know Mr. Dall, and we cannot dally with him; but prefer to say at once that the *American Naturalist* has been befooled, and the *Pall Mall Gazette*, from which we cut the paragraph, is as soft as any snail can be in adopting it without a word of qualification. We decline to believe in the lady, or the snail, or Mr. Dall.]

NORTH MIDDLESEX NATURAL HISTORY ASSOCIATION.—The following circular has been circulated:—"We have much pleasure in informing you that a Natural History Society has just been established at 26, Ingleby Road, Grove Road, Holloway, N. (temporary address), under the name of the 'North Middlesex Natural History Association.' We think that a society of this description was much needed in the neighbourhood, and that there is therefore every prospect of its doing useful work. Under these circumstances we wish to bring the subject to your notice, and to request your kind co-operation in our endeavours to place the infant society upon a firm and substantial foundation. The annual subscription is half a guinea; and after July 1, 1882, an entrance fee of 5s. will be charged to all new members. We shall be glad if you will consider the advisability of joining us in this undertaking, and shall be obliged by your bringing the subject under the notice of your scientific friends. The objects of the association will be the formation of a natural history museum, and a library for reference and circulation among members; also the diffusion of natural history knowledge by means of lectures, papers, discussions, &c. It is also proposed to organize field excursions during the summer months. The meetings are held every Tuesday evening between the hours of eight and eleven o'clock. Further information relating to the association may be obtained upon application to the secretary, at the temporary address, as above.—WILLIAM J. V. VANDENBERGH, President, *pro tem.*; CHARLES M. ALLEN, Secretary, *pro tem.*, 26, Ingleby Road, Grove Road, Holloway, N."

THE PELARGONIUM SOCIETY will hold its eighth exhibition at South Kensington on the 27th of June. The schedule and report have been distributed to the members, and it will be seen that a hundred and fifty pounds at the least will be required to enable the committee to carry out their plans. Within the past year the list of members has been slightly diminished in number, and the death of Dr. Denny entails a diminution of strength in a very serious degree. It is therefore much to be desired that cultivators of the pelargonium, and all indeed who sympathize with the society's labours, should give it their support, and bring with them any friends who may be similarly disposed in the interests of floriculture. The schedule now published is in the main on the plan of that experience has sanctioned, but it contains some new features. In the classes for plants the specimens in eight-inch pots are to be shown in groups of six instead of nine, as formerly. This, it is hoped, will bring in new exhibitors and add to the interest of the competitions. In the classes for "new varieties not in commerce," two prizes, each of £5, are offered for hybrids of *Geranium pratense* or *G. sanguineum*, and *Pelargonium oblongatum*. The object of these prizes is to encourage the raising of seedlings in which tones of blue or yellow may predominate. The prizes are open to competition to members of the society only, but non-members may compete on June 13 and 27, and July 11, for the Society's Certificate of Merit, which is offered for approved new varieties in all the types of the pelargonium family. Copies of the schedule and regulations may be obtained on application to the Honorary Secretary, Mr. Shirley Hibberd, 15, Brownswood Park, London, N.

RETIREMENT OF MR. THOMAS MOORE.

THE proposal to offer to Mr. Moore a "tribute of personal and public regard" appears to be a matter of great importance to gardeners. We shall lose his hitherto constant service in the cause of horticultural enlightenment, and the occasion calls for a public recognition of his labours by a presentation of some substantial gift. Mr. Moore is *one of us*; and his merits every way—apart from his private and domestic life—hinge on the fact that he has for many years been the director of an important public garden. As the curator of the Botanic Garden at Chelsea, he has had golden opportunities, if not golden pay, and he has made the most of them, not for his own advantage solely, but for the advantage of all the brethren of the craft. Our indebtedness to Mr. Moore is immense. He has always given freely out of his vast stores of knowledge. He has laboured incessantly in social and philanthropic movements, so that to mention his name is to suggest some of his many generous endeavours to promote good fellowship or alleviate distress. Probably no man living—certainly no living gardener—has appeared before us so often as "honorary secretary" and the chief mover in works of benevolence in connexion with horticulture. He could never have attained to this degree of usefulness except as a practical horticulturist. It is a matter for pride amongst us that he has manifested as great a knowledge of men as of plants, and has become eminent as a teacher through his constant contact with the garden. The time has come for gardeners to honour themselves by giving honour to this distinguished member of the great body. He should go into retirement with abundant proofs of respect and esteem from men who labour in the same line, and have long looked to him for guidance and example. Every gardener in the land may with propriety be asked to contribute to the presentation fund, for many subscribers of moderate sums are very much to be desired. Let us have the few however, but let us have the many also. How will the gardeners of Great Britain permit Mr. Moore to retire from amongst them without offering him some "tribute of personal and public regard"? I could wish that all might be able to afford—but I know this is impossible—something to swell the general total; however, if each will give according to his means the Presentation will become an epoch in the history of horticulture.

The Gardens, Trentham.

Z. STEVENS.

A GOSSIP ABOUT VEGETABLES.

OF late years the cultivation of vegetables has attained to so high a position amongst the various phases of garden practice that, in referring to the occupants of the kitchen garden, it is now no longer necessary to urge the importance, more especially upon the younger members of the fraternity, of giving increased attention to osculents. At the present day the production of vegetable crops is regarded with as much favour as the production of a crop of grapes or other fruit under glass, or a display of flowers in the conservatory; and even those who prefer to have their time engaged in operations that impose less strain upon their strength are not slow to acknowledge that a well-stocked kitchen garden represents high-class skill and reflects much credit upon those in charge. In the same way, the competition for the prizes offered for vegetables at the metropolitan and local exhibitions invariably creates considerable interest; and if the displays of vegetables do not prove so attractive to the general body of visitors, they are closely scanned by the practical men present. This change is one on which both employers and gardeners may be heartily congratulated, and it must be confessed that it did not come a day too soon. It is indeed not so long since that the management of the kitchen garden was considered a matter of minor importance, and the production of a good crop of cauliflowers, peas, or potatoes as a matter of decidedly less importance than the building up of a specimen geranium or fuchsia. The encouragement afforded by the liberal prizes offered annually by the leading seed firms has undoubtedly done much in effecting the desired improvement; but the horticultural papers have also afforded material assistance, foremost amongst them being the GARDENERS' MAGAZINE, which, however, the horticultural mind may have been swayed to and fro by this or that class of plants, or this or that style of garden embellishment, has, so to speak, steadfastly kept the kitchen garden in the foreground, and afforded ample assistance in the way of advice on the points of the greatest importance in its management.

The introduction of novelties that have been new in something besides name has also acted as a great stimulus. With reference to the new vegetables, I would not advise my readers to be in too great a hurry to grow in large quantities any novelty until they have subjected it to a careful trial, and determined how far it is suited to their individual requirements. We have now so many good things that there is no difficulty in supplying the table in the most abundant manner with vegetables of a high degree of excellence; but novelties should not be overlooked. On the contrary, those introduced by firms of standing should have due attention, more especially when they have been subjected to a careful trial at Chiswick, and have come through it in a satisfactory manner. I certainly have no sympathy with those who lose no opportunity of declaring that Sangster's No. 1, Champion of England, and Ne Plus Ultra are the only peas wanted in English gardens, and so forth. Those who are at all sceptical with regard to the improvements that are being made would do well to compare, not the novelties of one season with those of the preceding year, but the best of the kinds in the several classes that have been introduced within the last ten years with the standard sorts available previous to the commencement of that period. It is only by some such comparison as this that any satisfactory conclusion can be arrived at with respect to the progress that has been made, and if the comparison is properly instituted it will be impossible to avoid the conclusion that the improvement made has been of a most substantial character.

With these few introductory remarks I shall pass on to point out a few of the best vegetables in the various sections, with a view to assist the amateur and the young gardener, and in doing so shall enumerate such of the more recent introductions that I know from practical experience to possess a special degree of excellency. I shall also make such comments on the respective varieties as are likely to be of assistance in making selections.

BROAD BEANS are the first, taking them in alphabetical order, to engage attention, and in making a selection from them the cultivator must be guided by the purpose for which they are required, and the taste of those for whom they are grown. The earliest is the *Early Mazagan*, which is so hardy in constitution that it may be sown in November; but it is such a light cropper, and so thoroughly inferior in quality, that it is not worth growing. The earliest variety that should be selected is the *Seville Giant Longpod*, which is productive, of good quality, and bears pods of large size and remarkably handsome. The Windsor beans are of much higher quality than the Longpods, and the two best types are *Hardy's Pedigree Windsor* and *Hardy's Pedigree Green Windsor*, which differ from the ordinary types in producing larger and better-filled pods. Of the two the first-mentioned is the most productive, but the green form is much more delicate in flavour and has the most elegant appearance, and therefore for first-class tables it should have the preference. For exhibition purposes *Carters' Leviathan* is indispensable, for there is not another bean that can approach it in the size or appearance of the pods. Last year I had a good breadth of it, and although the ground was not subjected to any special preparation the pods averaged a foot each in length, some of the largest measuring fully fifteen inches, and all were well filled. Notwithstanding the colossal size of the pods, the variety is rather a light cropper, for the pods are sparingly produced in comparison with some others, and for supplying the table is not equal to either of the Windsors. One of the most elegant, and, having regard to the space occupied, the most productive also, is *Beck's Dwarf Green Gem*, which attains a height of twelve inches, and when not overcrowded in the rows branches freely, and bristles all over with pods which are exceedingly well filled, and the beans when sent to table at the proper stage are of a bright green colour and very delicate in flavour. It is sometimes spoken of as second-rate; but owing to the pods being much smaller than those of any of the other kinds the gathering is deferred until the beans have become rather too old. This variety is decidedly the best for small gardens in which there is room for

only one kind, and it may be advantageously grown in many large gardens in which it has as yet had no place.

DWARF FRENCH BEANS form a most valuable class, for in delicacy they are equalled by few other of the summer vegetables, they are decidedly productive, and where the conveniences exist for forcing them they may be had during the greater part of the year. They are especially suited for hot dry soils, on which it is difficult to obtain profitable crops of scarlet runners, and they of course are exceedingly useful for preceding the runners. For forcing and for the earliest crops out of doors, the best is unquestionably *Osborn's New Early Forcing*, which has good pods, is very productive, and in other respects is quite first-class. Next in value for forcing is *Sir Joseph Paxton*, which has done us good service in the past, both under glass and for early crops outside. *Canadian Wonder* is of course of the highest excellence for main crops, for it is wonderfully productive and unsurpassed in quality, whilst its pods attain to so large a size as to be without an equal for competitive purposes. *Carters' Longsword* is a new introduction of great merit, and likely to take a leading position; and the *Monster Long-podded Negro*, sent out about two years since, is one of the most important dwarf beans introduced of late years, and by those who have hitherto grown the Negro Long-podded largely for main crops it will be highly appreciated. It differs from the ordinary form of the Negro in being of more robust habit, and in producing much larger and more fleshy pods, and in being a heavier cropper.

RUNNER BEANS are so few in number that there is no occasion to dwell upon them at any great length. Those who depend entirely upon the old *Scarlet Runner* will not fail to obtain an abundant supply of excellent quality, but growing it to the exclusion of all the other runners is not a practice that can be recommended. The best course is to sow about half the required number of rows with the old scarlet as early in the season as the weather will permit, and a fortnight or so afterwards to sow the remainder with *Carters' Champion* and the *Giant White*, in mixture or otherwise. By this course liberal supplies will be obtained from as early in the season as runner beans can be had until the frost puts a stop to further growth, as the two last mentioned will be in full bearing just as the old form is giving out. *Carters' Champion* is the finest of all the runners for exhibition purposes, and the *Giant White*, which Messrs. Sutton and Sons brought prominently forward a few years since, is remarkable for productiveness, the large size and high quality of its pods, and its ability to withstand the effects of the drought.

BEET.—Of this vegetable a very few varieties will suffice, and one of the best types I have grown is *Suttons' Improved Dark Red*, which produces roots of medium size, very deep in colour and rich in flavour. *Nutting's Selected Dwarf Red* is also very fine. Those who require large roots, which by the way are not by any means desirable, should grow *Whyte's Black*, which is by far the best of the large sorts. For shallow soils and use early in the season the *Egyptian Turnip-rooted* can be strongly recommended. Complaints are sometimes made of its being coarse, but it is not more so than others, and coarseness in it may be generally attributed to an excessive richness of the soil.

BROCCOLIS form such an important crop in large gardens that special care is necessary in making a selection of varieties. It is necessary, to ensure a succession, to grow a goodly number of varieties, but the number ought not to be excessive, and in making a selection hardiness should be considered of the first importance. It matters not what may be the size or quality of the heads if the plants are so tender in constitution that very little frost is sufficient to cut them off. At the same time, quality must not be lost sight of. From long experience and careful trials of all the leading varieties in cultivation, I am fully persuaded that no better selection could be made than the following:—*Veitch's Self-protecting*, for use during November and December; *Backhouse's Winter White* and *Early Penzance*, from December to February if the weather should be open; *Cooling's Matchless*, *Basket's Late White*, and *Portsmouth*, for use in March and April; and *Chappell's Cream*, *Carters' Champion*, and *Suttons' Late Queen*, for use from the end of April onwards. *Portsmouth* and *Chappell's Cream* are not so white as the others, but they are of good quality and the hardiest of all. Broccolis should not be grown in small gardens, and in no case should they have a rich soil; for large heads are not wanted, and plants that grow luxuriantly are more susceptible to frost than those making a short sturdy growth.

BRUSSELS SPROUTS are represented by a large number of excellent strains, and it is not very difficult for the cultivator to go wrong in making a selection. One or two of the strains in the market which have been much praised are too short in the stem, and produce sprouts much too large; consequently, in the first place, they are not so profitable as they should be, and in the second the sprouts are wanting in elegance upon the table. It may certainly be taken for granted that we do not want sprouts so large that they have to be cut up on the plate. The strain I have grown for many years past is *Cutbush's Giant*, which is very similar to the fine stocks grown by first-class growers for market; the stems of this strain attain under ordinary culture a height of about thirty inches, and for fully two-thirds of their length are closely packed with sprouts, perfectly solid, and as large as they can be without being too big.

CABBAGE.—Of the many very excellent cabbages now available, I should recommend *Suttons' Reading All-Heart*, a first-class novelty, and *Ellam's Early Dwarf*, a fine variety sent out by Messrs. J. Veitch and Sons two or three seasons since, for sowing in autumn and spring for early summer use; and *Carters' Heartwell Early Marrow* for the main crops, which for heavy yield and delicacy of flavour has no equal. *Daniels' Defiance* is a large variety of good quality, and will suit those who have a preference for large cabbages. The *Rosewort Colewort* is still the best of its class for sowing to fill up quarters as they are cleared of the summer crops.

CARROTS have had some notable additions made to them of late years, and the following are the best for early and main crops:—*Earliest French*

Short Horn and *Carentan Early Scarlet*, a fine variety, bright red throughout, and as early as the *Early Short Horn* for forcing. *Early Nantes* and *New Long Dutch Scarlet*, which also is free from the yellow core, for early crops on warm borders, and the *Long Surrey* and *James's Intermediate* for main crops; the last-mentioned being particularly suitable for shallow soils.

Cauliflowers.—The best of those for sowing in heat early in the year is *Dean's Early Snowball*, an excellent variety producing medium-sized heads and turning in very quickly. *Early London* is the most suitable to sow early for summer use; *Veitch's Autumn Giant* to sow for use during the autumn, and *Walcheren* to sow for standing over the winter in frames.

Celery appears not to have undergone any material improvement of late years, and it may be dismissed with the remark that *Major Clarke's Red* and *Sulham Prize Pink* are two of the very best red types, and *Williams's Matchless White* and *Wright's Grove White* the two best for general cultivation. *Sandringham Dwarf White* is very good, but it is too short to satisfy me.

Endive is indispensable where the salad bowl has to be regularly filled throughout the autumn and winter, and the *Round-leaved Batavian* is of special value for these seasons. By liberally enriching the soil and sowing where the plants are to remain I obtain by the autumn examples with large white hearts, which may be likened to the heart of a first-class Cos lettuce produced early in the summer; and with the aid of a cold frame no difficulty is experienced in keeping them in most excellent condition for a very considerable period. Later sowings give equally satisfactory results, although of course the plants do not produce such fine hearts. The *French Moss Curled* is a small and delicately-flavoured variety, well suited for use early in the autumn; and the *Piepus Green Curled* is a much improved form of the *Green Curled*, and suited for both autumn and winter use.

Kales are perhaps the most useful of all the green vegetables for supplying the table towards the end of the winter and early in the spring, for they produce liberal supplies in proportion to the space occupied, and can be depended upon to come through the winter unless the weather is of exceptional severity. The most valuable of all is the *Cottager's Kale*, and next to it is the *Scotch Kale*, of which the dwarf or tall forms may be selected, the tall being the most profitable. *Chou de Milan* is exceedingly delicate in flavour, but it is very tender, and a moderately severe winter will destroy every plant.

Lettuces are of so much importance that too much care cannot well be taken in their selection for the several seasons. Taking the Cos varieties first, it must be said that a good type of the *Paris White Cos* is the very best for use from the time those planted in the autumn are over until the autumn, as it attains a large size, turns in without tying, and is remarkable for crispness and delicacy of flavour. All the leading firms offer fine selections of this famous lettuce. If more than one Cos variety is required for summer use, *Dimmick's Victoria* and *Hicks's Hardy White* can be recommended. The most valuable of the Cos varieties for standing over the winter are the *Black-seeded Bath Cos* and the variety immediately preceding it. The hardiest of the cabbage varieties, and therefore the best for sowing at the end of the summer to stand over the winter, are the *Hammersmith Hardy Green* and *Stanstead Park*, and it is not of much consequence which is selected; but I have a little preference for the first-mentioned. In selecting varieties to sow in spring for summer use there is a wide range for selection. All the *Year Round* is perhaps the most useful, as it can be had in fine condition from early in the season until quite late in the autumn. It produces medium-sized hearts, and is very crisp and delicate in flavour. *Malta* and the *Neapolitan* are two large varieties of great excellence, and *Tom Thumb* is a miniature variety remarkable for the length of time it will stand without running to seed; moreover, as it is nearly all heart and occupies but very little space, it is one of the most profitable.

Onions.—The most profitable onions to sow in spring are *Improved Reading*, a good type of *White Spanish* and *Williams's Magnum Bonum*. A valuable variety to sow in the spring for early use is *The Queen*, a pretty little variety of fine quality, and to sow in the autumn the *Giant Rocca* and the *Early White Naples* are unsurpassed. Those who are partial to red onions should sow the *Blood-Red* in the spring and the *Red Genoa* in the autumn.

Peas necessarily form a most important class, and much might be said with reference to the relative value of varieties, but it must now suffice to indicate those kinds of special value for general cultivation. For the earliest crop of all *American Wonder* and *First Crop* or *Ring-leader* are the two best. For succeeding them *William the First* and *Kentish Invieta*. For early main crops *Champion of England*, of which the stock known as *Huntingdonian* is the best. For general main crops *Dr. Maclean* and *Stratagem* are the two best of the dwarf varieties, and *Royal Berkshire Green Marrow*, *Sharpe's Invincible*, *Marvel*, and *Telephone* are best of the tall sorts. For the latest supplies we have yet nothing to surpass, so far as my experience goes, *British Queen* and *Ne Plus Ultra* of the tall sorts, and *Omega* of the dwarfs. One of the most suitable for small gardens is *Stratagem*, which requires no sticks, and the most valuable for supplying pods for exhibition are *Telephone*, *Culverwell's Autumn Giant*, and *Royal Berkshire Green Marrow*.

Radish.—The most useful of the long varieties for general culture, both under glass and out of doors, is *Beck's Early Frame*; but the most elegant of all the radishes are the *Olive-shaped* varieties, the scarlet and scarlet-tipped white being the best. The olive-shaped radishes can be sent to table at a very early stage, and are quite unsurpassed in delicacy of flavour. Of the turnip-rooted sorts, the *New Early Deep Scarlet* and *New Early White* are remarkably good and preferable to the ordinary types, because of their more rapid growth and greater delicacy of flavour. The two last-mentioned are also known as the *Extra Early Scarlet* and *Red Forcing*, and *Extra Early White* and *White Forcing* respectively.

Savoy, as usually grown, are decidedly objectionable, and it may be

said with safety that fully-developed heads of the large kinds are utterly unfit for the table. The only variety that should be grown is the *Early Dwarf Elm*, and those who would send it to table in perfection should sow a few weeks later than usual, and put the plants about a foot apart. By this means heads about the size of a tea-cup and of the most delicate character are produced. The variety with greenish yellow leaves, known as *Golden Globe*, is objectionable in colour, both in the garden and on the table, has no redeeming qualities, and it is not worth growing.

Tomatoes.—The most desirable of the established kinds are *Green Gage*, *Veitch's Criterion*, and *Hathaway's Excelsior*, all of which are very productive and bear fruit of medium size and high-class quality. *Dedham Favourite* is a promising variety, and I have heard *The Conqueror* spoken very highly of by some of my friends, but have not yet grown it myself. The chief merits of the last mentioned are its earliness and the solidity of its fruits.

Turnips.—Of these useful vegetables the *Early Red-topped Munich* is the best for the earliest supplies; *Early Six Weeks* to form a succession; *Veitch's Red Globe* for main summer and early autumn and *Jersey Navet* and *Green-top Six Weeks* to stand the winter.

KITCHEN GARDEN.

SHORT NOTES FOR SMALL GARDENS.

By THE VICAR'S GARDENER.

PLANTING STRAWBERRIES.

WHERE the planting of strawberries was not done in the autumn, February is a good month in which to give the work attention. A thorough preparation of the ground should take place at once if not already done. The space set apart for the strawberry bed should be well trenched to a depth of two feet where the good soil will admit of it; but where the subsoil is otherwise than good it is not prudent thus late in the winter to bring up the crude stuff to the surface. In such cases trenching, as generally understood, should be done early in the autumn, to allow the frosts and rains of the winter to pulverize it. In cases where such soil has to be dealt with now, a wide trench should be opened at one end of the piece and the top spit turned over, and the bottom of each trench dug up with a fork and left in place, and on the top of it a thick layer of well-rotted animal manure should be placed. After the allotted space has been dug over and the surface become dry, a fair sprinkling of manure should be spread on the surface and lightly forked in. When there is sufficient depth of good soil to admit of the bottom spit being brought to the top, a layer of manure should be buried at a depth of about eight inches, and the surface have a layer of manure spread over it and forked in. All these operations should be done in dry weather, and then the crop will receive the full benefit of the labour; but if the soil is moved about when it is wet it will most likely be worked into hard lumps after a week or two of dry weather.

The planting may safely take place early in February, when the weather is open and mild. Whether there will be a few fruits or not the first season will depend in a great measure on the strength of the plants when they are put out. If strong examples in sixty pots can be had, and planted early and carefully, a moderate crop of fruit may be expected. Plants close at hand that were pricked out last summer into good soil, and now lifted with a nice ball of roots, may be expected to produce a few fruits the first year, but it is useless to expect a crop the first year from weakly plants that are furnished with but few roots. In strong rich soils the plants may be put thirty inches apart each way, but in the majority of cases a distance of two feet will be far enough.

PLANTING ASPARAGUS.

As asparagus is one of the most permanent crops of the kitchen garden, it is necessary to plant it in a thoroughly satisfactory manner. In all cases the ground for it should be deeply dug and liberally enriched with well-decomposed manure from the stable or farmyard. Asparagus is not very particular as to the nature of the soil, providing it is not a heavy clay and the position is either naturally or artificially well drained. At the same time it is well to state that a deep loamy soil suits it best. In the matter of drainage I am satisfied that it is most important there should be provided a ready means for the escape of any excess of water that may find its way below the roots. During the last two severe winters some thousands of plants of asparagus were killed, and that principally in gardens where the soil is naturally heavy. So the reader will understand how essential it is in preparing for asparagus beds to attend to this matter in the first instance.

In low situations it is a good plan to put six inches of stones or rubble two feet below the surface to drain the bed, but there are many gardens where this is not necessary. But there are none in which the trenching or deep stirring of the soil can be neglected without the risk of injuring the crop. The space to be devoted to the beds should be dealt with in the same way as is recommended for strawberries according to the character of the soil, and in no case should a poor subsoil be brought to the surface. Asparagus plants are in many cases put too close together. The small gardener may perhaps not be able to afford sufficient space to plant them in single rows, as is practised in some large gardens; but the plan of putting four rows of plants in a bed four feet wide is not a good one, for the plants are much too thick to grow satisfactorily. Very good crops may be grown when only three rows are put in a five-foot bed. One row should be put in the centre and one on each side, sixteen inches from the middle one, which will leave a space of eight inches for the roots to extend to the outside of the bed. As the crop is likely to stand in the same position for some years, there must be plenty of manure put on, and now is a good time to prepare the beds. The manure should be well mixed with the soil to a depth of twelve inches, which can now be done in suitable weather, to give the soil time to settle down before planting. The first week in April is soon enough for planting, and one, two, or three year old plants may be used, but for all

practical purposes those two years old are the best. The surface of the beds should be raked down fine, and the plant spread out on the surface with their roots made to cover all the space they can. They must then be covered over two inches deep with some fine soil obtained from the space between the beds. To cover the plants carefully, it is necessary in some cases where the soil is of a stubborn character to sift out sufficient soil for covering them with; in my own practice I have found the plan of sifting the soil a good one, as then there are no stones or hard lumps of earth to impede the growth of the young grass; an addition of three or four inches of fresh soil will be required on the beds after the plants have completed the first year's growth.

GLOBE ARTICHOKE.

As the globe artichoke is a great favourite with a good many, the small gardener should find room for it if it is in request in the house. As a rule this vegetable is but indifferently cultivated; it is left to occupy one position too long. To grow it well it should have a change of soil every fourth year, and the best way to cultivate it is to prepare the ground now and make it thoroughly rich with well-rotted manure. The ground should be dug up over eighteen inches deep, and a thick layer of manure put into the bottom of the trench and more manure mixed with the top soil. If the ground is prepared in this way at once it will be in capital condition for planting when the proper time arrives. The first week in April is a good time to plant. Strong offsets taken off from the old stools are generally available, and by taking care to select them at the extreme points of the old stools they will soon become established, and make a strong growth the first year. But as the old plants will invariably produce the earliest heads one or two of them should be left for the purpose of an early supply. After the plantation has stood a year all the old stools may be destroyed.

ANGRÆCUMS.

THE angræcums, of which the number in cultivation is not large, form a very interesting group of orchids, and upon those who possess the requisite accommodation for the aerides, the phalenopsis, the vandas, and other heat-loving subjects, they have strong claims. Some are bold in growth and noble in aspect, others are remarkable for the structural peculiarities of their flowers, whilst all are more or less graceful in appearance, possess much beauty, and with but one or two exceptions bloom during the winter months. In some respects their season of flowering is a decided advantage; but in others it is not so, for whilst it enables them to contribute their full share to the attractions of the orchid house during the duller period of the year, it prevents their figuring in competitive groups at the exhibitions, and in consequence the general public have no such opportunities for becoming acquainted with them as in the case of the cattleyas, dendrobies, and other genera that might be mentioned. The genus is not very widely distributed, the finer kinds coming from the east coast of Africa and Madagascar, and with the exception of the pretty little *A. falcatum*, they require the temperature of the East India house for their successful cultivation. The flowers are pure white, creamy white, or greenish white, and when so placed that they are not subjected to drip or splashed with water retain their freshness for a very considerable period, and a spike of that free-growing useful species *A. eburneum* will remain for fully a month in capital condition.

The Angræcums are all epiphytal in character, and in cultural requirements do not differ very materially from the aerides and vandas, to which two or three bear some resemblance. They may therefore be all grown on blocks of wood, but with the exception of one or two of the smaller-growing species, which do best on blocks, that system of culture is not the most suitable, apart from the large amount of additional labour necessary to maintain the requisite degree of moisture about the roots during the spring and summer months. The most satisfactory results in the cultivation of all but one or two are obtained by growing them in pots, baskets, or pans, with sphagnum and an abundance of crocks. The strong upright-growing species, such as *A. eburneum*, and its beautiful varieties *A. sesquipedale* and *A. Ellisi*, appear to greater advantage and succeed more satisfactorily in pots, and in a general way they should be grown in them. The importance of having pots that are perfectly clean both inside and out has been so frequently insisted upon that it need hardly be alluded to; but it may be suggested that it is not less essential to use clean crocks also, and as they can be washed with but little trouble there is no excuse for using crocks that are otherwise than in a clean state. The pots should be filled to about one-half of their depth with crocks if not exceeding six inches in diameter, and to nearly two-thirds if of larger size, the crocks in each case to be comparatively large in size. On these a layer of sphagnum, previously scalded to make an end of infect life, should be placed to receive the roots. The most suitable time for repotting angræcums is immediately after the flowering season is over, as they soon commence to make new growth, and the roots in consequence take possession of the new material before there is any possibility of its becoming sour. The exact preparation each plant should undergo when shifted must be determined entirely by its condition. In cases in which the roots are unhealthy and the material about them in a sour state the whole of the latter should be removed, the dead or decaying portions of the roots be carefully cut away, and the roots be washed by the simple process of dipping them a few times into a vessel containing tepid water. Those which have become leggy and are furnished with roots up the stem may have a small portion of the base of the stem removed to allow of the plants being put lower down in the pot. The lower roots must be spread out as carefully as possible on the moss with which the crocks are covered, and the new moss be then well worked between the roots and be packed about the stem to a height of two or three inches above the level of the rim of the pot, from which it must slope in a gradual manner. Plants that are in a thrifty state and the

roots in a thoroughly healthy condition will only require a portion of the old material removed from the surface and sides, and they should as a rule be put into pots one size larger, whilst the others will do better if returned to pots of the same size, or even one size larger. A few of the small kinds, such as *A. citratum*, grow more satisfactorily and appear to greater advantage in shallow orchid pans, such as those manufactured by Mr. Matthews, of Weston-super-Mare, and now so largely employed in the leading metropolitan nurseries. For a good specimen of the species mentioned, and others of similar habit of growth, a pan six or seven inches in diameter will suffice. This should have an inch or so of comparatively small crocks spread over the bottom and the plant be put in it in much the same manner as in a pot, excepting that it is not necessary to raise the moss quite so high above the level of the rim.

A high temperature and liberal supplies of moisture when the plants are in full growth are essential. As indicating the temperature most suitable, it may be mentioned that the thermometer should range from 70 deg. to 80 deg. from March to the end of August, and from 65 deg. to 70 deg. during the remainder of the year. From the commencement to the completion of the growth, or, to put the case more plainly, during the period embraced by the two months first mentioned, the supplies of water to the roots must be liberal without being excessive, with an abundance of atmospheric moisture, and a light syringing overhead once a day during bright weather, the afternoon being preferable. During the autumn and winter the material must be maintained in a nice moist state only. Shading will be requisite during the spring and summer, but it ought not to be more than sufficient to prevent scorching of the foliage, for they bloom more freely and less difficulty is experienced in the maintenance of the plants in the most perfect health when they are not subjected to a dense shade during the growing season. Increase of stock, it must be added, is effected by means of the shoots or offsets produced at the base of the stems, which should be allowed to remain until they are furnished with one or two roots.

The following are the best for general cultivation of those available:—

Angræcum bilobum.—A small-growing species of neat habit, which is best grown in a small pan of the description above referred to. The flowers are furnished with comparatively long tails and are produced in elegant spikes.

A. Chailleanum.—An interesting and beautiful species with bold foliage; the flowers white with long spurs or tails tinged with green and borne in drooping spikes. It should be grown in a shallow pan or on a block to which a small quantity of sphagnum has been attached, the block being the best of the two.

A. citratum.—A charming species, and one of the best of the small-growing kinds, which it is satisfactory to know has become comparatively plentiful within the last three or four years. It is dwarf in growth, has broad foliage, in form resembling that of the phalenopsis, and produces its small straw-coloured flowers on gracefully arching spikes, averaging about fifteen inches in length, and they are so closely set in a double row as to form wreaths of the most pleasing character.

A. eburneum.—This is the most noble in growth of the genus, and has an effective appearance even when not in bloom. The leaves are nearly erect and sword-like, and the large white flowers are of great size and borne on erect spikes, a dozen blooms or so on a spike. *A. eburneum superbum*, distinguished by its larger flowers, and *A. eburneum virens*, remarkable for its more graceful habit and the greenish tinge of its flowers, are two superb varieties of this fine species, which at present are unfortunately rather rare.

A. Ellisi.—A very distinct and beautiful species, which as yet is not sufficiently plentiful to admit of its being recommended for general cultivation. But those who can afford to pay the price it commands should certainly add it to their collections. It is of moderately bold growth, and the flowers are large, of the purest white, very sweet-scented, and produced in fine spikes.

A. falcatum.—This is a pretty small-growing species, and bears a profusion of pure white and sweetly-scented flowers. As it is of Japanese origin, it does best in company with the cattleyas and lœlias.

A. Kotschyi.—A very distinct and beautiful species of recent introduction. It is of small growth, and produces its handsome ivory-white flowers, which are furnished with a long, curiously-twisted, and flesh-coloured spur, in elegant pendulous racemes. It appears to best advantage on a block, on which it may be most successfully grown.

A. sesquipedale.—This is the most distinct and decidedly the finest of the large-growing species, and cannot well be overpraised. It has handsome gracefully-arching leaves of the richest green, and flowers of immense size and the purest white. The blooms are produced on spikes bearing in the ordinary way from four to six each, and are furnished with spurs averaging fifteen inches long; the exact length being as a matter of course determined by the vigour of the specimen and the development of the flowers.

ORCHIDOPHILIST.

THE WIND ON NEW YEAR'S EVE.—

If New Year's Eve night wind blow south,
It betokeneth warmth and growth;
If west, much milk, and fish in the sea;
If north, much cold and storms there will be;
If east, the trees will bear much fruit;
If north-east, flee it man and brute.

I found a slip with the above upon it in a very old MS. book.—HARRY HEMS, in *Notes and Queries*.

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland's Odonto, the purest, most fragrant, and non-gritty tooth-powder ever made. The hair also may be kept beautifully soft, pliable, and glossy, and its liability to fall during, and become dry during the damp and fog of winter may be arrested by the regular application of Rowland's Macassar Oil. Sold everywhere.—[ADVT.]

MUSCAT GRAPES.

By WILLIAM COLE, The Grove Vineyard, Feltham.

THE gossiping paper on grapes for use during the winter season which I had the pleasure of contributing to the GARDENERS' MAGAZINE of December 31 has brought me several letters asking, amongst other things, for information on the production of Muscat grapes for sending to table during the summer months. Being desirous of assisting my correspondents, as far as I am able, and other readers of these pages also who may be in need of advice, I shall now briefly refer to a few points of special importance in the management of the vines of these delicious and highly-appreciated grapes intended for furnishing the early supplies. I shall not attempt to deal with the whole of the cultural details from the striking of the eyes to the ripening of the crop, and I would direct special

requirements that it may for all practical purposes be considered the same. When first introduced it was suggested that it would succeed in a much lower temperature than other grapes having a muscat flavour, and in consequence be of exceptional value because of its adaptability for more general culture than other varieties in the group. But the promise has not been fulfilled, and it is not surprising that the expectations of some of the more sanguine should not have been realized. The aroma and high flavour found in it and allied kinds can only be developed with the aid of a high temperature, produced either by means of sunshine alone or sunshine in combination with artificial heat, and those who believe in the possibility of obtaining the luscious flavour peculiar to these grapes, either in the produce of existing varieties brought to maturity in a comparatively low temperature, or in the crops of hardier kinds, will have their faith rudely shattered and experience more or less of disappointment.



LARGE MUSCAT HOUSE, IN THE GROVE VINEYARD, FELTHAM.

attention to the fact because some of my correspondents complained that many points were dismissed too briefly in the communication referred to, although it is expressly stated at the commencement of my remarks that it was not my intention to weary the readers with a mass of cultural details.

In answer to the inquiries as to whether it is desirable to grow muscats other than the well-known Muscat of Alexandria, I would say that the Muscat Hamburg is of the finest quality, and when well finished remarkably handsome; but more than the ordinary amount of skill, not only in grape-growing but in the management of muscats, is necessary to ensure its presenting a creditable appearance, and skill of the highest order is essential to produce first-class examples. Venn's Black Muscat so closely approaches the Muscat Hamburg in appearance and cultural

We occasionally hear of crops of muscats being ripened without fire heat, but it is only in exceptionally hot summers when by a judicious regulation of the ventilators the vines can be afforded the requisite warmth to enable them to ripen their crops without the aid of the heating apparatus. The Canon Hall Muscat is a noble grape when it acts well, but this is such an exceptional occurrence that it cannot be recommended, and those who are disposed to grow it for the sake of the immense berries will act wisely by limiting it to one cane. The best of all is the popular Muscat of Alexandria, which, provided the means exist for giving it the proper temperature at the several stages, and an ordinary degree of care is exercised, will produce heavy crops of large and handsome bunches. It is not so free a setter perhaps as the Black Hamburg, but if it has sufficient warmth when in bloom there will not be much difficulty in

obtaining a good "set." There are not wanting grape-growers who advocate a comparatively low temperature during the time muscats are in bloom, and to show how far their conclusions are wide of the mark I would mention the fact that if we have one bunch which does not set so well as could be wished it is invariably near a ventilator, where it is at times exposed to a lower temperature than the others, whilst bunches that are so close to the pipes as to almost lay upon them set every flower. As a matter of fact, by maintaining a high temperature and a comparatively dry atmosphere, our muscats set so thickly that were I not to give two or three of my boys a fortnight's holiday immediately after the flowering of the vines from which the late supplies are obtained, and turn them into the vineries armed with a pair of scissors each, it would be practically impossible to thin the crop within the time available.

As regards the form of structure best suited for early crops, there can be no doubt that a lean-to similar in character to my largest house is the most suitable; the length to be regulated by the requirements. Of this structure an illustration is given herewith, prepared from a drawing made by Mr. Alfred Slocomb in the autumn of last year, just after we had commenced to cut the crop. This house, as will be seen by referring to page 759 of the last volume of the GARDENERS' MAGAZINE, is two hundred feet in length, thirteen feet wide inside, twelve feet high, with sixteen-foot rafters, and a pathway about two feet below the surface. The rafters rest upon a wall-plate about fifteen inches above the level, and along the front and at the apex of the roof openings are provided for the admission of air. By having houses somewhat below the surface, as in this case, the temperature can be maintained with less difficulty and expense than when they are entirely above the surface, but they do not have such a striking appearance. On cold wet soils they should be entirely above and very little of the border be below, but, as already stated, we have several feet of loam resting upon a good bed of gravel. The houses may be two feet or so higher to give an increased length of rafter, but the lofty structures so frequently seen in gardens are not the best for early crops, and not essential to the production of first-class examples later on. For crops to be sent to table from the beginning of August onwards, either lean-tos or span-roofs may be employed, and if the latter they may with advantage be about two feet wider and higher than the span-roofs I have had erected for late supplies, and described in the paper which appeared on December 31. The borders should be partly inside and partly outside for all but the winter crop, and for that they should be entirely inside. The borders of our lean-tos are about four feet in depth, and of the little span-roofs six feet, and having regard to the character of so many soils, I should advise a depth of four feet for all but those in gardens which either lay low or rest upon a cold and heavy subsoil. Whether they are wholly above or below the surface, or a portion above and a portion below, will depend entirely upon local circumstances. Experience has shown that concrete and drainage are not wanted when, as is the case here, the border can be formed upon a natural bed of gravel, but in all other cases they will be wanted. Concrete is made by mixing one part of unslaked lime with seven or eight parts of gravel, and then adding sufficient water to work the mass into a thick paste. It should be spread evenly over the bottom of the border to a depth of four or five inches, and when set brick rubble or stones should be laid over it to a depth of nine or ten inches, to form the drainage, which in its turn ought to be covered with strips of turf to prevent the soil filtering down and checking the ready escape of the superfluous water. Good substantial loam must form the staple of the border, and if taken from the surface of a pasture to the depth of three or four inches so much the better. The exact depth will depend upon the character of the soil, as in some places the turf only can be skimmed off, whilst in others it can be taken to a depth of two or three feet. Here we simply trenched over the staple to a depth of four feet and added manure and soot. To every three or four loads of loam one load of horse-droppings and a sack of soot should be added, and if the soil is at all retentive in character an addition of one load of lime rubble to every four loads of the mixture will be necessary. In all cases a moderate proportion of lime rubble will have a beneficial effect, but where the loam is naturally open and the rubble difficult to obtain it can be dispensed with. In the formation of the borders it is preferable to make a small proportion at first and then add to it annually, or every second year. It is a very good plan when the borders are partly inside and partly outside to make four feet of the outside and four feet of the inside, or eight feet in all, and then add three feet to it annually, alternately, inside and out.

The vines may be planted at any time between October and March in a dormant state, and from the middle of the month last mentioned to the end of May in a growing state. Vines of the previous year should be selected, and these should have been grown without the aid of bottom heat, be well ripened rather than stout, and be pruned early enough in the winter for the wounds to heal perfectly before the growing season commences. The roots must be carefully loosened and spread out to enable them to strike readily into the new soil, and the vines be planted low enough for an inch or so of the stem to be buried in the border, and the soil must be made firm about them. Unless the vines have to be planted outside and brought through the wall, or have to be between the wall and pipes almost close to it, a new cane should be obtained from near the base. In either of the exceptional circumstances mentioned, the vines should invariably be planted when at rest.

During the first year the vines must be assisted with sufficient heat to promote a vigorous growth and ensure well-ripened wood, and the temperature should range from 70 deg. to 80 deg. with free ventilation. To ensure the lower part of the canes being stout and furnished with plump buds at the base, they should have the points nipped out at every three feet, the last stopping to be at the top of the rafter. The laterals ought to be allowed to extend freely. The second season they may be cut back to one-third of their length, the third year to two-thirds, and in the fourth they should be left the entire length of the rafter. Each

year they should carry a crop proportionate to the length of the rods—say, one and a quarter pounds of grapes to each foot run. Superfluous bunches must be removed as soon as it can be seen which have set properly, and thinning be commenced shortly afterwards, and be proceeded with briskly until completed. A rather liberal extension of lateral growth is essential, and it is a good plan to stop the bearing shoots at the second leaf beyond the bunch, and to leave the other branches the same length. The laterals produced subsequently to be stopped immediately beyond the first leaf from their base.

A period ranging from six to seven months will be required by the vines for bringing their crop to maturity, from the time they are first subjected to fire heat; and the time of starting the muscat house must be determined by the period at which the ripe fruit is required. Ripe muscats may be had at the end of May or early in June; but in a general way it is not desirable to commence so early, because of the immense strain to which the vines are subjected. In the majority of gardens the end of January or the early part of February will be the best time for starting the muscat house, unless the grapes are required for late use, in which case the vines should be allowed to break naturally, and then be assisted with sufficient artificial heat to maintain the temperatures best suited to their requirements. The most suitable temperature for starting the house is 60 deg. by day and 55 deg. by night. When the shoots are pushing freely 65 deg. by day and 60 deg. by night. When the shoots are three or four inches in length 70 deg. by day and 65 deg. by night, and from the time the vines are in bloom until the grapes are ripe 85 deg. by day and 70 deg. by night. In each stage a rise of 5 deg. is to be allowed on the day temperature during periods of bright sunshine. A rather liberal amount of atmospheric moisture must be allowed until the berries begin to change colour, and the vines should be syringed daily until the shoots are pushing freely. The ventilation must be liberal at all stages without being excessive, and a sharp watch must be kept on the weather during the early stages, and the ventilation be carefully regulated according to the various changes in it. The roots in the outside border should be protected by a covering of some kind, which must be put on as soon as the autumn rains have thoroughly moistened the border.

THE CARNATION AND PICOTEE.

By JAMES DOUGLAS.

ALTHOUGH so much has been written about the carnation and picotee during the last few years, it seems, by the letters received recently, that information is still wanted of the most elementary kind. The time of the year has now arrived in which the plants of all kinds demand our attention. There are, first, the perpetual-flowering varieties, which have been very much improved in variety and quality recently, and are invaluable for supplying beautiful sweet-scented flowers all the year round; but they are most valued during the winter months. The demand for this section of carnations is so great that the supply is seldom more than equal to it. The advent of Mons. A. Aléatière's seedlings, of a much dwarfer habit than any of the varieties we had previously grown, infused fresh blood into them, and Mr. Charles Turner, of Slough, has obtained numerous seedlings of this dwarf habit, and a very much greater variety of colour. Some of these have been recently described in the GARDENERS' MAGAZINE, after they had been exhibited and received first-class certificates at South Kensington. What we want, I think, in these perpetual-flowering varieties is good shaped flowers with pods that do not burst, and of decided colours: a good scarlet, such as A. Aléatière; a rose, such as Annie Williams or Rose Perfection, and Miss Jolliffe, pale pink. There are a number of good white varieties, of which La Belle, Guelder Rose, and White Swan may be cited.

Heather Bell is a comparatively new variety of great merit sent out by Mr. Turner, in whose nursery it was raised. It is a full fringed pink variety. If it is intended to use any of these carnations to aid in furnishing large conservatories, two-year-old plants answer well. Some eight or ten years ago I saw about fifty plants of this kind flowering in a large establishment in Scotland about the end of October, from which handfuls of flowers could be gathered daily. For ordinary purposes perhaps young plants are the best, and the cuttings should be put in at once. The small succulent side growths strike roots freely in a temperature of 55 deg. with a bottom heat of 85 deg. or so. After they are rooted they should be potted on, first into small pots and then into large 60's, growing them on under glass until the end of May, when they should be placed in an open position out of doors, but sheltered a little from south-west gales, which snap off the side growth, even if they are carefully tied in. These early-propagated plants flower from October onwards; but to do them well, and to obtain a succession of well-formed flowers, they must have a temperature at night of 50 deg. to 55 deg. to flower, and a rather dry atmosphere.

The florists' carnations require attention. We will have our plants potted into flowering pots as soon as possible after the middle of February. The plants are looking extremely well, and have filled the small pots with roots. It ought to be well understood that the plants at this season do not like to be disturbed much, so that where there are two plants potted in a sixty-sized pot it may be better, if the roots are intertwined together, to pot them as they are rather than part them out. We use for our potting purposes seven, eight, and nine inch pots, and occasionally a ten-inch one; but we do not care for very large pots, and the most of them are potted in eight and nine inch pots, two plants in each. The seven-inch pots are used for single plants. The potting material for carnations must be rather rich, and composed of good turfy clayey loam to which has been added a fourth part of rotten stable manure, and as much leaf-mould, with a little sand added to it, and some small nodules of charcoal. Some persons after repotting their plants stand them in the open air, but this ought not to be done so early

as February or even March. We place ours in cold frames until they are well established, and then stand them out of doors, until the flowers begin to open, when they are removed to a place under glass; all they want is shelter from rain and sun to preserve the flowers for as long a period as possible.

Picotees require the same treatment as carnations, and are liable to be attacked by the same pests, and subject to the same diseases. We find that green fly is the most troublesome pest we have to contend with; it gets on the plants and spreads in mild weather, even in winter; but we take care to destroy it at that season by fumigating them with tobacco smoke. During summer the fly gets on the flower stems and pods, checking their growth, and as soon as the calyx begins to open they get inside and speedily spoil the flowers. Red spider will also occasionally get on the leaves in very hot dry weather, but it will not be able to do this if the plants are syringed daily in hot weather. A very troublesome disease, which is all too common in some of the best-managed collections, but which I am glad to say has not yet appeared at Loxford, but which sadly tried the patience of Mr. Dodwell when he was at Clapham: he calls it gout, but it is evidently the same as the disease I also saw in the Botanic Garden, Chelsea. Mr. Moore has forwarded specimens to Mr. Berkeley, and the disease has been very clearly described in the *Gardeners' Chronicle*, where it is stated to be caused by a worm, very readily destroyed by the application of caustic materials. Now that we know what the disease is, we are one step at least nearer to a cure for it.

It is not worth while to give a long list, as nearly all the varieties published in the trade catalogues are worth growing. It may be enough to say that the florist section has been quite as much improved as the perpetual-flowering varieties, principally by Messrs. E. S. Dodwell, of Oxford; Simonito, of Sheffield; Turner, of Slough; Dr. Abercrombie, of Cheltenham, and Rev. C. Fellowes, of Shottesham Rectory. Mr. Dodwell has been singularly successful with the carnation, and has improved all the classes, but especially that previously weak class the scarlet bizzars, although he has also improved the crimson bizzars. Mr. Turner, of Slough, was very successful a few years ago in raising a fine batch of yellow picotees from Prince of Orange; they are quite a new departure from the old weakly-growing varieties that the old florists had to work upon twenty-five years ago. The yellow colour is not so deep in some of the varieties as he would like; but doubtless Mr. Turner, with his usual perseverance, will soon remedy this.

THE EPPING FOREST NATURALISTS' FIELD CLUB.

THE last issue (Part 5) of the "Epping Forest Field Club Transactions" is one of the most attractive and interesting publications of the kind it has been our good fortune to meet with. We direct attention to it because of its merits, and the suggestion it conveys in those merits of work that may be carried on almost anywhere by ardent spirits in the search for knowledge. It has often been said that every square yard of this old country is in some way or other associated directly with our history and our institutions, and therefore there are many happy hunting grounds for naturalists and archaeologists besides the sylvan shades to which these "Transactions" refer. Nevertheless, this beautiful tract of country has special claims on our attention in a general way, and very special claims on the attention of Londoners, and extra special claims on the inhabitants of the eastern suburbs, to which the forest is, as once it was to the writer of this, a botanical school, an open-air museum, and a glorious playground.

The principal contents of this part comprise papers on the formation of a Local Museum, by Mr. Harting; on Infusoria, by Mr. Saville Kent; on the earthwork known as Ambresbury Banks, by Major-General Pitt Rivers; on the Distribution of the British Flora, by Professor Boulger; and a very copious summary of proceedings in the field and in the meeting room, and sometimes at the snug hostelry where the "club" in its corporate capacity, garnished with a fringe of "visitors," regales itself with dinner or tea.

The paper on Ambresbury Banks is the most important of the series. It recounts a systematic exploration, and some conclusions thereupon resulting. The tendency of the evidence is all in favour of the accepted tradition that this was a camp of Boadicea; at all events, it is declared to be unmistakably British. It is pretty evident also that when this camp, which is now densely clothed with wood, was originally formed, the country was all open, treeless, and in a very wild condition. Thus we learn that to speak of it as "primeval forest" would be to employ a solecism; and indeed the general character of the timber in all this district suggests that the place was afforested in comparatively recent times by some of our hunting English kings. On that point, perhaps, there may be much said: let it suffice for the present that the ethnic character of this earthwork has been determined, and let it also be noted that in the paper referred to there is nothing said about the name it bears, for perhaps thereby hangs a tale. Certainly the name does associate it with Avebury, Amesbury, and other supposed associations with Ambrosius Aurelianus, the Romanized British king, who in the year 457 fought against the Saxons to their discomfiture, who taught the great Arthur the art of war, and who—so Geoffrey says—was the founder of Stenchege.

The reports of proceedings are full of interest. They refer to findings of birds, insects, plants, and ancient works of art. There are notes on Danes' holes, flint implements, the geology of the district, and more especially of the chalk formation. There are also records of visits to old churches, baronial halls, earthworks, stone quarries, and springs. On one occasion Mr. Worthington G. Smith exhibited his beautiful collection of flint flakes, and Mr. Meldola described them, adding some particulars of the frequent occurrence of these things in gravel beds, and the conclusions deduced therefrom. We conclude this notice by wishing the club a prosperous time in the season that is opening.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesium or any other earthy matter calculated to produce gall-stones or gout deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

THE PELARGONIUM SOCIETY.

THE officers for 1881-2 are: *Chairman*—Thomas Moore, F.L.S., Botanic Gardens, Chelsea, S.W.; *Vice-Chairman*—William Paul, F.L.S., Waltham Cross; *Hon. Treasurer*—Henry Little, Hillingdon Place, Uxbridge; *Hon. Secretary*—Shirley Hibberd, 15, Brownwood Park, Finsbury Park, N.

The objects of the Pelargonium Society are to promote the improvement of the various groups or sections of the genus *Pelargonium*; to facilitate the introduction of new species, and the raising of new varieties and hybrids; to give system and method generally to the practice of hybridization in this family. Members subscribe not less than 21s. each annually.

REPORT OF THE COMMITTEE FOR THE YEAR 1881.

The committee have the satisfaction to report that the society is in a thriving state, and owes its success, as they believe, to the steadfastness of its devotion to the cause in behalf of which it was established. It has become abundantly evident that special efforts and organizations are needed in certain special departments of floriculture to ensure full representation of important classes of flowers, as well as to promote their improvement and vindicate their position in the English garden. This society, in seeking to advance the pelargonium in popularity, as well as in variety and quality, has been liberally supported; but there is a constant need for effort on the part of the committee to ensure the means needful for sustaining and enlarging its operations, and they are bound to appeal to the members to use their best endeavours to augment the subscription list and win new adherents to the cause.

The exhibition held at South Kensington, June 28 and 29, was in every respect satisfactory, and in a few of the classes a great advance was manifested, while in others there was at least average excellence and spirited competitions. It seems to be generally acknowledged that on this occasion double zonals were shown in finer condition than they have ever been at any previous public exhibition. The amount paid in prizes was £124 10s., being £15 10s. in excess of the amount paid last year. The following particulars will illustrate the progress of the society:—In 1875 the amount paid in prizes was £40; in 1876, £36 10s.; in 1877, £87 2s. 6d.; in 1878, £78 7s. 6d.; in 1879, £90 10s.; in 1880, £109; in 1881, £124 10s. It will be seen by the statement of accounts that the treasurer has now a balance in hand of £41 9s. 1d.

The critical inspection of seedling pelargoniums and the awarding of certificates to varieties deemed worthy of formal approval are very important parts of the duties of the committee. On June 14, June 28, and July 12, certificates were awarded by judges appointed for the task, the awards being as below, the letters F. C. C. meaning in every case First-class Certificates.

Date.	Name of Variety.	Group or Class.	Raiser.	Exhibitor.	Award
June 14	Charles Darwin	Double Zonal.	M. Lemoine	R. Hort. Soc.	F.C.C.
" "	Robert Fortune	Dble. Ivy-levd.	M. Lemoine	R. Hort. Soc.	F.C.C.
" "	Mdlle. J. Wouters, 29	Dble. Ivy-levd.	M. Lemoine	R. Hort. Soc.	F.C.C.
" 28	Lucy Lemoine	Decorative	M. Lemoine	H. Little, Esq.	F.C.C.
" "	Annie Hemsley	Decorative	Mr. Hemsley	H. Little, Esq.	F.C.C.
" "	Magnet	Show	H. Little, Esq.	H. Little, Esq.	F.C.C.
" "	Superb	Show	Mrs. Beck	H. Little, Esq.	F.C.C.
" "	Britomart	Show	Mrs. Beck	H. Little, Esq.	F.C.C.
" "	Christabel	Show	Mrs. Beck	H. Little, Esq.	F.C.C.
" "	Duke of Albany	Show	E. B. Foster	Mr. C. Turner	F.C.C.
" "	The Abbot	Show	E. B. Foster	Mr. C. Turner	F.C.C.
" "	Belle du Jour	Decorative	M. Lemoine	R. Hort. Soc.	F.C.C.
" "	Mr. Ashby	Decorative	J. & J. Hayes	J. & J. Hayes	F.C.C.
" "	Metallica	Decorative	J. & J. Hayes	J. & J. Hayes	F.C.C.
July 16	Henri Cannell	Double Zonal.	M. Lemoine	R. Hort. Soc.	F.C.C.
" "	Mont Blanc	Dble. Ivy-levd.	M. Lemoine	R. Hort. Soc.	F.C.C.
" "	Mad. Harmant	Decorative	M. Lemoine	R. Hort. Soc.	F.C.C.
" "	Mignonette (76)	Decorative	M. Lemoine	R. Hort. Soc.	F.C.C.

The committee have further to direct the attention of the members to the valuable aid afforded by the council and officers of the Royal Horticultural Society, in respect of the conveniences placed at the disposal of this committee for the holding of exhibitions, the care bestowed on this society's collection of pelargoniums at Chiswick, and an annual grant of money in aid of the prize list. While thanking the Royal Horticultural Society for many favours freely granted, it is a mere duty also, and certainly a pleasure of no ordinary kind, to offer hearty thanks to Mr. A. F. Barron, the garden superintendent, for his able and cheerful co-operation.

The progress of the society may be illustrated by a statement of the annual totals of prizes offered and taken, thus:—

Prizes offered.				Prizes taken.		Prizes offered.				Prizes taken.							
£ s. d.				£ s. d.		£ s. d.				£ s. d.							
1875	....	50	0	0	....	40	0	0	1879	....	125	15	0	....	91	10	0
1876	....	62	0	0	....	36	10	0	1880	....	141	15	0	....	109	0	0
1877	....	104	10	0	....	87	2	6	1881	....	160	15	0	....	124	10	0
1878	....	109	13	6	....	78	7	6									
				£ s. d.								£ s. d.					
The income in 1875 amounted to				71 8 0		The income in 1879 amounted to				121 15 0							
" 1876 "				93 6 0		" 1880 "				116 13 0							
" 1877 "				88 12 0		" 1881 "				127 18 0							
" 1878 "				109 4 0													

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

A FACT WORTH KNOWING.—The recently-published reports of Medical Officers of Health shew that the mild autumn weather and excessive rainfall have produced an unusual amount of Scarlet and Typhoid Fevers throughout the United Kingdom. There is also in many districts excessive mortality from Measles and Smallpox. Every cautious Householder should use reliable preventive measures, and none are better than Washing with WRIGHT'S COAL TAR SOAP, recommended alike by the entire Medical Profession and the Public. Let the Soap be in every Bed Room, Bath Room, and Nursery, and when you purchase, insist upon being supplied with Wright's. Refuse all imitations.—[ADVT.]

The House, Garden, and Home Farm.

THE SPECTRE OF THE BROCKEN.

I stood at sunrise on an Alpine height
 Whence plains were visible, and the domed sky
 Spread vacant in serous immensity;
 Westward beneath my feet curled vapours white,
 And grew and gathered, while the East was bright:
 Then as the silver wreaths clomb silently,
 Methought a shadowy giant steeped high
 Towered up above me ringed with radiant light.
 Standing he bore the shape of me who stood
 Sole on that summit; yea, he bowed or reared,
 Beckoned or threatened, as my varying mood
 Constrained his movement; till the light that grew,
 Wrought from the strife of clouds supreme repose,
 And heaven once more was still and stainless blue.

JOHN ADDINGTON SYMONDS.

THE HOUSE.

DURING the winter season the maintenance of the leaves of plants grown indoors in a perfectly clean condition is a matter of considerable importance, and must not be overlooked. Owing to the fires being constantly going in all the principal apartments, the leaves become in a very short time covered with a thin layer of dust, and this it need hardly be said is extremely hurtful in its effects when allowed to remain for any length of time. But it ought not to remain, and as syringing and any other of the rough-and-ready methods of cleansing the foliage of ornamental plants that may be employed in the summer season are not now practicable, careful sponging of the leaves should be resorted to. This is not a tedious process, for the leaves of a comparatively large specimen may be thoroughly washed in a very few minutes, and the number that can be conveniently accommodated in an ordinary apartment will be found to impose a not very heavy tax on time and patience. It is essential to the proper performance of this work that a perfectly clean sponge and tepid water be employed. Birds of all kinds require rather liberal feeding, and to be kept moderately warm and free from cold draughts, which are most injurious in their effects; at the same time they must not be coddled in any way.

THE GARDEN.

ANNUALS that are tender, such as Portulacas, Thunbergias, Schizanthus, Phlox Drummondii, Cockscombs, and Celosias to be sown this week or next. AURICULAS.—Sow seed of the show and Alpine varieties on nice friable soil, already well moistened, and lay squares of glass over the pans, so that no more watering will be necessary till the plants are up. If in heat, it should be very gentle, though a cold frame is sufficient.

AZALEAS and CAMELLIAS to be kept going for succession. Take care they have enough water while forcing; as the blooms open use the syringe less, and remove them to a cooler atmosphere to prolong the bloom.

BEDDING PLANTS.—Arrange the propagation of these according to their habits. Those that require to make a free growth before they bloom to be started first, and those that come into bloom quickly may be deferred. Be sure that the old plants are in vigorous growth before beginning to take cuttings.

CUCUMBERS recently turned out may be suffering from excess of heat, in which case draw some soil away from the bottom of the hillocks. Make sure of a few reserve plants.

FLOWER GARDEN.—When the weather is favourable and the soil in suitable condition dress the borders with rotten dung two or three inches thick, but do not dig or disturb the soil, or many bulbs and herbaceous plants may be injured. This is a good time to make banks and rockeries, preparatory to planting them in spring. Save all handsome loppings of trees for rustic work: large boughs of apple and oak are most valuable for such purposes. Planting had best be deferred; but if the weather is mild and dry deciduous trees, roses, and hardy bulbs may be put in.

POTATOES for PLANTING should, if possible, be selected for evenness of size and shape, and sets of a medium size are much to be preferred to those that are either very large or very small. If large potatoes must be used they should be cut, and the crowns should be planted separately from the sides, because the crops from crowns and sides do not ripen off at the same time. Large whole sets generally disappoint the planter, for he may plant roots of, say, two pounds in weight, and take up only three or four pounds of potatoes from a root. And, strange to say, the reason why large whole sets produce so little is as far removed from mystery as that two and two make four. A large set contains a great number of eyes, and the first result of growth is a crowded haulm, and the multitudinous shoots suffocate one another; for it is only when every shoot, and we might almost say every leaf, is fully exposed to air and light that the growth underground is satisfactory. In preparing sets for planting it is advisable to expose them for some time to light and to very lightly sprinkle them occasionally, so as to render the tubers green and produce short plump sprouts, of which there will be no danger of their being rubbed off when the tubers are taken to the quarters, provided ordinary care is exercised.

STOVE.—Plants in full growth, such as Euphorbias, Poinsettias, Justicias, Amaryllis, Gloxinias, Gesneras, and Achimenes, must have a position at the warmest end. Repot Allamandas and Clerodendrons during bright frosty weather, and place on moderate bottom heat. Cut down Aphelandras, Poinsettias, &c., as soon as they can be spared, and keep rather dry. As soon they commence growing repot them and they will bloom early next season. Be very careful in giving water; plants at rest to have little or none. Make ready for repotting orchids; sprinkle the floor of the orchid house pretty frequently, but water the roots only of such as have begun to grow. Temperature for general collections of stove plants, 55 deg. by night and 65 deg. by day.

SEEDS.—One of the most important matters to think of now is the stock of seeds. Many people order their seeds a few days before they wish to sow them, and have to wait weeks before they obtain them, owing to the excessive pressure on the seed trade in the spring. Procure the seeds as early as possible, to have them at hand whenever it is considered desirable to sow them. The weather throughout the spring is so capricious that there must

be no trifling, if the best results are to be obtained from the space at disposal.

SOW IN THE OPEN QUARTERS, as opportunities offer, Peas, Beans, Parsnips, Spinach, Leeks. Sow on warm slopes Radish, Hardy Lettuce, Cabbage, Parsley. Sow in heat, to transplant, Cos and Cabbage Lettuce, Celery, Tomatoes, Capsicums, Melons, Cucumbers, Cauliflowers, Sweet Basil, and Sweet Marjoram.

VINES may be propagated now from eyes in a dung frame, where the bottom heat is steady at 75 deg. Vines in free growth to have plenty of syringing, except while in flower. A general rise in temperature may now be allowed.

THE HOME FARM.

THE general work of the farm is in full swing once more, and the plough goes merrily, although the land in many places is pasty, and wants a little more drying. Another week of clean weather will encourage the sowing of peas and beans where the land is ready, and help the making of a seed bed for wheat, oats, and roots, when the time comes for sowing them. In any and every case the most important business of an arable farm now is to plough down stubbles and leas, and make the utmost of daylight and favourable weather to get ready for seed sowing, while as a matter of course all drainage works that the weather has arrested should be forthwith completed, for the spring is coming. The Parsnip as a garden crop is not in high favour, for the simple reason that it does not suit every palate, and it is often badly cooked. But as a farm crop it is of the greatest value, as it is at once profitable as regards bulk of production, and a most acceptable winter food for cows and pigs. It must be grown on deep well-tilled land, and is often put on a well-prepared stubble. The quantity of seed required is 7 lb. per acre. The seed must be mixed with fine dry earth or sand, and drilled in at fifteen inches apart. Cleaning and singling must be attended to betimes, the plant to be left at six inches in the drill. It is a good plan to sow a little of the cheapest rape, turnip, or barley with the seed to mark the rows, so as to allow of early hoeing, because the weeds generally get ahead of the parsnips in the early part of the season, and unless the rows are distinctly marked the hoe may do more harm than good. We have seen a crop of fifteen tons taken from a good loamy land with very little labour considering, the sort being the *Large Jersey*, which is the best for a farm crop, and will always fetch a fair price in market. Where labour is scarce, however, carrots pay better than parsnips, and are especially valuable as winter food for horses.

WASTE IN COMBUSTION.—A lecture on this subject was delivered by Professor W. Chandler Roberts, F.R.S., at the Smoke Abatement Exhibition, South Kensington. The lecturer pointed out that the work the committee of the exhibition were endeavouring to carry out was a continuation of that which occupied the attention of Parliament in 1819-20, when a Select Committee was appointed to consider the effect of factory furnaces on public health, and in 1843, when another committee inquired into the "Means and expediency of preventing the nuisance of smoke," and a valuable report was issued containing the evidence of Faraday, who expressed his belief that the reduction of smoke from coal-fires in private houses could "be effected in a very large degree." As professor in the School of Mines, Mr. Roberts felt great pleasure in being able to assist in the effort now being made for the abatement of smoke. The School had been associated with this work, Sir H. de la Beche, its founder, and Dr. Lyon Playfair, its first Professor of Chemistry, having in 1846 made a valuable report to Lord Canning, in which they said that "it cannot for a moment be questioned that the continued emission of smoke is an unnecessary consequence of the combustion of fuel," and that "as an abstract statement it can be dispensed with." Alluding to early efforts in this direction, Professor Roberts mentioned that the "Transactions of the Royal Society" for 1681 contained the description of a grate that consumed its own smoke, and in which the draught was so perfect that "incense made no smell when burned in it, neither did red herrings broiled thereon." Probably the first attempt to combat the smoke nuisance was made by James Watt in 1795. Passing to the more immediate subject of his lecture, Professor Roberts gave at length both the chemical and physical reasons for the fact that incomplete combustion was wasteful, and furnished numerical illustrations. He pointed out that the combustion of a complex fuel, such as the coal generally used for household purposes, was complicated by the evolution of compounds of carbon and hydrogen. These compounds became split up in the presence of air into others which, while being more stable, contained less carbon. Hence carbon became separated in the flocculent sooty condition that constituted smoke. This finely-divided carbon could alone be burnt by admitting a supply of air at a sufficiently high temperature. After all, the quantity of carbon lost in soot was comparatively small when compared with the volume of air through which it was disseminated, as every cubic foot of the densest smoke that could be produced only contained one grain-weight of carbon. Small as the amount was, its injurious effects had been abundantly proved. The lecturer referred at length to the work of Dr. Siemens, and expressed his belief that for domestic purposes we should ultimately adopt Dr. Siemens's plan of converting our fuel into gas and burning it in a furnace quite separate from that in which the gas was produced. Count Rumford had said, early in the century, that he never visited London without wishing to be able to compute the immense amount of coal in the black cloud that hung over the city. We had now data that were not available to Count Rumford, and estimating the amount of coal burnt in domestic fireplaces during the past year at 5,000,000 tons, Professor Roberts considered that the soot in the pall that might hang over London in a single day would be equivalent to at least 50 tons of coal, while there was good reason to fear that the carbon in the half-burnt form of carbonic oxide gas was at least five times as much. He insisted on the fact that the presence of soot was always an indication of imperfect combustion, and therefore of waste.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—"JAMES EPPS AND CO., Homeopathic Chemists, London." Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

THE ESPIRITU SANTO PLANT.

Of all the orchidaceous plants that grow on the Isthmus of Panama, there is none that appeals to the religious sentiment and popular imagination so strongly as the celebrated dove plant, or *Espíritu Santo* orchid. The exquisite mimicry of this class of plants is seen in this species to take the form of a dove with outspread wings, sheltered in the bosom of the flower. While other and more gaudy orchids excite the wonder and curiosity of the beholder in seeing the wonderful likeness to bees, butterflies, and other insects, the *Espíritu Santo* appeals to a higher and nobler sentiment. The plant produces a long spike of yellowish-white waxy flowers, yielding a very peculiar fragrance. On looking at the flower the centre of it exhibits a column which, with its summit, and the projecting gland of the pollen masses, bears a very striking resemblance to the figure of a dove, whence the English name of the genus.

The Spanish ladies, with that respect for the imagery of the Roman Catholic Church, in which the dove takes so prominent a place, associated the name with the bird selected by the Holy Spirit to witness the baptism of our Saviour, and by this name it is still known. To call it the Holy Ghost flower sounds harsh and even irreverent to Protestant ears. The effect of the *Espíritu Santo* flower is at once devotional and poetical. That it should form a striking subject for the exercise of some of the Spanish American poets, who have seen the plant in its native woods, is natural and to be expected. They have not only celebrated the flower in their verses for its natural beauty, wonderful structure, and fragrance, but have seized on it to express and mourn over the sorrows of poets in general, to whom the gift seems inseparable, from worldly disappointment and privation. Many of them, in order to produce the works that continue to charm the world, "had no time," as the lamented Agissiz said, "to make money." Thomas Martin Fullet, of Panama, who wrote some exquisite pieces of Spanish poetry, and died young, has a poem on the *Espíritu Santo* flower of Panama, addressed to a lady. In the two last verses he expresses a hope, when he is laid to rest in the grave, that, although he expects no one to shed a tear to his memory, some kind hand will lay on the black pall that covers his coffin a few flowers of the *Espíritu Santo*. The verses are as follows:—

Ah! Cuando á fuerza de tormentos hórridos
Cese de palpar mi corazón:
Cuando deje esta vida triste y misera,
Para dormir tranquilo en el panteón,
Yo sé que nadie verterá una lágrima;
¡Ojalá que siquiera por favor,
Algún coloque en mi enlutado féretro
Del *Espíritu Santo* alguna flor.

The love of flowers is very common in Panama, and few balconies are without them.

The *Espíritu Santo* Plant, or *Peristeria elata*, was a favourite of the nuns, but cannot be made to go on flowering in Panama. The bulbs may be preserved alive for a long time, but they refuse to produce flowers. They must have a period of rest in a comparatively cool atmosphere, but during their growth and flowering they require a cool and very moist atmosphere. The hot and dry seasons send them to sleep, and sleep on they will in the air of the coast and city, while such conditions of the requisite moisture and temperature are kept from them.

The supply however is kept up by several Jamaica-men, who make it a business to seek for them in the forests that skirt the higher regions through which the railroad passes, especially about Lion Hill Station. They are not found, so far as we know, in Veraguas or Chiriqui, though the Cordilleras of both these departments abound in exquisite and rare orchids. These plants are often offered for sale in the streets and before the Grand Hotel of Panama, where passengers obtain them at from three to five dollars the dozen of bulbs in flower. They flower in July, August, and September. Though the *Espíritu Santo* plant belongs to the terrestrial orchids, its bulbs should never be covered with earth, as is generally done. They should be put in pots when they begin to grow, and, though they require a stronger compost than those that adhere to trees, do not need so much drainage as the latter. The *Espíritu Santo* is best grown in pots with fibrous loam, leaf-mould, and sandy peat, with a good quantity of water during their period of growth, after which they must have a good season of rest, and be kept nearly dry at the roots; if allowed to get wet during their rest they are apt to rot. In the hot-houses in Europe this plant continues blooming for two months when the flower spikes are strong. In Chiriqui the species there called by the same name is a *Cycnoches* having no resemblance at all to the *Espíritu Santo* plant of Panama, and is an epiphyte growing on trees, and so named from the flowers taking the form of a swan.

There exists on the Isthmus a variety of the *Espíritu Santo* with yellow flowers, and the dove a fawn colour.—*Journal of Applied Sciences*.

BOOKS FOR YOUNG GARDENERS.

OBSERVING in your issue for January 14 some remarks on a letter in which the writer denounces "popular science," it has occurred to me that a few words from a looker-on, who feels competent to speak, may prove acceptable. If it were possible to sympathize with the letter you have commented on, I should certainly lean that way, because of my long-cherished passion for poetry, the reading of which is one of my constant delights. But I am bound to cast in my lot with the writer of the leading article, for I feel with him that young men may do better for themselves and their employers by giving their minds to scientific studies than in cultivating a taste for the elegancies of poetry. For, when all is said and done, poetry is but an ornamental fringe to human life, and we must attain to a certain degree of culture, and acquire a considerable body of actual knowledge, before we can hope to understand it. The light jingling rhymes that gratify the readers who profess a fear of "deep books" are useful to them, because they make no demand on knowledge or thought; but to read Tennyson or Ruskin with advantage a man must take something to the book or he will bring but little away. On the other hand, to learn from a book what no poet pretends to teach, namely, that dew does not fall as rain falls, but is formed where found by a process of condensation closely akin to distillation—to learn this at once expands the mind, assists in the useful observation of Nature, and

serves as a schooling to the mind which may result in the capability to appreciate the highest poetry.

As I am unknown to your readers, I may without improper vanity speak of myself. I am not a gardener, but I pretty well understand the gardeners' position in respect of his reading and his recreational requirements. He is in the same position as an engineer, having to acquire a certain mastery of Nature's laws and of materials readiest to hand for success in business. I have observed that our great gardeners have been scientific men; they have not been poets, and probably were not much addicted to studies of poetry. Our great engineers have in like manner triumphed by virtue of familiarity with minute facts, as well as comprehension of great principles. The Stephensons, I apprehend, were not ardent readers of the poets, but they were reverent students of Nature, and their inventive faculties were quickened by constant and observant contact with the world. The young gardener may do well to store up knowledge, and look upon poetry as a sort of intellectual sweetmeat, to be enjoyed sparingly at holiday times.

It was my fate to be born amid circumstances that tend to make paupers. In my early years I rarely had enough to eat; the only education I obtained was in the old-fashioned "charity school," at twopence per week; but it was a good school of its kind, and it gave me education sufficient to start me in the world at twelve years of age, when I entered into the service of a bookseller, and joyfully earned four shillings a week. In the course of a few years I made for myself a position in life, which I still hold, my earnings during many years past having ranged from a thousand to fifteen hundred pounds per annum. I owe this entirely to a passion "for popular science." My casual readings, at odd times, with no one to advise me, were of the most various kind, but I never lost an opportunity for cramming in a few facts, always feeling that I should get more out of them in both money and joy than from any number of fancies. I read elementary works, comprising children's books on botany, astronomy, chemistry, and other sciences, and many of the earliest lessons so learned have been useful to me from time to time in many of the circumstances of life. I have been enabled, from the deck of a ship, to describe the constellations and indicate the paths of the planets from my studies of star maps when a boy of fifteen. At that age I devoured Lord Brougham's discourses on popular science and on the *Novum Organum*, Herschel's "Introduction to Natural Philosophy," and Mrs. Somerville's "Connexion of the Physical Sciences." For many years I worked with delight at Milner's "Gallery of Nature" and "Gallery of Geography," and as my means improved I secured better books and engaged in more searching studies.

The young men of the present day have many advantages over those who were my contemporaries. I remember the publication of the first number of the "Penny Magazine," in March, 1832. It was a grand opening of the temple of knowledge for the masses of the people, but for the real student it could only serve as a stimulant and an occasional reminder of things one must know more about. Systematic teaching adapted for the untalented had not been thought of, but now the masters of science are busy in explaining first principles, and it is a grave mistake for any man who has the interests of gardeners at heart to decry "popular science." I would strongly recommend the "science primers" now in course of publication by Messrs. Macmillan. These are small books that may be carried in the pocket; they are essentially "popular" in style, being addressed to "the people;" but they are sound and comprehensive, and calculated to kindle within the breast of a young man a flame worthy to guide him and many to higher heights in the realms of physical science. In this series occur primers on Botany by Sir J. D. Hooker; on Agriculture by Mr. Henry Turner; on Geology by Professor Geikie; on Chemistry by Professor Roscoe; and on Physics by Professor Stewart. And yet these little books only lead us to the threshold of their several subjects; they are intended rather to whet the appetite than to feed the hungry mind, and if "popular science" is to be condemned, such books must be consigned to the fire-lighters. There are some monthly papers in progress now, such as "Self-Culture" and "Science for All," written by men of the highest attainments in the departments of knowledge they represent, and worthy to be universally read and to be made the basis of serious work; but they are cast intentionally in the "popular" mould to suit them to the tens of thousands who, like myself, had to begin the world with the scantiest possible furnishing of the three R's, and not knowing how to spell or pronounce pusillanimity.

And if a comparison is to be made between popular science and high-class poetry, I will venture the opinion that the first is not only calculated to prove most useful, because necessarily dealing with facts, but in the first instance must afford the most delight. A certain amount of real knowledge is needful for the enjoyment of the most commonplace scenes and events in Nature. I have rambled over the world with all sorts of men, and I have often found the poets, and the students of poetry, extremely ignorant when confronted with Nature. "I admire the whole," said a poet to me, when beholding a grand mountain range, "and it matters not to me what rocks the scene is made of." But I, being interested in the geology of the scene, said, "I also admire the whole, and I give attention to the parts, and I can tell you why the mountains to the left are tinged with red, and those on the right are green and grey." To this he was deaf, because ignorant, but being a poet, he thought himself an interpreter of Nature."

JEVON SCARFE HOWELL.

MY BIRD.

SING, happy Bird of Paradise,
That warblest in the ear
When darkest grow the clouded skies,
And life looks bleak and drear.
Thou charmest every fear, my love,
That haunteth heart and brain;
Thou makest Heaven shine clear, fair dove,
Through phantom realms of pain.

Dear hope, bright Bird of Paradise,
Thy ruffled plumage gleams
Through the dark cypress-boughs which
To cloud the land of dreams. [rise
Soft flutterer, let me feel thy wings
Upon my spirit beat,
That sense of grief for earthly things
May fade in visions sweet.

What matter though the rose-leaves fall?
The violets from their grave
Spring up, and fragrant thoughts recall,
To make the doubter brave.
Dear Bird of Paradise! thy notes
The bitter buds unfold;
Thy song with angel-gladdness floats:
I hear the harps of gold!

I hear the messages of peace
Breathed in the frosty air,
Sing, happy bird! for sorrows cease
With thy imploring prayer;
And, shining through the mist of tears,
Love-lights no longer dim;
My soul, rejoiced by scatter'd fears,
Joins thy thanksgiving hymn.

From ROWLAND BROWN'S new "Songs and Poems."

Notes of Observation.

THE BLUE ROMAN HYACINTH.

I HAVE grown the Roman hyacinth with blue flowers this season for the first time, and I must say that I am much disappointed with it, for it is in no way equal to the white variety. When managed in the same way it does not flower so well nor so early by four or five weeks. It has also a more leafy and coarse growth, and the individual flowers are very thinly set on the stem. Its only merit is that it gives a bit of fresh colour and is useful from Christmas onwards.

J. C. C.

MELONS IN POTS.

It may perhaps be of interest to some at least of the readers of the GARDENERS' MAGAZINE to know that melons may be successfully cultivated in pots with but little difficulty. Last year I had some spare plants after filling my frame, and I thought I would grow a few of them in pots. I first procured three pots of large size, and put a layer of half-rotten manure in each, and then filled them with a mixture of loam and well-rotted manure. The loam was obtained from the top spit of an old pasture, and had been laid in a heap for some time. The manure was added in small proportions, and the heap then chopped over lightly and in such a way as to leave the loam in a rough state. The soil was made firm and rather high in the centre, and I put one plant in each. The pots were then placed on the stage of a cool greenhouse. They were of course put on the south side, so as to receive the fullest possible benefit from the sun heat. In a very short time they began to grow freely and fill the pots with roots, and the shoots were trained to some lattice tacked to the front lights. As soon as the fruit was set the plants were supplied liberally with liquid manure, and this was continued throughout the time the fruits were swelling. During the time the crop was finishing off they were supplied in a fairly liberal manner with clear water. Two of the plants produced four fruits each, and the other three. The dull, cold, and wet weather experienced during August was against them, particularly as I had no means of heating the house. I cut the first fruit of the plants in pots on September 13, and was successful in taking the first prize at our autumn show with it, the melons being, in accordance with the usual custom, judged for flavour. The variety, I may add, was the Beechwood, which as yet is not surpassed by the introductions of recent date. T. B.

TOMATOES.

The increasing popularity of English-grown tomatoes makes the note from your correspondent Mr. J. C. Clarke of public interest, for if we could succeed in growing tomatoes so as to produce them cheaply we should confer a blessing on all classes; but it is my opinion that we shall not so succeed while our summers so abound in cold nights and chilling winds, for here, I think, lies the secret of the disease mentioned by Mr. Clarke—an insurmountable obstacle to growing them freely out of doors. They are sometimes managed when grown in very sheltered positions; but such are not at every one's disposal, and the only recourse is to grow in glass houses, which of course always limits the supply and enhances the cost.

G. H. BROWNE.

[It seems that tomatoes make an ample return for good cultivation under glass, and, as a matter of fact, taking the good and bad seasons together, this course of procedure enlarges the supply and diminishes the cost, and therefore may be recommended for universal adoption.—Ed. G. M.]

New Plants, Flowers, and Fruits.

NEW BEGONIAS of the "Rex" section (*Illustr. Hort.*, t. 436).—*Madame Joseph Moens*, leaf of medium size, much overspread with olive-grey, broken with small patches and veins of dark green. *Madame Charles Weber*, very elegant V-shaped leaf of a rich deep green colour, dotted all over with small marks of greyish white; a fine variety. *Madame E. Van Meerbeke*, very elegant semi-ovate leaf of a delicate opalescent grey colour, veined and margined with dark green. *Sow. de Mad. la Baronne de Bleichröder*, leaf of medium size, very boldly marked with dark rayed centre and broad dark margin, the filling in marbled grey-green and clear grey. *Madame N. Funck*, leaf oblique V-shaped, centre lively grass-green, broad margin of the same colour, intermediate space olive-grey. *Baron A. de Vrière*, leaf elegantly curved in outline, centre dark, broad margin, very dark, ground spotted white, intermediate space dull olive-grey; a fine variety.

MASDEVALLIA SHUTTLEWORTHII (*I. H.*, 435).—A curious species, with flowers of typical form, the colouring a curious mixture of purple, red, and orange.

GYNURA AURANTIACA (*I. H.*, 436).—A coarse composite with ornamental leafage, the predominant colours of the leaves being dark green and heavy purple.

BOUVARDIA ALFRED NEUNER (*I. H.*, 437).—An excellent figure of this beautiful and useful plant.

ROSE GUILLUAME GILLEMOT (*I. H.*, 433).—A hybrid perpetual raised by Mr. J. Schwartz. As here figured the flower is of large size, with shell petals, the colour a light bright cinnabar-red.

ROSE MADAME BROUSSE (H.P.).—This new perpetual is offered by M. P. Brosse, of 73, Trois-Rivards, Lyons. It is described by him as of vigorous growth, leafage dark green, the flowers large, colour brilliant red, sweet scented, produced abundantly and continuously. It is added that it is the most fragrant of all the hybrid perpetual roses.

PESCATOREA KLABOCHORUM (*I. H.*, 431).—A remarkable orchid with large symmetrical flowers delicately coloured white and rose.

SALVIA BRASILIENSIS (*I. H.*, 432).—A handsome plant, the flowers flesh-tinted white with brilliant stripes of cherry-red.

CYCAS SIAMENSIS (*I. H.*, 433).—A distinct species from Siam, the leafage elegantly pectinate.

"TIME'S FOOTSTEPS" for 1882 is the title of a pretty pocket calendar published by Messrs. Goodall, of Camden Works, Camden Town. Traders who provide their customers with almanacs and valentines may with advantage take note of the style in which this elegant trifle is produced.

Correspondence.

OUR YOUNG GARDENERS' LITERATURE.

THE writer of the decidedly shallow article in your issue of January 14 evidently feels as strongly on his side of the subject as I do on mine. His article is quite inaccurate enough to stand on its own merits. Beyond correcting a misprint, which I did not observe before, and remarking on what almost seemed wilful misrepresentations, I have nothing to say in the GARDENERS' MAGAZINE.

I did not write "casual nexus" but "causal nexus," and it does not flatter the writer's scholarship not to have perceived that "casual" was a misprint for "causal." If the writer knew anything of the inmost life of young gardeners, or had passed a fraction of a year of his life in a botany, he would know that their time for reading is scant indeed. The first study, I distinctly say, must be "the literature of his craft." From that he will learn "the unsuitability of rhododendrons for calcareous soils," and such-like other facts. It is not fair to use as an argument the science that is part of a gardener's business to know. But when a man who has not the time to devote to it, or, if he does so, must do it at the neglect of the poets, tries to pursue every link in the chain of scientific sequence, he almost invariably becomes an example of "dogmatic ignorance." From the sentence "Botany they must know, and the elements of a few others, such as heat," the conclusion is drawn that if a man does not see his way to become a complete botanist and engineer he is to take particular care to be ignorant of either. The conclusion that would suggest itself to an unprejudiced observer would be, that if a man does not know botany and the elements of heat he has no right to become a gardener. When I use the word "know" I use it in its general sense, which is, I take it, to have studied a subject carefully and to have stored as much of it in your memory as you can. Is the epigram that the "natural scientist knows least of nature" a lie? Which gives more delight to the mind, the poet's description or the geologist's? Science to become popular has, in a great measure, to appeal to the imagination and derive its diction from poetic thought.

Further comment would seem as if I intended a detailed reply. The writer means, I presume, read both Tennyson and "The Chemistry of a Candle;" he would string together a number of books which the world calls useful and interesting, and say, Read, learn, and become an "enlightened citizen." Gardeners are not cooped up in towns with chimneys as a background to the landscape. I do not even wish to hint that "culture means the abandonment of fellowship." But gardeners ought to educate themselves to a juster and nobler appreciation of their flowers and their beautiful environment by reading poets like Tennyson and writers like Ruskin. I trust that you will insert this in your next issue.

WILLIAM CARMICHAEL.

Newton Court, Bury St. Edmunds, January 18, 1882.

PRACTICAL AND PICTURESQUE SUMMER HOUSES.

YOUR correspondent "W. B." was quite right in criticising adversely the usual rustic summer house. I had for some time longed to overcome the obvious disadvantages of structures of this description, and several years ago I designed a series of summer houses, one of which the annexed pen-and-ink sketch will serve to roughly illustrate. That since then it has fallen into the groove of a trade article is perhaps to its merit; at any rate, this fact cannot lessen its advantages. Such a summer house is constructed of red deal, stained and varnished. The roof is of red tiles, with terra-cotta finials and cresting. It is glazed (above two feet from the floor) on three sides. The back and floor are boarded. Ample ventilation is provided. The interior fittings consist of a seat at back, and perhaps the two sides, a flap table, and light curtains on sliding brass rods.

The advantages are:—It harbours no insects. The interior can be kept as clean as an ordinary room. Having a non-conducting roof, ample ventilation, and curtains, it can be kept extremely cool in summer (more especially if it be screened by any trees). It can be entirely closed, and can easily be made quite warm and comfortable in winter. It makes an admirable smoking room, and in fact forms quite an attractive useful little country garden house. Architecturally, the combination of red tiles, a little lead glazing, and stained and varnished woodwork impart a very pleasing warmth and tone of colour to a garden. Rustic work does not, for the reason that a rustic summer house is neither a natural object growing nor a decided architectural feature, but usually a lame attempt to make the latter a grotesque imitation of the former. Besides this, a rustic summer house forms a splendid rendezvous for every insect under the sun; it is hot and stuffy in summer, cold, draughty, and wet in winter; but useful never.

F. A. FAWKES, Author of "Horticultural Buildings."

ECCENTRIC HIGHWAY RATE CHARGES.—In the last published report of the Local Government Board, what are termed "striking examples" of the diversion of a statutory fund to an object which Parliament never contemplated are presented in appeals by overseers against disallowances in their rates. One of these diversions occurred in a South Wales parish, where it was resolved at a vestry meeting that the sum of 21s. should be paid from the rate for any grown-up fox killed within the hamlet, on the head being produced to the guardians of the hamlet, 10s. should be paid for a whelp, and half a crown for every raven killed. The Local Government Board confirmed the disallowance. In another parish, for a quarter of a century before there was a central audit of the highway-rate accounts, a sparrow club was paid for out of the rate. The farmers used to shoot the sparrows and sell them to a person, who was afterwards repaid out of the rates: £3 10s. 1½d. had been expended in one half-year for 1,333 sparrows, and in addition an unexpended item of 12s. 6d. for "fess." In other parishes mole-catchers had their remuneration regularly charged upon the highway rate, and in one case it was charged in the surveyor's account. In another case the coat and hat of the bellman were charged upon the highway rate, and the rate elsewhere was charged with the cost of supplementing the postal delivery. The Local Government Board says:—"These cases may be taken as examples of the manner in which this rate has for years been misapplied. Many other cases might be adduced." In all cases the charges were disallowed, and the Local Government Board, where the members of Highway Boards made perambulations, would not concur in the view that a considerable outlay on champagne, early salmon, sherry, and the like, came within the description of "reasonable expenses."

Replies to Queries.

J. H.—All depends on the nature of your lease. Under ordinary circumstances a nurseryman can remove the whole of his stock-in-trade. It will be prudent probably to consult a solicitor before you touch a stick.

A. A.—The names are explained in all the good books of reference. The best of them for you is the "Cottage Gardener's Dictionary," published by Bell, price about 7s. The *Tabernaemontana* is named after one of the old botanists. The *Rondeletia* is named after a French physician.

R. H.—The *Parcae* were fortune-tellers, but far superior to those who prognosticate in the present day, because they had the power of compelling events as well as of foretelling them. Therefore you will see that if swearing is allowed about the paddle-box, the *Parcae* are proper people to swear by.

Apple Store.—*W. Strickland.*—The apples you describe as "going to pot" may be made to go to pot in a better way than you describe them. As the case stands you will lose your largest stock entirely and quickly, for when decay begins no earthly power can stop it, so long as the apples remain as apples in their entirety. But if you do not allow the case to stand as it is, you may by a little effort save your apples. Make them into jam, and you will have a most useful and delicious article. Very few people know what apple jam is like, but in truth it is a very rich and acceptable preparation. You must pare, core, and cook as with any other fruit, allowing about one-third less in weight of sugar to fruit. But a good cooking is required, or the stuff will not keep.

Books.—*J. A.*—One of the very best books of its class is Richardson's smaller "Modern Geography," published by Murray, costing only two or three shillings. There is a good shilling atlas obtainable. It is known as Collins's. The atlas you inquire about, we suppose, is Letts's, which contains thirty-five maps, and costs about eight shillings. It is entitled "Letts's Popular Atlas," and is published at 72, Queen Victoria Street. *Vortex.*—*Van Houtte's "Flore de Serres"* was commenced in 1845, and is still in course of publication, although it appears with strange irregularity. A complete set to the present time, in good condition, would realize from thirty-five to forty pounds. Paxton's "Magazine of Botany" was commenced in 1834 and concluded in 1849, the complete set consisting of fifteen volumes. We cannot give you any idea of its commercial value, but books of this class may be reckoned as a rule to be worth a pound a volume.

Names of Plants.—*O. B.*—The Constantinople nut is *Corylus colieria*. It was figured in *G. M.*, Sept. 2, 1876. *G. T. T.*—Your fern is *Cyrtomium falcatum*. *W. Banister.*—1, *Justicia elongata*; 2, *Justicia speciosa*; 3, *Lavradia montana*. *T. T.*—As you possess Lindley's "Rosarum Monographia" you can name your species easily, as they are all figured in it, and you can in the season compare the fresh flowers with the coloured figures. You will have to be careful as to stipules, and other small details. *J. P.*—1, *Adiantum pubescens*; 2, *Davallia bullata*; 3, *Polypodium cambricum*; 4, *Pteris serrulata crispum*; 5, *Adiantum scutum*; 6, *Stachys*

lanata. The *cincreria* is showy and good, but not distinct enough for a name. The loam appears to be a good article, but the qualities of soils cannot be judged by small samples. *F. H.*—*Chrysanthemum frutescens*, usually propagated by cuttings.

Fellowship of the Royal Horticultural Society.—Several inquiries have reached us of late on the subject of the Fellowship of R. H. S. To these inquiries we have replied in detail. But it appears that persons who do not inquire are nevertheless in need of information. To acquire the Fellowship is a very simple affair. In the first place, application should be made by letter to Mr. Douglas Dick, assistant secretary, Royal Horticultural Society, South Kensington, London, S.W. The applicant will be supplied with a form to be filled up, and this will require the names of two Fellows to be added as recommending the election of the candidate. In the event of a candidate being unacquainted with two Fellows, he may be advised to fill up the form and state his case and leave the rest to the assistant secretary, who will probably find two Fellows to give the required recommendation. We shall always assist in such cases so far as possible. As a matter of course, it must always be understood that the Royal Horticultural Society is not pledged to accept any candidate, every name being submitted at a general meeting of the Fellows. Were the Fellowship at the command of all comers, like an article in the open market, it would be worthless. But the elective system has hitherto proved sufficient to keep the Fellowship as select as is desirable.

TRADE CATALOGUES.

H. CANNELL AND SONS, SWANLEY, KENT.—*Illustrated Floral Guide for 1882.*

CUSIN AND GUICHARD, 1, PLACE DU CHANCE, LYON.—*Price Current of Seeds, Plants, Bulbs, &c.*

JOHN LAING, FOREST HILL, S.E.—*Garden, Flower, and Farm Seeds.*—*New and General Plant List.*

E. G. HENDERSON AND SON, MAIDA VALE, EDGWARE ROAD, W.—*Catalogue of Flower, Vegetable, and Agricultural Seeds.*

BRINKWORTH AND SONS, READING.—*Special List of Seed Potatoes.*

HARRISON AND SONS, LEICESTER.—*List of Seeds for the Garden.*

KELWAY AND SON, LANGPORT, SOMERSET.—*Catalogue of Seeds, Nursery Stock, Gladioli, &c.*

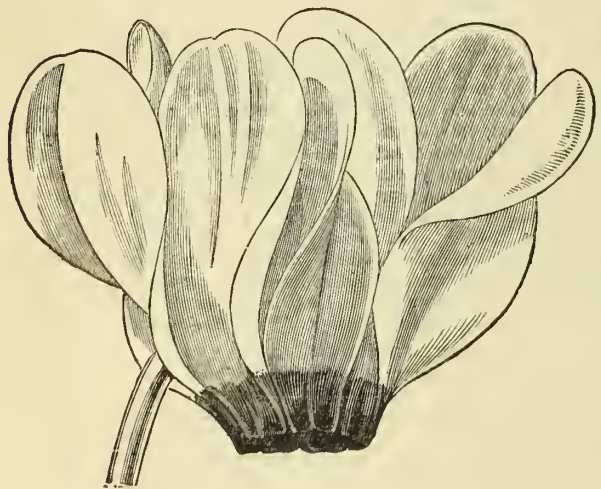
Obituary.

On the 20th inst., at his residence, Red Hill, Mr. JOHN LINNELL, the eminent landscape painter. He practised miniature painting in his early days, which probably accounts for what has been described as his "stippled" style of representing foliage. His fern works in oil were mostly portraits, his later years being chiefly devoted to landscapes. He had reached his 90th year.

Recently, at Liège, THEODORE SCHWANN, the naturalist and author of the "cell-theory," aged 71 years.



WILLIAMS' GIANT CYCLAMEN.



HAVING given special attention to the improvement of the *Cyclamen persicum*, as the result of my labours I had the honour to introduce for the first time, a few years ago, the improved types of Giant Cyclamen, which are pronounced to be our best winter-flowering Plants. I have this year, by continued careful selection and assiduous attention to the cultivation of these magnificent plants, with their beautiful reflexed petals, obtained seed from the finest strain that could possibly be produced.

The difference in price of packets applies to quantity; the quality of all is alike.

Williams' <i>Cyclamen persicum giganteum</i>	Per packet.—s. d.
Williams' <i>Cyclamen persicum giganteum rubrum</i>	2s. 6d. and 3 6
Williams' <i>Cyclamen persicum Brilliant</i>	2s. 6d. and 3 6
Williams' <i>Cyclamen persicum, superb strain</i>	2s. 6d. and 3 6
Williams' <i>Cyclamen persicum, superb strain, Collection, six varieties</i>	1s. 6d. and 2 6
	5 0

Williams' English-grown Seedling Gladioli, suitable for Masses and Borders	per doz. 0
Williams' <i>Gladiolus Breuchleyensis</i> , the most showy Flower of our Gardens	per doz. 2 6

For descriptions see Illustrated Seed Catalogue, post free on application.

B. S. WILLIAMS,
SEED MERCHANT AND NURSERYMAN,
VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY,
(LONDON, N.)

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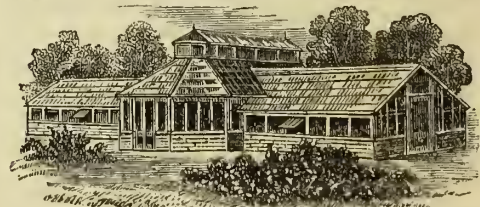
OF HORTICULTURAL BUILDINGS AND IMPERISHABLE GLAZING WITHOUT PUTTY, As adopted by H.R.H. the Prince of Wales, and universally at home, the Channel Islands, and Abroad.

They require no outside painting or repainting, as there are no sash bars and the woodwork is covered by the glass.

The fasteners are brass, and therefore imperishable. There is no drip from condensation; the ventilation is perfect, and no hidden crevices for moisture, dirt, or insects to accumulate in and cause decay. As little iron as possible is used in the construction. Every part inside can be got to at any time to clean or repaint, and the whole houses arranged to be easily taken in pieces and removed if required. Any gardener's assistant can repair.

Full play is allowed round each square for contraction and expansion; therefore breakage, except by accident, is almost unknown.

It is the cheapest and best system, and takes less heating power than the old system.



It obtained the Banksian medal at the Royal Horticultural Society's Show, June, 1881; and Medal, York Fine Art Exhibition, 1879.

The Light and Plant Growth is perfect. Heating by Hot Water in the most perfect manner.

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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 10 yrs. Ch. wick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sets.	Sets.	Rises.	Sets.	London Bridge.	Liverpool Dock.	Morn.	After.	Morn.	After.	
1882	S	Septuagesima Sunday.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882
5	M	St. Vedast.	7 34	14 15	4 54	7 48	7 49	3 20	3 33	0 27	0 45	30.3		Begonia Saundersiana, S. Red. 39
6	S	Baron Rothschild died, 1874.	7 32	14 19	4 56	8 55	8 7	3 43	4 3	0 53	1 13	30.3		Camellia alba plena, G. White. 37
7	Tu	Half-Quarter Day.	7 30	14 23	4 57	10 1	8 26	4 20	4 33	1 28	1 45	30.3		Camellia Beali, G. Red. 38
8	W	Bishop Hooper burnt, 1555. [mar., 1840.	7 29	14 25	4 50	11 7	8 46	4 50	5 5	1 53	2 15	30.3		Epacris Ingrami, G. Red. 39
9	Th	(Last Quarter, 8h. 34m. morn. Q. Victoria	7 27	14 27	5 0	Morn.	9 8	5 20	5 35	2 30	2 45	30.2		Epacris picturata, G. Pink. 40
10	F	Washington born, 1732.	7 25	14 27	5 2	0 16	9 35	5 50	6 10	3 0	3 15	30.2		Rhododendron ciliatum, G. White. 41
11	S		7 24	14 23	5 4	1 24	10 9	6 30	6 52	3 35	3 55	30.1		Rhododendron praecox, H. Rose. 42

The Gardeners' Magazine.

SATURDAY, FEBRUARY 4, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (28 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

Auction Sales for the Ensuing Week.

WEDNESDAY, FEBRUARY 8, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Established Orchids.
WEDNESDAY, FEBRUARY 8, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.
THURSDAY, FEBRUARY 9, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.
FRIDAY, FEBRUARY 10, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

THE ROYAL HORTICULTURAL SOCIETY will be re-organized according to custom at the annual meeting, to be held on Tuesday week, the 14th of this month. Very few changes in the lists of Council and Officers are proposed, and these have no relation to any radical change in the Society's affairs: they are the consequence simply of natural events and the normal working of the bye-laws. But the balloting lists that have been published in anticipation of the annual meeting suggest some melancholy thoughts, and compel reflection as to the future of this important institution. One of the most active and practical of the Council has been removed by death, and in respect of the much-lamented Dr. Denny we may reasonably doubt if, for many a long day, we shall look upon his like again. In him we had not only a steadfast representative of horticulture, but a man of great experience and business capacity. The retirement from office of Dr. Hogg and Mr. Henry Webb, who have so admirably served the Society—the one as Secretary and the other as Treasurer—does in a very considerable degree add to the sense of depression which other and more decisive, because irrevocable, losses must occasion. It will not be forgotten by those of the Fellows who take an abiding interest in the Society's affairs that these gentlemen took upon themselves the cares of office when the prospect was altogether discomfiting, and the probable result of any and every effort was disappointment. The responsibility was great, as we all know, and we do not doubt that the labour was also great; but on that point we can but make shrewd guesses, for neither of those gentlemen has been heard to complain of the toils incurred in carrying the Society through a stormy time from the midst of dangers into safety and prosperity. But it was so carried, and it will be well for the Fellows to keep the fact in mind on the occasion of the annual meeting. The work has been done; the Society is both safe and prosperous, and we wish we could add that it is also strong; but the pleasure, alas, is denied us. However, considering the difficulties that have been encountered and overcome, and considering, moreover, the difficulties that remain and still stare us in the face, it may be said with the most perfect truth that the Royal Horticultural Society is now in a healthy and prosperous condition: it is engaged in its legitimate work, and its objects and its performances are alike understood and appreciated by the public. But its means are inadequate to the complete vindication of its position and capabilities, and there appears to be a chronic difficulty in the augmentation of its income. As the expenditure can scarcely be reduced below the present rate, and is already insufficient for the ordinary work and inevitable contingencies, a very considerable increase in the number of Fellows is much to be desired. The balance-sheet will show that the Society is pinched, and that its work is patched, and, like many other corporations, and even some individuals, its real

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want is money, a thing in which the world abounds, and of which possibly Her Majesty's Commissioners possess some that might be handed over in the true interests of science and art.

The recommendations of the Council as regards the filling of vacancies will no doubt be adopted without dissension. With Major Mason for Secretary, and Mr. William Haughton as Treasurer, we secure officers who have long been familiar with the Society's affairs, and of whose devotion to its interests there are proofs enough. They enter on their serious duties with better prospects than their predecessors had when elected; but it will depend on themselves in a considerable measure to improve the prospects and shape the affairs to the advantage of all the interests that are bound up with the prosperity of the Society. It is to be hoped that the report will be published in sufficient time to enable the Fellows to give it some consideration previous to the day of the meeting; and it is to be hoped also that it will contain some definite information as to the position of the Society in respect of the recent litigation with Her Majesty's Commissioners, which we understand to be simply suspended, and therefore at any time liable to renewal.

Looking to the future of the Society we cannot but associate it with its localization. As regards Chiswick all is well, or at all events there is less occasion there for reform than for expansion. At South Kensington the case is different. That the Society is tied to the spot is understood, and it is useless to raise the question of possible removal. However inconvenient originally to many of the workers who give life to the programme, it has become convenient at last, and as time passes will be more and more so. But the garden entails a heavy expenditure, and makes no direct return, except on festival days, when the exhibitions amply justify the occupation. It does however appear to us that the garden might be made contributory to the exchequer in a larger degree than has been accomplished, or even attempted, as yet. The powers of the Commissioners, though considerable, are not entirely prohibitory; and the one thing needed appears to be a plan of action consistent with the proper functions of the Society.

If the garden suggests that there is work to be done, what shall we say of the public entrance and the whole of the frontage on that side of the Exhibition Road? It is simply discreditable to the district, and to the Society, and to Her Majesty's Commissioners, and to London. There is space, and need, and opportunity for a series of noble edifices devoted to purposes cognate with the commission of the Commissioners, and the Royal Horticultural Society could make good use of one of them for demonstrations, lectures, classes, and perhaps the occasional assemblage of the Fellows for social objects solely. The state of that side of the Exhibition Road, with its Post Office shanty; its entrances to the Portrait Gallery, the Royal Horticultural Society, and the India Museum; and its occasional stretches of dry fence and back views of the arcades, does certainly suggest that a blight has fallen on the estate of Her Majesty's Commissioners. The blight is likely to remain, unless public opinion can be brought to bear upon the subject in the interest of public enlightenment and the embellishment of the metropolis.

THE ANTI-CYCLONE that caused a consternation by the long-continued high register of the barometer effected a somewhat proper compromise between the tropical weather of the winter and the arctic weather of the spring. The winter being not yet over, and the spring therefore not yet begun, the compromise enables us to say that after all the seasons are not so much out of joint as we imagined. With the high barometer came a killing fog, and with the fog frost, and by these miserable tokens we are duly warned that the spring is not far off and the east winds are very near. If it is all just as we expected, we can claim no praise as prophets, because it is according to Nature, the teachings of which are open to all alike. It will be found, on referring to the records, that prolonged anti-cyclones, with the inevitable dead calm and deadly fog, are special characteristics of the winter in these islands, and they usually mark the transition of the weathercock from west to east. Some of our readers will remember one that occurred a few years since at the time of the Islington Cattle Show, and many of the fat beasts perished in consequence. Others will remember the twelve days' fog of February, 1880, when it was officially reported that the consequent human mortality exceeded considerably, in proportion to bulk of

population, what had occurred in times when a plague had raged. This condition of things may be regarded always as the sign of a decided change in the prevailing course of the wind. The anticyclone may be likened to the pivot on which the weathercock turns. We may therefore look for changeable weather with less warmth, and somewhat of a dearth of the spring flowers that have been but too plentiful for three months past.

As the future is all and always hidden from man's view, and even from what may appear to be his safest speculations, our duty is to hope for the best and prepare for the worst, and at this moment the intensity of the duty appears to be intensified. Vegetation is in a mood to be aroused into activity, having thus far had but a disturbed and partial repose. All the more excitable kinds of plants are in a bad state of premature growth and softness of texture; but fortunately, with the exception of the cereals and the potatoes, this is a matter of not much consequence. Winter-sown wheat is in many places too forward, and potatoes are everywhere in a state that may fairly perplex the oldest inhabitant. Wheat that is winter-proud may be made to pay for its pride by affording the cattle and sheep a feed; but sprouting potatoes are like multiplication, a sheer vexation—you cannot stop them and you must not allow them to go on. In view of this difficulty, which really comes home to us—for our own collections, although kept as cool as appears possible, are in a dreadful hurry to publish themselves—it seems that a simple course of procedure will avail for all who have the courage to carry it out. The sprouting tubers must, in the first place, be fully exposed to daylight, but be kept perfectly safe from frost. When spread in sheds and outhouses a few mats or some clean straw should be kept at hand to cover them in case of a nipper; but so long as they are not really frozen dry cold air will do them no harm. In the next place, it will be well to rub off, not all the sprouts, as the shop rule is, but some of them, reserving only two, or three, or four of the strongest, and reserving those on large tubers in such positions that, if it becomes necessary to divide the tubers, each good piece will have one or two sprouts or "splits" to begin the world with. The exposure to light will harden and check the growth, and give it colour, but the next step must soon be taken, and that will be to plant them. Whatever may come of the proceeding, we feel bound to advise early planting as a proper practice in the present season, and the trenches may be made a little deeper than usual to delay the time of the rising of the shaws, for the less they see of the daylight until the spring frosts are past the better for the crop. Of this we are fully satisfied, that the first splits are the best. If the first splits are rubbed off the tubers will produce a second crop wanting in initial vigour and consequently in productiveness.

As remarked above, the sensitive condition of the softer forms of vegetation, though matter for regret, is, as regards our more material interests, of no great consequence. The fruit trees are pretty much as they usually are at this time of year. The forest trees are equally disposed to be quiet. An early spring is never to be desired, and there is a prospect that we shall be spared the painful spectacle of fruit trees flowering precociously, as of all the more important cultivated plants anticipating their proper season of revival in any dangerous degree. To sum up: we are of opinion that the mild winter has not put the world very much out of joint, and a cold spring will more than repair the damage, and perhaps effect a little more damage of another sort on its own account.

THE BANK RATE was raised to 6 per cent. on Monday last, and will probably be raised to 7 per cent. before the week terminates.

MILE END AND STEPNEY FLORICULTURAL SOCIETY.—The annual exhibition will be held at Lusby's Summer and Winter Palace, Mile End Road, on Monday and Tuesday, August 21 and 22.

A NEW EDITION OF THE "BIBLIOGRAPHY OF RUSKIN," corrected and augmented to the present time, is in the press, and will be published shortly by Mr. Elliot Stock.

"PAXTON'S FLOWER GARDEN."—The new edition as revised by Mr. Thomas Baines progresses satisfactorily. Part 18, just published, contains coloured figures of *Senecio speciosus* and *Odontoglossum ucrvium*.

CATERPILLARS ON CURRANT BUSHES.—A "Gardener" writes to the *Standard* to say "they can be completely exterminated by sifting fine cinder-ash over the bushes before the dew dries off."

THE CAIT HORSE SHOW, to be held in the Agricultural Hall, Islington, on February 28 and March 1 and 2, is now fully provided for as regards prize list and regulations. Forms of entry may be obtained from Mr. G. M. Sexton, Whorstead Hill, Ipswich.

RHODODENDRONS ARE FLOWERING OUT OF DOORS at Lamorran. From thence, by favour of the Hon. and Rev. J. T. Boscawen, we have received fruits of the Glastonbury Thorn, which is reported to have borne a fair crop in 1881.

THE PRINCE OF WALES has, within the last few days, honoured Mr. Fawkes by accepting a copy of his work on "Horticultural Buildings," written and illustrated by him, and published by Batsford, and at the office of the *Journal of Horticulture*.

THE OBELISK ON THE THAMES EMBANKMENT is now completed in respect of sphinxes, inscriptions, &c., &c. The sphinxes are placed to face the wrong way, stern foremost, as never such monsters have been seen before. What ails our municipal governors in their artistic treatment of heraldic beasts?

HORTICULTURAL EXHIBITIONS have attractions for populations that are well provided with theatres, gardens, concert rooms, and the like, as experiences at Manchester testify. We learn that at the Royal Botanical Gardens, Manchester, the admissions to exhibitions of the general public (and excluding, as we suppose, the privileged subscribers) numbered during the past year 97,000 persons.

GLASGOW ROYAL BOTANIC INSTITUTION.—The 64th Annual Report conveys the gratifying intelligence that "the prosperity of the institution advances satisfactorily." The revenue shows an increase from annual subscriptions of £75 12s., "and the Directors believe that when all contemplated changes in the garden are effected its increased attractiveness will bring about a great augmentation of the annual revenue."

SHOW DAHLIAS still hold up their heads and will have their day again. In the February number of the *Florist and Pomologist* are coloured figures of Pioneer and Duchess of Wellington, the first a fine dark self, the second a tipped flower. In the same number is a plate of plums showing the Diamond and Reine Claude de Comte Hathem in proper character.

DR. NEUBERT'S "DEUTSCHES GARTEN MAGAZIN," published monthly by Gustav Weise, of Stuttgart, is a neat small quarto work devoted to horticulture and garden botany. It is neatly printed, and is illustrated with coloured plates and wood engravings. The horticultural department is under the direction of Max Kolb, and the botany is superintended by Dr. T. E. Weiss. We recommend it to the attention of readers of Continental papers.

THE PRESENT MILD WINTER may be easily paralleled and probably outdone by a comparison of records. We are reminded by a correspondent of the mention by Bishop Thirlwall of a fig-tree at the Deanery, Canterbury, bearing ripe figs in January, and the thermometer out of doors registering 71 deg. in the first week of February. This occurred in 1869. Mr. Glaisher's "Reductions" show that in February of that year the temperature was in excess of the average of forty years on twenty-five days, in one case the excess amounting to 12 degrees.

"THE ANTIQUARY" AND "THE BIBLIOGRAPHER" for February reached us after our notes on current books were made up. One of the attractions of the *Antiquary* is a paper by Mr. Roach Smith on Roman antiquities in the Isle of Wight, and the papers on St. Valentine's Day customs; the arms of Highland families, and the history of Michael Scot the Wizard, are of considerable importance. In the *Bibliographer* are papers on Hone's "Ancient Mysteries," Dutch Wood Engravers, and the Bishop's Bible.

SOUTHAMPTON HORTICULTURAL SOCIETY.—The annual meeting of this society was held in the Kell Memorial Hall, on Monday last, under the presidency of the mayor. From the report and financial statement presented to the meeting it is evident that the society is in a most flourishing condition, and its extreme popularity undiminished. The financial results of the year's work were hardly so satisfactory as could have been desired, owing to the wet weather experienced on the second day of the great summer exhibition. To show how seriously the takings were affected on that occasion by the adverse weather, it was stated in the report that "on the Bank Holiday, during the three-quarters of an hour just previous to the rain commencing, no less than ten thousand persons paid for admission, passing through the gates at the rate of over a thousand every five minutes; the rain coming on heavily, the sale of tickets immediately stopped, although it is known that thousands who were on their way to the park turned back, and did not enter the show grounds. Notwithstanding these drawbacks, it is estimated that over seventeen thousand persons visited the show." The Summer Show for the current year will probably take place on August 5 and 7, and the Exhibition of Chrysanthemums and Fruit is fixed for November 14 and 15.

A NEW LIST OF POTATOES is in preparation and will be published by us on the 25th of this month. The list published last year was received in a manner which dispelled every possible doubt about the propriety of its publication. But, as often happens, work that had cost much labour and represented the gatherings of years, was soon found to be incomplete, and not only capable of completion but also of improvement. Being desirous of placing in the hands of cultivators of the noble tuber a body of information at once full, accurate, and thoroughly useful, we have traversed the ground once more, with our views improved by the comments and inquiries of our friends, and the result, we hope and believe, will be satisfactory to all parties. We have revised all names and characters, added many important varieties that were omitted in the first list, and we have endeavoured to comply with the very general desire for a trustworthy list of synonyms. All the more famous sorts are known by a multitude of names. This, in its way, is evidence of merit; and it is evidence also of the persistent determination of a certain class of traders to make fancy prices for goods that are in the open market, and that can never properly command more than a fair average figure. Those who invent names only, and do not trouble to produce anything beyond the trick needed for purposes of trade, have usually the sagacity to select a good thing for the purpose. Hence, in a general way, every synonym is a testimony of merit, and a list of such not only aids the cultivator in his selection and classification of sorts, but affords a key to both cultural and commercial values. We shall endeavour to render the lists to be published on the 25th permanently valuable; and they will be printed in a form convenient for transference to the garden journal and the catalogue of the potato fancier.

THE LIFE HISTORY OF A FERN.

Read by Mr. C. W. CARVER at a meeting of the Commercial Road Young Men's Society, Oxford.

You are aware that it is usual with novelists and biographers, when they begin to write the life history of an individual, to give a sketch of the family history of that individual as well. Let me then state that our fern can show a pedigree extending back far, immeasurably beyond that of those who boast their descent from some of those who "came over with the Conqueror."

Far back, indeed to a time before man came on this earth at all, the fern was in existence. In the *Pleocene* epoch of geology England, Scotland, and Ireland, and a large portion of land now covered by the German Ocean, were one island connected by a neck of land with the Continent of Europe. I try to imagine what this land of ours was like then. I conjure up visions of a big country, the whole extent of which is one vast bog; some portions drier than others, and intersected here and there by sluggish rivers. The whole face of the country covered with primeval forest; not like our woods, but luxuriant tropical vegetation, consisting of trees of grotesque form with curiously marked and fluted trunks crowned by huge leaves twenty or thirty feet long. This one with a stem twenty feet high and as big as a man's body, and bearing a coronet of huge fronds, is a *Fern*, the great ancestor of all the ferns, and an enlarged copy of the tree ferns which are still found in tropical climates. Other strange trees grow around, including *Sigillaria* and *Lycopodium*, the latter a tree as big as the palm, and the ancestor of our club mosses—tiny plants which we now grow in small pots in green-houses—while the fern in England has dwindled down to the beautiful little plants you know so well. The forms of all these old-world trees may still be traced with more or less exactness in our coal deposits, and if you are curious you may read fuller descriptions of them in almost any geological work. Imagine a forest such as I have vaguely tried to indicate peopled with strange creatures—huge hairy elephants, lizards of immense length, with eyes as big as dinner plates and enormous teeth, weird grotesque creatures flying about, like a cross between a huge bat and a crocodile. Animals almost, if not quite, as curious and uncouth as the names which geologists call them by nowadays; with oysters and snails of immense proportions. Imagine, I say, all this, and you will have a slight conception of a pleocene forest as geologists say it existed.

But enough of fancy and of geological speculation. Let us come down to personal observation and the present time. We shall, I believe, find as curious and interesting a subject in the growth and development of the commonest roadside fern: a tale of wonder and romance hidden in the life history and transformations of our bracken as wonderful and mysterious as any fairy tale, with the advantage of being more instructive. Fifty years ago, practically nothing was known as to the reproduction of ferns—as to the manner in which a plant produced its successors. Somewhere about the year 1834 Professor Morrison, who had long been puzzled by the mystery of fern growth, sowed some spores of the common hart's tongue, *Scelopendrium vulgare*, on a little patch of prepared ground and watched the result. I am going to tell you what he saw and what I have since seen.

You have all noticed that towards the end of summer little brown patches are formed on the back of the fern fronds. These are commonly supposed to carry the seed. If examined under a microscope each patch is seen to consist of a number of little knobs, each borne upon a short stalk. If one of these be detached it is found to be a sort of bag with a rib running nearly round it vertically, and full of minute granules.

These granules are the spores, or, as those not well acquainted with botanical terms would say, the seed. These spores form a brown dust almost invisible to the naked eye, which in olden times was supposed to be not only invisible itself, but to possess the power of making a person who carried it invisible also. You remember the boast of Shakespeare's rubicund Bardolph—

We carry fern seed; we walk invisible.

The rib of this spore-case has a very remarkable property. It contracts or expands according to the dampness or dryness of the atmosphere. During a shower of rain it will shrink up considerably, and when the sun comes out again it will expand, open, and burst the spore case, scattering the spores in all directions. You will observe that this occurs when the soil is just most fitted for the germination of seeds—damp, but the sun shining.

But, stay; I have not yet explained the difference between a spore and a seed, and I will now proceed to do so. You may be aware that every perfect flower, of whatever kind, has two necessary parts which form the organs of reproduction, the anthers or pollen-bearing parts, and the carpels or seed-bearing parts, the latter usually forming the centre of the flower. Now, it is necessary for the pollen to be shed upon the carpel and to be united with the seed contained therein before that seed can become perfect and capable of germinating. If fertilization, as it is called, is not effected, the germ simply drops away and dies. A seed is very often, though not always, complicated in structure, and contains the living germ of the future plant, and also a store of nourishment to maintain it until it is strong enough to obtain its own subsistence. A spore, on the other hand, is a simple cell possessing the power of germinating without any previous fertilization. It may be described as a sort of bud, only developed by plants of very low organization.

The knowledge of these facts was what puzzled our friend Professor Morrison. He knew that plants invariably produced this double organization of anther and carpel in some form or other before seeds could be formed, and yet on the fern there was nothing of the kind: simple little bags containing a brown dust, the spores aforementioned. He saw that these were shed, and he knew that other ferns were produced. But how? that was the mystery he set himself to solve, and the result of his researches I wish to give you as clearly and plainly as I may.

Let us suppose our spore, then, to be shaken out of its case and fallen upon a patch of damp mould. Its structure is wonderfully simple. It consists merely of a toughish brown envelope filled with vegetable substance, a "simple cell," and yet containing the wonderful principle of life. After lying on the ground for a little time, the spore begins to swell a little and bursts its enveloping coat; we now find that a fissure has grown across the middle of it and our cell has become two; these grow and again subdivide, and so again and again, until a tiny row of cells is formed. Then the cells at one end only divide longitudinally and crosswise, and so on until at last

a tiny leaf—I may call it so—is produced, consisting merely of a flat expansion of cells with a filament attached. This filament then develops tiny threads or rootlets, which run down into the soil and draw up nourishment. When full grown the prothallium, as it is called, is a green kidney-shaped leaf about the size of a thumb-nail. The prothallium is the secondary growth of our fern, and upon it in a most remarkable manner the organs of reproduction are developed. In other words, the prothallium—botanically speaking—is the flower of the fern. The organs of reproduction are very curiously constructed, and as they are developed on the under side of the prothallium, it is not so very wonderful that their existence has escaped notice so long.

I have told you that the prothallium is merely a flat expansion of cells, which by dividing vertically, and not horizontally, only increase its area and not its thickness. But in one particular spot six cells divide and grow horizontally until a triple tier of cells is formed. The cell which now forms the centre enlarges and divides into a number of smaller ones, which now resemble (if the comparison be permissible), a number of tiny pills enclosed in a little box. The *antheridium*, as it is called, is not more than one-fiftieth of an inch in diameter. If we take out one of these little central cells and examine it, we shall discover that when ripe it contains a very curious structure. Inside it is a tiny filament coiled up, exactly like a little corkscrew, with a tuft of hairs at one extremity. These corkscrews are called *antherozoids*, and are the part which corresponds botanically with the pollen of our flowers; whence the part bearing them is called an *antheridium*. When the antheridium is ripe, the top or lid falls off, and as it is developed on the under side of the prothallium the cells escape, and each bursting its outer envelope discloses the antherozoids, which are scattered in all directions. Each of these has the remarkable property of independent motion, forcing itself along by the vibration of its tuft of hair, just as a ship is propelled by her screw. This power of locomotion is a very rare one in plants, and only exists among those low in the scale of organization.

There are two modes of locomotion existent among plants: one by contraction or expansion, according to the dampness or dryness of the atmosphere. Of this sort are the pollen grains of the common horsetails, which, I dare say, you are all familiar with. These consist of a knob with four filaments, and in a damp atmosphere they are coiled up round the knob; but as they become dry they suddenly open all together and cause the pollen grains to jump about in the most curious manner. The other method of locomotion is by cilia or hairs, as in the case of our antherozoid, which by their vibration force the organism along. They are generally found in the lower organizations which exist in ponds and ditches.

But contemporaneously with the growth of the antheridium another very curious structure has been forming on the under side of the prothallium, and usually close to the notch. This is the part which corresponds with the carpel or seed-bearing portion of flowers. It is formed at first in a similar manner to the antheridium, by the horizontal division and growth of a series of cells. When this outgrowth is about one-sixteenth of an inch long the central cells lose their individuality, and melt away, all except the one at the bottom, thus forming a little tube open externally. This structure is called an "archegonium." The cell left at the bottom and imbedded in the substance of the prothallium enlarges slightly and becomes globular, and is called the "oosphere." By the time it has reached this stage in its development the antheridium formed hard by has burst and discharged its pollen, and some one or other of the little corkscrews wandering about finds its way to, and unites in some mysterious way with, the substance of the oosphere. Thus is effected the fertilization of the oosphere, which has now become a perfect seed.

Here again the peculiarity in the habits of our fern becomes apparent. By the usual course of things, you would think that the seed would be shed into the ground and there take root; not so. It simply first takes root where it is, that is, into the substance of the prothallium, by throwing out into it a shoot, which serves the double purpose of an anchor to hold it fast and a root to supply it with nourishment. It in fact lives upon its parent until it is able to shift for itself. The seed at the same time sends forth another shoot, which grows down the tube, and divides into two as soon as it gets into the air. One branch goes downward into the earth and becomes the permanent roots; the other, springing upwards through the notch in the prothallium, becomes a leaf stalk and develops the first tiny frond, showing thus the characteristics of its parent. The root stalk throws out minute suckers into the soil, which soon suck up nourishment for the supply of the infant plant, and as soon as that is the case the temporary root, having performed its purpose, with the whole prothallium withers away, and we have our juvenile fern starting in life on its own account.

We thus see the remarkable phenomenon of a plant with two distinct and separate periods of existence, having in short a double life. The prothallium was long regarded as a complete plant of another species altogether, and it was not until Professor Morrison made his wonderful discovery that it became known what part this curious structure fulfilled in the life history of one of our commonest plants. Let us not forget that this is only one of many curious and remarkable life histories—romances I might almost call them, which are hidden away from the light of common men, or only recorded in some dry long-winded scientific volume. The whole science of botany is most bewitching, and will amply repay the most studious attention and affectionate care.

The structure and mode of growth of the complete—or, if I may call it so, the *adult*—fern are very remarkable and curious. The ordinary brake fern consists of a coronet or series of fronds springing up from a stem which runs horizontally beneath the surface of the ground. This latter—the rhizome as it is called—is not the root proper, but the stem or trunk of the fern. It is nourished by a series of rootlets, which are thrown off along its course. It only grows at its extremity, which is aptly termed the growing point, and once formed never increases in diameter, however old the plant may be, but grows indefinitely in length. If we take up a portion of this rhizome, which is about the thickness of a lead-pencil, and cut a section of it, we find it to be very curious and complicated. It consists of various layers and rings of vegetable tissue, all of which are formed of modifications of the simple cell, which seems to be the "be all and end all" of vegetable substance, and all of which proceed from the growing point. This extremity of the rhizome consists ultimately of a single cell forming its apex, which multiplies in the manner in which we have already noticed cells doing; namely, by division, successive slices as it were being taken off this cell, and these, growing and subdividing, push forward the growing point

and form a mass of cells at the extremity of the stem. As these are farther away from the growing point, they change marvellously, and from being all alike they take upon themselves marked differences, and, according to their position, become component parts of one or other of the layers of the rhizome. Returning now to our section of the rhizome, we find the arrangement of its structure as follows: First, the outer sheath or bark is a very hard brown woody substance, consisting of cells metamorphosed into strong tough fibres, disposed side by side longitudinally. Secondly, a mass of rounded cells, which make up the greater part of the bulk of the rhizome; and thirdly, a series of what are called fibro-vascular bundles, that is, bundles of fibres and vessels. These consist simply of elongated cells arranged end to end, with perforated partitions so as to form continuous vessels. The walls of many of these vessels are very curiously marked. Some have a spiral line running round them, others are curiously perforated with slots or crosses. The spiral vessels are so formed by a thickening or kind of rib running round them; they form a very beautiful microscopic object. Spiral vessels are found in great abundance in the stems and leaves of most plants. The stalks of the common rhubarb are full of them. Those fine green fibres which run up the leaf stalk are spiral vessels, and their structure may easily be seen with a low power microscope or even a strong magnifying glass. Other vessels are marked with rings, and others again with parallel bars, making an appearance like a ladder.

Every part of the rhizome has a certain purpose to perform in the economy of the plant growth, and it is most admirably and perfectly adapted for that purpose. The bark of course forms a sheath or coat of armour, by its strength and toughness protecting the more delicate internal structures from the pressure of the soil. The fibro-vascular bundles form channels of communication by which the sap finds its way from the roots to the farthest extremities of the plant, fulfilling thus the purpose of our blood vessels; although, of course, not in exactly the same way. The manner in which the plant is nourished is probably something after this fashion. The cell, which forms the growing point, requires a certain amount of nourishment to enable it to perform its function; this it obtains by absorption from the cell nearest it. Cell No. 2, being thus impoverished, draws for its supply upon cell No. 3, and cell No. 3 upon cell No. 4, and so on all through the series, there being thus a constant flow of the sap upwards, and regular growth at the extremities. During the winter, when all vegetable life above ground is stopped, and the fronds of our fern are withered and dead, the rhizome and roots are busily at work, sucking up nourishment from the ground and storing it up in these cells, which form the bulk of the rhizome, in the shape of starch, ammonia, and other substances necessary for plant growth. So when the spring comes, and vegetable life above ground begins to awaken and start anew, the fern stem is full of sap, and the plant is able to push ahead and make the most of the fine weather.

Along each side of the rhizome runs a small ridge or line, called the lateral line. It is from this line that the fronds spring. They grow somewhat after this manner: a bud springs up covered with a tough brown skin, which gradually pushes its way upwards, developing in its interior the pinnules of the frond folded up, as you have observed the leaves of a horse-chestnut folded up in its bud, and the whole structure curled up like a bishop's crozier. They grow very slowly, a frond taking two years to develop. Those brown stumps which you see clustering round the root of a fern are next year's fronds. They remain thus gradually developing under cover until next spring, when they will slowly grow upwards and unfold in all their delicate beauty.

Up each stalk, or stipe, and pinnule runs a fibro-vascular bundle, which forms the rib of the frond, and gives to it strength, as well as conveying to it nourishment. Towards the end of the summer thickenings appear at the back of the pinnæ cushions, as they are called, on which grow the spore cases, bearing the promise of another succession of ferns. We thus arrive at our starting point, and have completed the cycle of our fern life. I think you will agree with me that it is a most curious and instructive one.

The study of the growth and development of the tiniest moss, of the commonest weed, will afford a strange and most impressive sermon upon the text: "God's tender mercies are over all His works."

In studying their wonderful structure, their adaptation to the circumstances in which they live, the means taken for their propagation, and their marvellous beauty, who can help saying of the whole vegetable world, "O Lord, how manifold are Thy works! in wisdom hast Thou made them all."

BANANA TRADE.

THE last report of Mr. D. Morris, Director of the Public Gardens and Plantations in Jamaica, contains some particulars relating to the trade in bananas. The cultivation of this fruit for the American market has greatly increased, as will be seen by the following table of the exports during the last five years:—

Years.	Bunches.	Values.—£	s.	d.
1880	440,642	38,556	3	6
1879	328,953	32,895	6	0
1878	313,145	31,314	10	0
1877	162,934	16,293	8	0
1876	132,832	13,283	4	0

In connexion with the increased cultivation, Mr. Morris points out that some means should be adopted to utilize the vast quantity of banana stocks produced, and render the fibre they contain an article of commercial value. A trial has been made, "A quantity of stalks of the banana, split open and exposed to the sun and air for some time, and packed up in bales, were lately supplied to a firm in Kingston, for the purpose of testing the value of banana fibre for the American market. It appears, as a result of this trial, that there is an unlimited market for this useful and abundant material, and the only question is whether a large and regular quantity can be supplied for shipment monthly. As the needful preparation in the island is very simple and inexpensive, it is much to be wished that further attention may be given to this subject, in order to insure the lucrative utilization of a material which at present is allowed to be completely wasted."

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOUTON and PAUL, Norwich. Illustrated Catalogues sent free by post. [ADVT.]

MESSRS. CORRY, SOPER, FOWLER, AND CO., FINSBURY STREET, E.C.

VERY few perhaps, even of those who are directly engaged in garden and nursery management, have an adequate idea of the extent to which the trade in horticultural sundries has grown of late years, and a brief reference to the operations of this important firm will not be without interest at the present moment. If it be asked, What are horticultural sundries? the querist may be referred to the end pages of the seed catalogues issued by the various firms, to be answered by the statement that almost everything in request in the garden and nursery other than seeds and plants comes within the designation. The term is certainly a comprehensive one, and in exemplification of the fact it may be mentioned that a large octavo of upwards of fifty closely-printed pages barely suffices for an enumeration, and two immense piles of building for the accommodation of the manufactures which pass, figuratively speaking, through the hands of the firm. The sundries include, for example, garden tools and implements of all descriptions, meteorological instruments most generally employed in the carrying on of horticultural work, flower sticks and tallies, bulb pockets and seed bags, manures and insecticides, dried flowers and grasses in a loose state and arranged in bouquets, wreaths, and crosses, wood and wire baskets, bulb glasses, flower-pot stands, fern cases, aquaria, and other elegancies of a similar description; and virgin cork, in the bale and worked up into tables, screens, bracket stands, and other ornaments for the conservatory, fernery, corridor, and lawn.

To the importation of virgin cork and the manufacture of the various descriptions of adornments for which it is particularly suitable, Messrs. Corry, Soper, Fowler, and Co. devote no inconsiderable share of their attention, and in the manipulation of this material they have certainly achieved a success which may be safely described as quite unsurpassed, if not unequalled. When we were at their warehouses in Finsbury Street, E.C., the other day, the hands specially employed in the cork work were busy putting the finishing touches to a series of large designs which had been some time in hand for the King of Siam. These designs are five in number, have a width of about twelve feet, a height of ten feet, and a depth of two or three feet, and have been constructed to fit into as many recesses specially provided for them in the conservatory or lounge attached to his Majesty's palace. There is a general agreement in the designs of the several constructions, but no two are alike, and regarded singly or collectively it would be difficult to speak too highly of the taste shown in the designs, or the admirable manner in which they have been carried out. Each one has a broad aquarium at the base, fitted with jets of various descriptions, and openings in the back, in which in due course mirrors will be fitted. At the sides, which spring from the aquaria and form arches and the back, pockets and brackets are provided for the reception of such ornamental plants as are in accordance with the royal taste. The bark, it must be added, is fitted together in a neater and more finished manner than is seen in the screens and other devices usually met with, without its peculiarly rustic appearance being in the slightest degree impaired. Some of the designs were fitted also with glass pendants, and their surface sprinkled with glass spangles, to give them that bright and sparkling appearance so dear to the Oriental eye when the structure in which they will have a place is illuminated. Forming part of the same order, which is now on its way to the kingdom of Siam, were some fifty or sixty large brackets and stands in cork for fixing under the verandah surrounding the palace, and for the most important of these fern cases will be supplied by the firm. On the same floor as these, packed away in crates and otherwise, were some thousands of baskets, brackets, stands, and other contrivances of which virgins cork forms a part, ready for receiving the finishing touch as the orders flow in.

The department devoted to the glass and pottery is certainly not wanting in interest or attractiveness, although no attempt at display, as the term is generally understood, is made. Here we meet with every form of receptacle for flower pots, when plants are employed in indoor decoration, that the taste of the designer and the skill of the potter have been able to provide. On the one hand, we have terra cotta in an inexpensive but remarkably elegant form, and on the other the most costly china, Wedgwood, and majolica wares. Hyacinth glasses are represented by a vast number of designs, some so beautifully decorated that magnificent indeed must be the hyacinths put in them to divert the eye from the receptacle in which they are placed, and so secure a proper share of attention. In conjunction with these are the dried flowers and grasses, in which the trade has of late years undergone wonderful development. Of these we saw an immense number of bouquets, crosses, and wreaths, and whilst all were more or less good, the taste evinced in the arrangement of the two last-mentioned forms of floral embellishment was particularly noteworthy. The perfection to which the manufacture of flowers and foliage in porcelain is carried was abundantly exemplified, the wreaths of ivy and clusters of roses being perhaps the most beautiful examples of this branch of the potter's art.

Of flower sticks and tallies Messrs. Corry, Soper, Fowler, and Co. are large importers, as shown by a large portion of one of the seven floors forming the Finsbury Street warehouse being devoted to them, and amongst the sticks and stakes we noticed a plant support which has been recently introduced by the firm, who hold the exclusive agency in the United Kingdom. This support is a stake made of solid stone, and the samples we saw were about four feet in length and an inch and a quarter in diameter, and six-sided. They are of a dull grey colour, and differ but little, if anything, in price from the common wooden stakes.

The department devoted to insecticides and artificial manures is a most important one, and in walking over it we were not surprised to hear that Nicotine Soap, which was introduced by the firm a few years since, is rapidly gaining in favour amongst practical men, for on all sides it has from the first been highly spoken of for its efficacy in the destruction of plant pests. For the manufacture of this, tobacco juice, and other preparations of tobacco, there are large premises at Shad Thames.

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but one Soap which so cleanses the skin that its natural and consequently healthy action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Householders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

NEW FLOWERS OF THE PAST YEAR.

THE new flowers introduced to public notice during 1881 form an important, and by no means uninteresting, feature in the current issue of the *Garden Oracle*, for they number 325, and occupy, notwithstanding that the descriptions are as brief as is consistent with clearness, no less than twenty pages. It is interesting to observe that all the leading classes of garden flowers are well represented, and that those grand old subjects the auriculas, laced polyanthus, carnations, and pinks have been enriched by numerous varieties that promise to take at no distant date a leading position amongst those now held in high esteem by cultivators. It is also worthy of note that, with the exception of the Continental roses, of which nothing has yet been seen by English rosarians, the greater proportion of the varieties in the several sections have had certificates of the first class conferred upon them by one or more of the several bodies whose awards are treated with respect.

AMARYLLIS evince steady improvement and increased popularity, and in the issue of the *Garden Oracle* there are half a dozen varieties. Five of these have been introduced by Messrs. J. Veitch and Sons, of which *Cecilia* is a beautiful crimson flower, the segments tipped with white; *Empress of India*, a lovely variety, the flowers extra large, and brilliant scarlet with pink centre, and *Mr. H. Little*, a magnificent flower of a deep crimson colour. *Mrs. Garfield* is an autumn-flowering variety, with large beautifully-formed flowers of a bluish-pink colour veined with rosy red.

AURICULAS include several good alpine and border flowers, raised by Mr. C. Turner and Mr. R. Dean, and thirteen splendid show flowers from the seed bed of the Rev. F. D. Horner, and two show varieties, raised by Mr. Douglas. Mr. Dean's *Mrs. Moore* is a beautiful alpine with maroon coloured flowers, and Mr. Turner's *Philip Frost* and *John Ball* are two first-class alpinists with claret coloured and crimson flowers respectively. Mr. Douglas's two show varieties are named *Hilda* and *Mabel* respectively, and both belong to the grey-edged class, to which they are most valuable additions. Of Mr. Horner's, all of which possess much merit, *Constance*, *Dora*, *Erebus*, *Selina*, and *Sunshine* are selfs; *Emerald*, *Enterprise*, *Intrepid*, *Minotaur*, and *Sybil* green edged, and *May Queen*, *Snowdrip*, and *Water Lily* white edged.

BEGONIAS belonging to the tuberous section are very strongly represented, and comprise a large number of splendid varieties. Messrs. John Laing and Co., who still occupy the position they have from the first held as the most successful raisers of these flowers in this country, have fifteen varieties, consisting of doubles and singles in about equal proportions. Where all are so good it is no easy task to make a selection, but *Campanuliflora*, creamy white; *Davisi plena superba*, crimson-scarlet; *Dr. Duke*, salmon-red, and *Glory of Stanstead*, deep rose, may be mentioned as most valuable acquisitions in the double-flowered section. Prominent amongst those with single flowers are *Arthur G. Soames*, deep crimson; *G. B. Gough*, glowing scarlet; *Gem of Yellows*, rich golden yellow, a great improvement upon the best of the yellow varieties at present in cultivation; *Mrs. J. Freeman*, deep rose; *Mrs. Robert Whyte*, rosy pink, and *Scarlet Gem*, glowing scarlet, a splendid dwarf variety of the *Davisi* type. These, it may be added, are remarkable not less for their free branching habit than for the large size and splendid quality of their flowers. The twelve varieties raised at Chiswick form a splendid group, and *Annie Wilkie*, *Annie Hensley*, *Dr. Hogg*, *Henry Webb*, *James McIntosh*, *Nellie May*, and *Souvenir de Chiswick* may be mentioned as of special excellence.

BOUVARDIAS received two excellent additions in the course of the past year, one *Dazzler*, an effective variety with scarlet flowers, which was introduced by Mr. Balchin, and the other *Priory Beauty*, a charming form with flowers of a flesh-pink colour.

CARNATIONS comprise no less than seventeen show varieties, of which all but four are from the seed bed of Mr. E. S. Dodwell, and four tree or perpetual-flowering kinds. From Mr. Dodwell's thirteen may be selected with advantage *Dr. Cronin*, *Harrison Weir*, and *Mrs. Gorton*, crimson bizzarres; *Harry Turner*, *James McIntosh*, and *Philip Thomas*, scarlet bizzarres; *Squire Llewelyn* and *Squire Penon*, pink and purple bizzarres; and *Thomas Tones*, scarlet flake. Mr. Hewitt's *E. S. Dodwell* and *Master Fred* and Mr. Gorton's *William Skirving* are three crimson bizzarres of superb quality.

CHRYSANTHEMUMS consist chiefly of Japanese or tasseled flowers, and include numerous valuable additions to that important and popular section. The majority of these were referred to in these pages in the course of the past year, and it will now suffice to say that of those enumerated in the *Garden Oracle* list *Agrements de la Nature*, *Belle Gabrielle*, *Duchesse de Gervolstein*, *Flambeau*, *George Gordon*, *Pluie d'Or*, *Rêve de Printemps*, *Riche Bouquet*, *Triomphe de Saint-Martin*, and *Souvenir de Reine Marie* are particularly deserving the attention of cultivators.

CINERARIAS are now almost exclusively raised from seed by the general body of cultivators, and very little encouragement is given to the naming of varieties; consequently they do not figure conspicuously in the *Oracle* list, and as a matter of fact there are only two varieties entered. One of these is *Marched Past*, a magnificent variety, bearing immense flowers, with narrow white ring round the disc, surrounded by a broad belt of crimson; this is in the hands of Messrs. Cannell. The other is *Mr. Henry Little*, raised by Mr. James, and is the most distinct variety that has yet been obtained; the flowers are of large size and perfect form; surrounding the disc is a band of pure white, next to it is a band of bright magenta, and then follows an outer belt of dark maroon, the several colours being sharply defined.

CLEMATIS are represented by six varieties, all of which are of exceptional merit. Three of the number have been introduced by Messrs. G. Jackman and Son, who have done so much in the improvement of these climbers, and *Angelina* is a superb variety of the *Lanuginosa* type, and is remarkable for the large size of its flowers. *Belle of Woking* belongs to the florida section, and has double flowers of a silvery grey colour, and *Miss Crawshaw* is an excellent addition to the patens group, bearing flowers of a lilac-pink, marked with a red bar down the centre of each petal. The remaining three varieties are the result of the labours of Mr. Charles Noble, who also has devoted special attention to the clematis. *Lady Constance Kennedy* is an exquisitely beautiful variety, with large semi-double white flowers; *George Elliot* is a grand form, with flowers of a deep blue colour and delightfully fragrant; *W. E. Gladstone* has flowers of immense size and a bright bluish lilac colour, and is in every way first-class.

COLERS comprise a few good things well worthy of attention, notwithstanding the many beautiful varieties already in cultivation. Particularly

noteworthy are Mr. King's *Ada Sentance*, *Edith Sentance*, and *Miss Simpson*, and Messrs. J. Laing and Co.'s *Stanstead Beauty*, a very effective variety with rose coloured variegation.

CYCLAMENS show steady improvement, and in the *Oracle* list are three white varieties and one crimson form. Two of the white flowers, *Miss Lilian Cox* and *Charming Bride*, both of which were certificated at South Kensington on the same day, are so much alike that it is to be regretted the committee did not select the best and limit its award to that. Mr. Little's *Ruby Gem* is a grand addition to the many splendid dark cyclamens he has raised.

DAHLIAS are fully up to the average in point of number and quality. Amongst the fancy flowers *Endymion* and *Florence Brown*, of those introduced by Messrs. Keynes and Co., and *Beauty* and *Duchess of Wellington*, of those from Mr. Turner's seed bed, promise to take a leading position. Of the show varieties, Messrs. Keynes and Co.'s *Miss M. Bateheler* and *William Leach*, Messrs. Rawlings' *George Rawlings* and *William Rawlings*, Mr. G. Smith's *Fair Rosamond*, and Mr. C. Turner's *Celestial*, *Mrs. Cornwallis West*, and *Herschel* are likely to make their mark on the exhibition table.

GLADIOLI consist exclusively of the varieties raised by Messrs. Kelway and Son, and a grand lot they are. Especially desirable are *Anthony Waterer*, *Henry Irving*, *Joseph Brown*, *Lord Burleigh*, *Mr. Thornton*, and *Sir Stafford Northcote*.

GLOXINIAS are not numerous, but the half-dozen comprised in the list are exceptionally fine. *Mrs. Bause*, raised in the nurseries of the General Horticultural Company, is exquisitely beautiful, the flowers pure white, marked round the throat with a band of bright rose; *Brantome*, pure white, with a band of bright blue; *Fabiola*, white, the limb marked with rosy red; *Lady Marriott*, blush, spotted with red and margined with white, and *Radiance*, glowing crimson, are magnificent erect varieties raised by Messrs. J. Veitch and Sons.

PELARGONIUMS form an important part of the list in the *Garden Oracle*, and occupy nearly three pages. The decorative section has been materially augmented, and the most valuable additions are those from the seed bed of M. Lemoine, who has raised so many fine things. The most important of the varieties from M. Lemoine are *Belle du Jour*, pure white, semi-double, and of immense value for supplying cut flowers; *Colonel Flatters*, deep carmine; *Jeanne d'Arc*, blush; *Madame Harraant*, white pencilled with purple; *Surprise*, deep blush, with dark blotch on each petal. *Annie Hensley*, bright orange-red, and *Lucie Lemoine*, pure white, which were brought forward by Mr. H. Little, are exceptionally good, and should be secured at once.

The show section has been enriched by several splendid varieties introduced by Mr. H. Little and Mr. C. Turner, and of Mr. Little's varieties *Britomart*, *Christabel*, and *Superb* are of special excellence; and of those from Mr. Turner *Duke of Albany* and *The Abbot* are of the highest order of merit.

The zonals claiming special notice are Messrs. Cannells' *Eureka*, the finest of the white varieties, and M. Lemoine's *Charles Darwin*, *Demi-National*, *Erehmann-Chatrain*, *Henri Cannell*, and *Paul de St.-Victor*.

POLYANTHUSES include two superb laced varieties from the seed bed of Mr. S. Barlow, who has been of late remarkably successful in raising seedlings. These are named *Criterion* and *John Bright* respectively, and both have a maroon body colour and conform in every way to the accepted standard. The fancy variety, *Grenadier*, introduced by Mr. R. Dean has bright magenta-crimson flowers, and Messrs. Cannells' *Queen of the Hose-in-Hose* is in every way deserving its name, for it is a splendid addition to the hose-in-hose section.

PRIMROSE.—Messrs. J. Carter and Co.'s *Cloth of Gold* is a remarkably fine double variety with primrose-yellow flowers, and will be much appreciated by those who cultivate hardy spring flowers.

PRIMULA SINENSIS has been increased by several noteworthy varieties, of which Messrs. Cannells' *Delicata* and *Dr. Denny* are exceptionally fine; and *Helier's Annie Helier* is so good that it is unquestionably the finest of all the double forms in its colour, which is a rich shade of salmon-pink.

RHODODENDRONS are limited to those requiring a place in the greenhouse, and the most desirable are *Exoniensis* and *Lady Alice Fitzwilliam*, two superb white varieties, and *Duchess of Connaught*, a beautiful variety, with flowers of a bright crimson-scarlet colour.

TROPEOLUMS are represented by one variety only, and that is the brilliantly-coloured *Empress of India*, raised by Messrs. J. Carter and Co. The flowers of this grand novelty are of a brilliant crimson colour, and so freely produced that there is no other annual in cultivation that can approach it in effectiveness, and it would be perfectly safe to describe it as the most important annual of recent introduction.

A CURIOUS FUNGUS.—The *Colonies and India* says:—"Among the various articles of trade exported from New Zealand perhaps the most curious is a species of fungus which grows on decaying trees in all parts of the North Island, but most plentifully in the provincial district of Taranaki. In shape this fungus resembles the human ear, and it is of a brown colour and semi-transparent when fresh. It was not deemed of sufficient importance to be included in the list of colonial exports until 1872, when 58 tons, the value of which was £1,927, were shipped; in 1877, 220 tons, valued at £11,318, were exported; and last year the value of the export was £6,227. China is the destination of this product. It is much prized there as an article of food, forming the chief ingredient of the favourite soup of that country, on account of its gelatinous properties and its peculiar flavour. Whether the immigrant Chinese, who were more numerous in New Zealand five years ago than they are now, discovered the virtues of this fungoid growth, or whether the Maoris, with their naturally keen wit, hit upon the idea that the substance would just suit the peculiar tastes of the Chinese, does not appear. The Europeans in the colony, however, have never acquired a taste for it. To prepare this fungus for export, nothing more is required than to pick it from the trunks of the trees and dry it in the air or under sheds. When dry it is packed in bags and shipped to China by way of Sydney or San Francisco. Very few white men, except those of idle dissipated habits, collect fungus. The children of the small bush farmers, however, often keep themselves in pocket money by gathering it and selling it to the dealers. The task of collecting it is one, too, which just suits the Maori disposition. When the natives are in want of funds for tobacco or desire to raise the wherewithal to provide the large feasts which it is their delight to give periodically, they send out parties to the bush who bring in fungus in large quantities for sale."

GARDEN BRAMBLES.

THE brambles that produce useful fruits, and the roses that produce handsome flowers, have obtained attention in the Magazine, but the notes on handsome species of *Rubus*, such as may be properly spoken of as "garden brambles," are but few and scattered. These however are of some use everywhere, and are of peculiar importance to the collectors of hardy plants who desire to render their gardens rich in variety and interest at the least possible outlay, whether of money or labour. A few of the species are of the highest value for the front of the mixed shrubbery, more especially those that produce large showy flowers and form upright bushes, with the leafage and general habit of the raspberry. It may not be proper to class these with the brambles, but it is convenient, and I can advise the owner of an "old-fashioned"

London smoke very well. One of the finest of these is *Rubus spectabilis*, a shrub of bold habit, with trilobate leaves and bright red flowers and orange-red fruit. This thrives as well in the immediate suburbs of London as any garden tree known; growing vigorously, flowering freely, but producing very little fruit, and that of no value whatever. A fine companion plant to this is *Rubus odoratus*, with erect purplish stems, large lobed leaves, and very large purplish flowers. The fruit is light red, very sparingly produced, and is usually imperfect. As a border shrub it is a real beauty, and of a most thrifty character.

The common bramble, *Rubus fruticosus*, is in its way a town plant, and where the soil is strong it grows with vigour, even in smoky districts. In the course of the last summer I saw in a town garden, in a district not particularly favourable to vegetation, a great bower of brambles very artistically managed, and models of health as regards growth and leafage.



RUBUS DELICIOSUS.

garden to look after a few of these handsome species of *Rubus* for their decorative uses solely.

In general accommodativeness of habit they all agree, as they are far from fastidious. A fairly good soil will suffice for any of them, but, in common with many rosaceous plants, they require a somewhat pure air. The common bramble of our hedgerows will not thrive in the immediate vicinity of London. It will, indeed, live even in the heart of the City, but it will not flower and fruit in any degree sufficient to compensate for the ground it occupies. A rough wild thing of that kind would be most welcome in any city garden if it would but show every year a few fruits; but as it will not the admiration of its rustic leafage is not strong enough to ensure it a place in the civic paradise, and so it follows that the blackberry as a plant is unknown in London. But, on the other hand, the upright, or, as we may say, the raspberry section of brambles endure

The owner amused me by describing their origin. He said he should never have thought it worth while to plant such things, but his young people on a certain sunny day in the autumn threw into the garden the remains of some blackberries they had brought home, and in due time quite a little forest of bramble plants appeared from the seeds thus scattered. He rooted out a considerable number, and then constructed a framework to train the remainder over to form a bower, and the family found immense delight in the rustic features thus produced, as it were, by a combination of accidents. My friend was quite unaware of the existence of garden varieties of the common bramble, and when I told him there were at least a dozen he appeared for a moment dissatisfied with his bower of wildings. But I laid stress upon its beauty and the comparative uselessness to him of all the garden varieties; for to diminish a man's joy in a thing he has taken a proper fancy to appears to me always

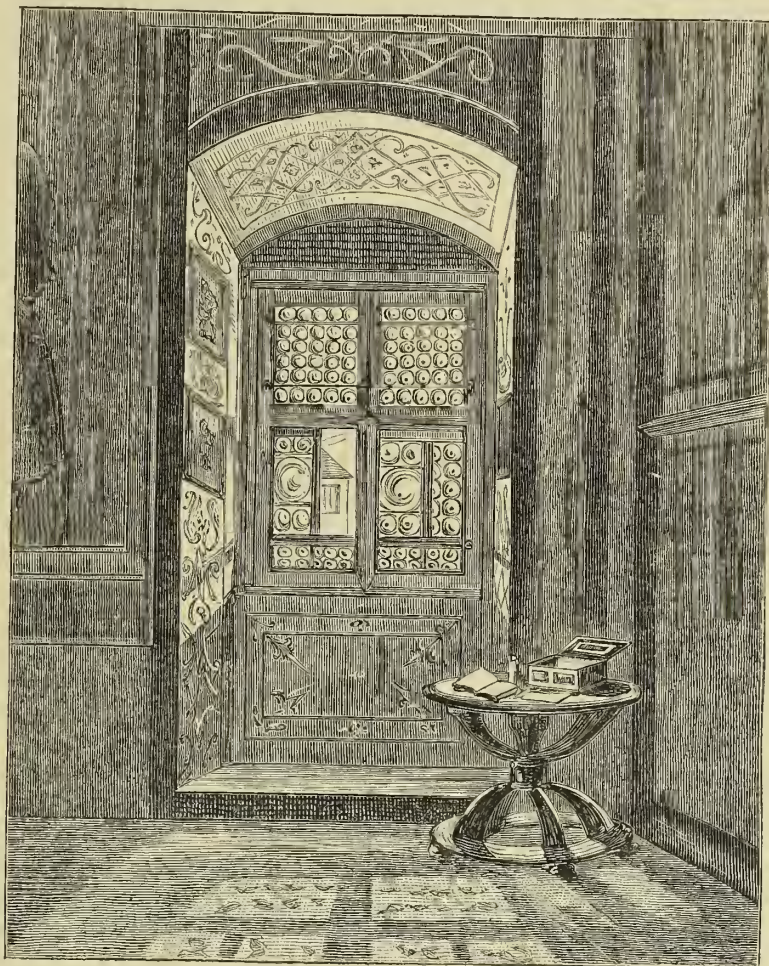
mean procedure. But for the collector of curiosities, and for suitable positions in the wild garden, the varieties of the common bramble are of considerable importance. My favourite amongst them is the cut-leaved, the garden name of which is *Laciniatus*. This is quite an elegant plant, and well adapted for a bank or bower where rustic forms of vegetation prevail. The variegated-leaved bramble, *Folius variegatis*, is a showy plant sometimes, but soil and situation influence it very materially. In our strong land it usually "runs out" in a few years, or loses the brilliant variegation it usually presents on a poor soil, and especially on chalk. The double-flowered white, *Flore albo pleno*, and the double-flowered red, *Flore roseo pleno*, are of no special value, though of necessity they are attractive when flowering beside a woodland walk; and the white-fruited *Leucocarpus* is of still less value except as a mere curiosity.

For a spacious rockery and for banks in the wilderness and wild garden there are many fine brambles peculiarly suitable. *Rubus biflorus* has tall white spiny stems, leaves whitish on the under side, and handsome white flowers. The fruit is of a deep red or orange colour. *R. leucodermis* is a different plant, with stems that look as if whitewashed, and a very nice habit of leafage and growth. The plant figured, *R. deliciosus*, is a truly grand plant of its class, the flowers being of pure white with yellow centres, the fruit purple, the leafage brilliant green. It will pass for a mountain rose any day; and it is a true alpine, being a native of the Rocky Mountains, and as hardy as any plant known

THE GARDEN HOUSE.

Your notes on this subject are seasonable. It is time we enlarged our notions on the architecture of garden structures. In the gardens of the wealthy it is common to meet with garden houses of various kinds, and often these are delightfully fantastic and peculiarly useful, as varying the monotony of avenues and lawns, and serving also as museums and agreeable resting places. In the gardens of persons of the middle class one such edifice usually suffices, and, as you justly say, it is often ugly and uncomfortable, and therefore but seldom resorted to. But the need felt for some such retreat is proved by the universal endeavour to provide it, and the consequent very considerable sale of ready-made "summer houses" in the "Gothic" style, fantastic in form and comparatively useless. The larger structures of this class are sometimes very good, evincing careful regard for the uses to which they may be put, whether to afford ready shelter from a storm or serve as a place for conversation, for meditation, and the enjoyment of perfect quiet away from the dwelling house.

Some years ago I built myself an "annexe" to my dwelling for a special purpose, quiet and seclusion being the chief requisites. Having just then returned from Germany, I found in my portfolio of sketches one of Luther's cell in the Augustinian Convent at Erfurt. This is now converted into a home for orphans, and is known as the *Martinsstift*.



GARDEN READING ROOM, DESIGNED FROM LUTHER'S CELL AT ERFURT.

to our gardens. Another beautiful bramble is *R. nukanus* (or *Nootkanus*), with handsome lobed leaves and snow-white flowers. This is allied by growth to *R. odoratus*, but has peculiar fruit, and appears to thrive under trees better than in the open.

There are a few miniature brambles suited for the rockery, and having some special attractions for the curious. One of the best of these is *R. arcticus*, a pretty thing, rising only a few inches, and bearing deep red flowers. Another little gem is *R. geoides*, native of the Falklands. It has entire leaves borne on long petioles, and produces a delicious fruit.

At this point we may quit the subject, for to treat of the genus in full would be, in the first place, to go beyond our knowledge of the plants, and in the next place to trouble the reader with things uninteresting.

THE WEATHER has taken the course we anticipated, and the slight touch of frost has been beneficial. We shall not see the spring open without another frost, and it may be with snow to accompany it. The winter has not only been mild but dry, and there is a considerable arrear of rainfall due. This is but too likely to come in the shape of snow, and a fall of the barometer with a north-west wind will probably compel us to feel that the opening of the spring is accompanied with several kinds of snow-drops.

But Luther's room is carefully preserved, and contains his portrait, Bible, and other relics. For one of the bays of my retreat I adopted this as my model, and the result was a very interesting feature. The decorative value of the scheme is of some account, but the main interest turns on its association, as a memento, with the name and fame of one of the greatest of the great ones, whose memory the world will not willingly let die.

The kind of decoration shown in this reproduction may interest those who give attention to what is called the "Queen Anne style." The convent dates from somewhere about 1410, but Luther was there in 1504, and if we regard the decoration as dating from that time it is far enough removed from the time of Queen Anne.

In carrying out my plan, I had great trouble to obtain the needful glass, and I learned some curious things in connexion with this subject. The bull's-eye squares for leaded lights are now manufactured for the purpose, and great pains are taken to produce *bad* glass; or, in other words, glass of a dull green, smoke-grey, and dingy yellow, and of coarse texture; but it appears that it is now as difficult to make bad glass as in the fifteenth century it was difficult to make good glass. It seems that our modern manufacturers, despairing of their means to meet the demand for old-style glass, are in the habit of throwing gravel, sand, coal-ashes, and other rubbish on the glass while it is still soft and impressionable, in order to spoil the surface, and give it a very antique

look. One cannot but smile at such endeavours to meet the requirements of fashion, and it cannot be legitimate art that demands bad glass for association with new and beautiful woodwork, and with other elegant architectural features.

But I have no intention of penning an essay on taste. I am content to contribute my quota to your useful budget of garden houses, and I hope what I send will be interesting to many. D. B.

NEW NOTES ON SHOW PINKS.

As an old and, if I may be permitted to say so, successful cultivator of show pinks, I cannot in referring to them refrain from expressing a feeling of regret that they have not shared in the great revival in floriculture which has taken place within the last few years. The auricula, so long under a cloud, has attained to a high degree of popularity, and there are now two distinct organizations specially for its encouragement. Carnations and picotees have come to the front, and now have their southern and northern exhibitions. Tulip shows, which as yet are confined to the northern counties, receive increased attention and support, and in Scotland the pansy has so gained in favour that a new society has been established at Glasgow, and the exhibitions of the old society at Edinburgh have increased very materially, both as regards the numbers and quality of the flowers and the attendance of visitors. But the pink, with its manifold attractions, has remained at a standstill; there has been no extension of its culture, no increase in its popularity, and very rare indeed is it that a board of blooms is seen at the chief horticultural exhibitions. If a few blooms are shown by either of the commercial growers who give them special attention, it is generally at one of the great London shows, at which, owing to their coming under the designation of miscellaneous contributions, they are relegated to out-of-the-way corners, where they are seen by but a small proportion of the visitors. For my own part, I do not see why we should not have, in addition to the few small shows held in the country, a national exhibition of pinks in the metropolis or some other suitable place annually, and failing that, some means should be adopted for ensuring a representative display at one at least of the metropolitan shows held when they are at their best. The cost would not be great, but the advantages would be considerable, and by some such means we should obtain a due recognition of their merit. At all events, they are in their way as well deserving of special encouragement as any of the hardy florists' flowers that at the present day are supported by organizations exclusively devoted to them. If there be any difference in opinion amongst florists upon this point, it is quite certain no one who has grown them long enough to handle them with success will question the assertion, that they are well worthy of more attention than they have received for some years past. They are particularly adapted to the care of those who have a taste for hardy florists' flowers, but are unable to grow auriculas and other things requiring expensive appliances and unremitting care; for they are so hardy in constitution as to bear the fullest exposure, and a moderate amount of attention and skill will suffice to secure that free healthy growth essential in the production of large, pure, and evenly-laced flowers. To avoid any misunderstanding upon this point, it must be distinctly stated that they do not come into competition with any of the other subjects to which reference has been made, and as they bloom at a different season from the auricula and the carnation the cultivator of either one or the other of these beautiful flowers would add materially to the enjoyment derived from his garden by growing a good selection of pinks also.

Show pinks ought in all but very exceptional cases to be grown entirely in open beds, which, as far as circumstances will permit, occupy an open but rather sheltered position. More important, however than shelter is drainage, for, hardy as the pink is in constitution, it is liable to suffer severely at the root during the winter season when the soil is overcharged with moisture. Efficient drainage will not be difficult to provide, and probably the best plan of all in growing pinks in low-lying situations, or on soils naturally wet, is to raise the bed from six to nine inches, or even a foot, above the general level. The exact height to which the beds ought to be raised must be determined on the spot. But it may be stated that the elevation must not be greater than is necessary to secure the plants from the injurious effects of stagnant moisture about the roots during the winter, because the higher they are the more frequent must be the supplies of water during periods of drought in the latter part of the spring and through the summer. On cold heavy soils a drain of three-inch pipes along the centre of the bed, and communicating with one of the main drains, will be an additional advantage, two feet below the surface being a good depth at which to lay the pipes.

There is no better mixture with which to form a bed for choice pinks than one consisting of maiden loam and well-rotted hotbed or stable manure, in the proportion of one part of the manure to every three parts of the loam. This mixture is not however essential to the production of first-class flowers; were it so, I should not have felt justified in saying much in advocacy of their cultivation, for maiden loam is in many districts so expensive as to be beyond the reach of all but the most wealthy of those who take a special interest in floricultural pursuits. The soil must however be rather deep, moderately rich, and thoroughly friable; and in dealing with those of a heavy and stubborn character it will be found that a liberal addition of coarse river sand or road drift, and a good dressing of manure, will effect an immense improvement. An addition of turfy loam, small or large according to the facilities with which it can be obtained, will also be most beneficial. In all cases the beds must have a liberal dressing of thoroughly-decayed hotbed or stable manure, and be dug over to a depth of fifteen or eighteen inches, and the soil be well broken up and have the manure thoroughly incorporated with it. In the selection of turfy loam and manure, it is of vital importance that the one be free from wireworm and the black bot, and the other from grubs; for if either of these is present in the beds in any

considerable numbers the results will be disastrous, for a very few will suffice to do much mischief. The surface of the beds should be rather highest in the centre, to enable the surplus water after a heavy rain or thaw to escape quickly; but the fall on each side must not be too great, or the occupants will be deprived of their proper share of moisture during the spring and summer months. It will be advisable to have a space about two feet between the beds when several are arranged parallel to each other, to enable the cultivator to examine and attend to the flowers as may be necessary without treading on the surface, and for the same reason the beds should not exceed a width of three feet.

The planting of the beds may be done either in the autumn or the spring, but the first-mentioned season is decidedly the best, and from the 20th of September to the 10th of October is the most suitable period in which to do the work. When from any cause the planting has to be deferred until the winter is past, it must be done early in March. To show how necessary it is to plant early in the autumn, it is sufficient to state that when they become well established before the winter they are in the spring strong enough to make a vigorous growth and produce in due course flowers of the finest quality. But when spring planting is resorted to there is not sufficient time for them to become thoroughly established and make much progress before the commencement of the flowering season. It is however a good plan to plant in spring when a beginning is made in pink culture and autumn planting has been neglected, as the plants, if they do not produce so many or such fine flowers as could be desired, will be useful in furnishing "grass" for propagating purposes. Healthy plants should be selected for planting in either of the two seasons, and for the spring they ought to be strong and well established in pots. They should be put from nine to ten inches apart each way in the beds, and due care taken to press the soil firmly about them; more especially is it necessary to plant firm in the autumn, for when the soil is at all loose there is a danger of their being lifted out of the ground by the frost. In any case, the frosts will loosen them, and the cultivator who takes any interest in his stock will carefully examine the beds in February and press the soil about any of the plants that may have been loosened. They ought also to have a neat stick each, to prevent the wind twisting them about.

It is most desirable in the spring, if the surface of the beds has become consolidated, to prick it up lightly with a small hand fork or other suitable implement. Early in April cover the surface with a moderate layer of partly-decayed manure, which will serve the double purpose of keeping the roots cool and checking the too rapid evaporation of the moisture from the soil. From the time the plants begin to grow freely until they go out of bloom water the beds two or three times a week during periods of dry weather. Soft water is preferable to that drawn from pump or well, and weak liquid manure will be found of more assistance than clear water. Strong liquid manure is not desirable, because of the liability of the colours to run when the plants are subjected to the effects of powerful stimulants.

Pinks are propagated very readily by means of cuttings or pipings taken during the time the plants are in bloom. The slender shoots are in some degree preferable, and should, as far as the supply will allow, be employed in the increase of stock. They should be cut off within a very short distance of the base, or be simply slipped off, and have a few of the lower leaves removed. Then insert in pans, pots, or shallow boxes filled with sand, loam, and leaf-mould in about equal proportions, and place in a frame occupying a shady position if practicable. If the frame is fully exposed to the rays of the sun shading will be requisite, and in all cases the supply of water and the admission of air must be carefully regulated to the wants of the pipings, which, it may be well to observe, will derive considerable assistance from a mild bottom heat. When they are nicely rooted the ventilation must be gradually increased and the lights finally withdrawn. After the cuttings have been fully exposed for a week or ten days plant three or four inches apart in a nursery bed to strengthen, and from this they can be lifted and transferred to the permanent beds at the proper season. Dull moist weather is the best in which to take the cuttings, which ought to be inserted immediately, and about one and a half inches apart each way. Exposure to evening dews by drawing the lights off the frames just before dusk, and allowing them to remain off until the sun begins to shine upon the frame in the morning, will also have a beneficial effect from ten days or so after the cuttings are inserted until they are rooted.

It is not necessary to begin with a large collection, and the following, which comprise the best at present in cultivation, will form a good selection with which to make a start:—Annie, Bertram, Boiard, Cristabel, David Saunders, Device, Dr. McLean, Dr. Martus, Elcho, Emily, Eustace, Excelsior, Exquisite, Godfrey, Harry Hooper, Invincible, John Ball, John Mackenzie, Lady Clifton, Lizzie, Lord Kirkaldie, Mary Gray, Mrs. John Downie, Minnie, Mildred, Mrs. McLean, Mrs. Howarth, Mrs. Waite, Picturata, President, Princess of Wales, Prince Frederick William, Rev. G. Jeans, Shirley Hibberd, The Pride of Colchester, and Victory.

AN OLD CULTIVATOR.

PROFITABLE GARDENING.

THERE will often arise in the minds of persons interested in gardening the grave question, Does it pay? It would seem, and perhaps would be, unpolite to reply in any particular case, that the question is too ridiculous to be seriously entertained; but in truth the man who asks the question is, generally speaking, the proper person to give the answer. I shall say nothing of the florists and market gardeners, who, as a matter of course, "make it pay," or the business would come to a stop. But to the owner of a private garden the answer may be given with perfect fairness, *It depends upon yourself to ensure either profit or loss.* When people talk of gardening as a waste of money, and all that sort of thing, we may be quite sure they do not know what they are talking about. They might just as well say banking does not pay because they have known instances of bankers making a bad job of the business. There is a "previous

question" to this effect—What do you mean by gardening? When we have a distinct reply to that question we may be able to take into consideration whether the game proposed is "worth the candle."

As people differ in their tastes and requirements, so they differ in their notions of gardening. Those who are not skilled in the art will of course make mistakes. Some of them will nevertheless persevere and overcome difficulties. Others will be quickly discouraged and give it up; and those will of course join the discontented party, who are always crying out about the expense of gardening and the unsatisfactory nature of the results. To put the case in the lump, I will, as the result of much experience and observation, say that well-directed labour in the garden will bring forth results of the most satisfactory kind; and, taking good and bad seasons as they come, gardening is a very profitable pursuit, even when the gratification of one household is alone concerned. When we restrict our operations to certain fads and fancies, such as orchid growing or collecting alpine plants, the question of the "profitableness" of the pursuit cannot be entertained. One might as well ask if it pays to wear a diamond pin, or to eat soup with a fork. It is only in connexion with catables that the profitableness of gardening can be considered in a general way, unless indeed we cast up the market value of all the flowers obtained from the garden, and then no doubt we shall find a tremendous money margin in favour of the garden.

Here however we touch a vital part of the subject. Wherever there is a garden, and however utilitarian the management may be, a certain proportion of the produce will be in the shape of flowers, and these are never valued at all as other things are valued, although perhaps the production of them consumes much of the strength and time and money that are bestowed on the garden. If people would, first of all, take a business view of the programme, they might be allowed to take a business view of the results. But they are apt to ignore the routine, and very improperly measure the results. I did once observe that the wallflowers and stocks and asters produced in a certain garden, if valued at market rates, would have made fully three times the total expenses of the garden. The owner of that garden however had an abundant supply of vegetables and fruits as well as of flowers, and yet he could coolly say, "Gardening is too expensive for me; I shall certainly give it up." Very few indeed are they who take full account of all that comes from a garden; and perhaps it is not to be desired that every pennyworth should be counted. But it will always be well for those who entertain the question seriously, "Will it pay?" to set their minds upon certain things, and to be content with those things, and thus avoid the common mistake of enlarging the programme, to have this and that and the other; so that in the end the big things are swallowed by the little ones, and the expenses of gardening appear too formidable as compared with the results.

The first step towards profitable gardening is to do a few things well, and around those few things to draw a somewhat sharp line. For example, here is a nice piece of open ground, and within the house is a family. All reasonable labour and outlay needful in this case for the production of potatoes, vegetables, and fruits will be abundantly covered by the value of the produce, unless there is something very remarkable indeed in the nature of the case. But with remarkable cases I can have nothing whatever to do in these remarks. An average case is sufficient. We want land enough, and we want good land. We next want good labour and skilful direction, and, up to a certain point, a liberal outlay for tools, manures, seeds, and whatever else is necessary. Gardening will never pay if it is unreasonably pinched. If you propose to take much out of the ground without putting anything into the ground, you will find gardening an unprofitable proceeding. To make it pay it must be well done, and then the profitableness will be manifested in the most satisfactory manner.

The most profitable crops for a family are what may be called commonplace things, and they should be grown in the most commonplace manner. Keep the main central plots open, so that you can crop them at any time in any way you please. On these central open plots put your crops of roots and vegetables, and take care never to plant fruit trees or even fruit bushes upon them. In the laying out of a new garden you will probably want some tracts of shrubbery, and if your place is sufficiently protected you may promote the profitableness of gardening by planting fruit trees and nut trees for your woodland in place of limes, and beeches, and hollies, and laurels. A walk through avenues of apple, pear, plum, and cherry trees may be as agreeable as a walk through hornbeams, and alders, and willows; and if all goes well results will justify the preference you have shown for trees that pay by their fruit more quickly and plentifully than others pay by their timber.

In all selections for a profitable garden the commonplace sorts should be first secured. Do not be troubled much about collecting curious varieties, or rarities, or novelties. It will be found as a rule that the sorts that are best known are precisely those that experience has proved to be most useful. Generally speaking, the most *productive* sorts should have preference, for they are often of good quality; but if they happen to be famous you may rest assured they are not bad. There must be no rush for anything out of season. To be sure, forcing pays uncommonly well where forced produce is required, but where the expenditure on the garden is a matter of some importance the table may be well supplied the whole year round without any particular trouble being taken to secure early crops. Let us have a case for illustration. We will sow a few rows of some of the white peas that come in first of all, and we will also sow a few rows of Sangster's, which comes in eight to ten days later than the very earliest. If the Sangster's are well grown they will produce about three times the quantity of peas that will be obtained from the very earliest. If we suppose the first crop to be gathered from on the 1st of June, we shall have to wait until the 8th or 10th for Sangster's. Now, in most houses, the loss of ten days in respect of the first dish of peas is of very little consequence, provided of course that there are plenty of other vegetables, as there should always be with anything like fair management. Take again the first crop of beans. In order to make a rush for an early dish we may sow the Mazagan. But we shall do much better to sow the common Longpod, which is only a few days later, and gives a vastly larger crop of a much better quality.

It is the same all through. You want but few sorts, but those should be the most famous, and more particularly renowned for productiveness. These can be secured at a cheap rate almost anywhere, and you will be sure of a return for your labour. It is time to speculate in others when you are accustomed to the outgoings and incomings, and have no longer any doubt about the profitableness of gardening; then indeed you will do well to indulge in moderate speculations, with a view to perfect your selection of

sorts, both to suit your soil and your taste, as well also perhaps as to enhance the profitableness of gardening. For, in truth, the raising of new varieties is no vain undertaking, and many of the newer kinds are of the most productive character as well as of the finest quality. But no beginner should trouble himself about them. The market is well stocked with good old sorts that do not command fancy prices, and the characters of which are universally understood.

In respect of fruits the same rule should be observed. A few of the most celebrated sorts should have preference over any general collection. Where there is a family to be thought of, bush fruits should have a fair proportion of space assigned. Those with apples and plums will be the most useful for all purposes. Peaches and pears are of less consequence, as they require more care and are in the end of less utility. But peaches and pears will pay as well as any fruits where they are really wanted, but the temptation to plant many sorts must be resisted, or the cost will run up, and the fruit will not run down in reasonable proportion.

It is a very great point not to have too much of any one thing. If you do not see the way clear to apportion your crops, you may be sure that of potatoes and cabbages you can scarcely have too many, because you can generally sell any surplus, and moreover, where there are cows and pigs, the surplus potatoes and cabbages may be readily turned into money at home. But a great glut of rhubarb, or of green gooseberries, or of globe artichokes, or even of asparagus, is scarcely of any use, except you can give it away, and when the giving comes in there is of course a set off against the profitableness. It is not for me to check generosity or preach selfishness, but I remember well that in my early experiences I made gardening very unprofitable by my foolish good nature. I went about to beg of friends to accept gifts of early delicacies, and then I had to send them home, and lost my baskets, disorganized the labour, and in various ways made the garden a bugbear. Then I changed my course, and became a little close-fisted, and I found my garden once more a pleasure and a profit, and in fact an indispensable delight and luxury.

AMATEUR.

THE CULTIVATION OF MAXILLARIAS.

THE Maxillarias comprise a genus which is very variable, and contains a great number of species, and many of them are very beautiful and well worth cultivating. The plan recommended for the successful cultivation of this tribe of plants is, that they should be grown in pots or on pieces of hard wood; but for the large-growing species pots are best suited, for then when grown in pots turfy peat and sphagnum, cut small, is the best for them. When this is used, it unites into a fine porous mass, which never becomes saturated with wet, as moss will do when put into the pots in a whole state, and peat the same when it becomes exhausted. But when peat and moss cut into a small state are united together, they hold together in one mass, which never becomes sodden, but on the contrary very porous, and in time will become perfectly firm, when the roots will grow with great freedom, and water in the growing season can be given without fear. For the strong-growing species use large pots, as they will grow much freer and flower finer than in small pots; while for the smaller-growing species small pots or logs will be the best. When potting, which should be done in the growing season, the pots should be filled up with large potsherds one-half, and over that should be laid some sphagnum or common bog moss, uncut, to prevent the other portion of the soil from getting through among the potsherds, and when it is filled up to within two inches of the top of the pot, the plant should be placed in the centre, and then the soil should be placed all round and pressed rather tightly down, and they should be made fast by being tied to some small stakes till such times as the plants have got hold.

In the growing season the heat should range from 55 deg. to 100 deg., but in the resting season the heat should range from 50 deg. to 70 deg., but should not go higher nor much lower. When the plants have finished their growth, they should be removed out of the growing house into the resting house, and there to remain till they show signs of growing, for they will flower very well in the resting house, much better than in the growing house, and last longer; and the fragrance of the flowers will be more agreeable and more powerful than it would be in the growing house. When the plants show signs of growth they should be removed out of the resting house and put into the growing house, but should not have any water for three weeks or a month, as the moisture in the house will be quite sufficient for them; they should be gently syringed after the first week, but no water should be given at their roots for a month after being taken to the growing house.

Although many species will do very well without resting, they do equally well, with less trouble and less fear of losing the species, by resting them. But when plants of this description are forced to grow in the winter they are very weak in the summer or do not grow at all, and very often the pseudo-bulb which they make in the winter is very weak, and seldom or ever flowers. Therefore all those persons who wish to have their plants looking healthy in the summer, will do well not to attempt to grow their plants in the winter, for in my opinion we ought to follow nature as near as possible. In all respects in nature the plants have a rest at certain seasons of the year, although we cannot get them to rest at the same period as they do in their native country; we must watch them, and when they show a disposition to rest we must give it them. They will not all rest at the same time, nor grow, nor flower; but in the winter season the growing-house should not be kept so high as in the summer, a temperature of 60 deg. of artificial heat is equal to a temperature of 80 deg. or 90 deg. of natural or sun-heat; therefore, a high artificial temperature in the winter, even in the growing-house, must be very destructive to vegetation. With respect to the species grown on logs, the logs should be in proportion to the size of the plants. The moss used for blocks for this tribe of plants should be small, neat, green tufts of moss, and not put on too thick, as the roots of all the smaller species of maxillaria are all very small and wiry; therefore, the nearer they are to the wood the better in the growing season. The plants on blocks will require to be syringed every morning and evening, and even in the middle of the day, to get them to grow freely, as many of the smaller species are very beautiful, even as fine as many of the larger species, although their flowers are not quite so large. All the species are to be found inhabiting trees and rocks in Brazil, Jamaica, and other parts of South America, in Mexico, and Guatemala.

R.

The House, Garden, and Home Farm.

DIE down, O dismal day! and let me live;
And come, blue deeps! magnificently strown
With coloured clouds—large, light, and fugitive—
By upper winds through pompous motions blown.
Now it is death in life—a vapour dense
Creeps round the window till I cannot see
The far snow-shining mountains, and the glens
Shagging the mountain tops. O God! make free
This barren, shackled earth, so deadly cold—
Breathe gently forth Thy Spring, till Winter flies
In rude amazement, fearful and yet bold,
While she performs her 'customed charities!
I weigh the loaded hours till life is bare—
O God! for one clear day, a snowdrop, and a sweet air.

DAVID GRAY.

THE HOUSE.

ALTHOUGH the mildness of the weather will have permitted of cage birds occupying more airy positions than is advisable in most winters, it will not be prudent to expose them much for the present, even should the weather be exceptionally mild. Their more robust state of health, in consequence of their not having been subjected to such close confinement, will render them better able to withstand the injurious effects of injudicious exposure; nevertheless, those who value the health of their pets will be careful to guard them against it. The birds should of course enjoy a breath of fresh air when advisable, the great point being to guard them from exposure to sharp draughts, which at this season of the year are more than usually injurious to them. A generous diet is essential to the welfare of cage birds, and it is important that the value of green food is not overlooked. Lettuce leaves from the frames and warm borders and the tops of watercress will be found the most suitable green food at the present time, and of these they may have rather liberal supplies.

THE GARDEN.

BROAD AND LONGPOD BEANS are the most productive on a deep strong loam, with plenty of manure, and they do well even on a stiff clay. Sow Mazagan and Dwarf Cluster in November on light dry soils, but not until January or February on heavy soils. From February to June sowings should be made at intervals of approved Longpod and Windsor varieties for succession. The dwarf sorts may be sown a foot to eighteen inches apart, and the strong-growing sorts will require to be two or three feet apart, and to be full six inches apart in the rows. For small gardens Beck's Green Gem is invaluable, because of its large yield in proportion to the space occupied and its elegant character on the table.

FLOWER GARDEN must be pushed on as opportunities offer. Unoccupied beds should be trenched or dug up deeply, and those intended for such subjects as Verbenas and Calceolarias should receive a liberal dressing of manure. Any alterations that may be on hand should be completed without delay. New turf should be laid down as speedily as possible to enable it to become rooted before the dry hot weather is upon us. This is a suitable season for making gravel walks and new box edgings, as it gives the one time to become consolidated and the other rooted before summer.

FRAMES full of bedding plants may with advantage have the lights drawn off during the middle of the day if the weather is open and dry, otherwise give an abundance of air by tilting the lights at the back. Make up a nice hotbed for propagating purposes and raising seedlings. Bedding plants must now be propagated largely as soon as the cuttings can be had, so as to afford the plants plenty of time to become strong and well hardened off before the time for turning them out into the beds.

GLOXINIAS are so wonderfully attractive when well grown, and can be so readily raised from seed, that it would be difficult to set too high an estimate on their value. This is a capital time for making a start in the raising of seedlings. The seedlings rapidly form strong healthy plants, and from sowings in February and March flowering bulbs will be obtained in July, August, and September, and by sowing again in July there will be young plants to flower early the following spring. One great advantage to be obtained from seedlings is an almost endless variety of colour, for the careful hybridization of the choicest flowers not only secures the reproduction of those colours, but other fine shades also.

MELONS for early crops to be put out on their fruiting beds as soon as they have filled 48-sized pots with roots. They are too often starved in pots, under the fallacious notion that when planted out they will soon recover; they should be kept in vigorous growth from the first, and when turned out have an ample and healthy foliage. In making up the fruiting bed use very little manure. The bed should be in a sweet condition to give a lasting and steady heat, and the soil for the surface should consist chiefly of rotted turf and loam inclining to clay.

ORCHIDS will in many cases require to be repotted, and have the warmest end of the house. Those that do not need a shift should have a little of the old surface material removed, and its place supplied with fresh; at the same time make fastenings safe, and repair blocks and baskets.

PEAS to be sown plentifully now, according to individual requirements. Those already up and in a bad plight should be dug in and the rows sown again. It is worthy of note that if peas are thoroughly pinched and starved by hard weather they rarely pay for the ground they occupy; so, if they go wrong, sacrifice them without hesitation and begin again. Where early rows are doing well take care of them, and put sticks to them at once, as the sticks afford considerable protection, and they may be rendered additionally protective by strewing on the windward side small hedge clippings and other such light dry stuff. No crop grown pays better for liberal cultivation, and deep trenching is of the utmost importance, and a heavy dressing of manure should be put at the bottom of the trench. Any soil will produce peas if fairly dealt with, but it is well to remember that the plant contains a considerable proportion of phosphate of lime, and therefore guano and superphosphate are valuable aids, especially where the soil is deficient of phosphates. To ensure a succession throughout the summer, it is advisable to sow in the course of the current month first and second earlies on deeply dug and well-manured ground to succeed the first earlies sown in November

and January. To follow these sow again at intervals, according to the demand, the finest sorts obtainable, including the latest, until the end of May; then sow second earlies, and finally, if inclined to incur a little risk, sow the first earlies from the middle of June to the middle of July, but blame no one if they perish with mildew ere they present a single pod. They may however produce a good and most welcome crop of late peas. It is a good plan to put the rows of peas of all sorts far apart, say, eight to twelve feet at least, with spinach, cabbage, cauliflower, &c., between; and as to height, although we have some dwarf sorts of the finest quality, it is nevertheless true that the tallest peas, as a rule, pay the best both in quantity and quality. Sowings made after April may be in trenches prepared as for celery, and these trenches may be flooded once or twice a week easily if water is obtainable.

ROSES.—Put stakes to all newly-planted standards, as if they rock about in the wind they suffer much injury from the straining of the roots. Be in no haste to prune roses yet; a few for early bloom may be cut back, but the general stock should remain unpruned a few weeks.

STRAWBERRIES coming into fruit need abundance of water, and occasionally liquid manure. Give as much air and light as possible to ensure well-flavoured fruit, and those that set heavy crops thin to a moderate number, or the berries will be small.

VINES to have their bunches thinned as soon as the berries are of sufficient size. Tie in the young shoots and remove laterals early, so as to accomplish the pruning as much as possible with the finger and thumb. Be particular to lower the temperature at night. Very many of the failures in grape growing arise through too high a night temperature. Canes started now will not need so much caution as to raising the temperature as those started in December and January, as there is now more solar light and vegetation is active. Use the syringe freely among vines newly breaking, but sparingly or not at all to vines in flower. This is a good time to put in eyes for raising a stock of pot vines.

THE HOME FARM.

ONE of the most important operations now pending is the dressing of grass land, which should be completed as soon as possible, with a view to a hay crop. It is customary to see this business in progress as late even as April, but it is bad practice to leave it so late. On the other hand, it will do more harm than good to go on the land while it is very wet, for carting manure on will terribly cut up the surface; but as soon as it is safe to take horses and wheels on the ground, all that needs to be done should be done, and one of the most important things, generally speaking, is putting on a good coat of fat farmyard dung, for even grass wants feeding, however stubborn some people may be in persisting that it can live on nothing. In the way of purchased fertilizers, those best adapted for grass land are guano, at the rate of 3 cwt. per acre, sulphate of ammonia, and nitrate of soda, 2 cwt., but the quality of the land must be taken into account as well as the state of the grass as to condition. One of our neighbours, who made a capital piece of hay last year on land that had been hard fed, and was dressed very late, attributed his success to a dressing of these artificials in the proportions given, put on at the time of harrowing and rolling, and they certainly are most to be trusted. As a matter of course, top dressings used now should be of a quickly soluble character, because there is not much time for them to produce an effect. There is nothing better than bone-dust for grass on peaty land and on pasty clays, but it should be put on in autumn to produce its full effect. Those who are unaccustomed to the use of special manures are apt to be puzzled as to the quantity required, and they may safely make it a rule, unattended with danger to the plant and involving no waste of money, to put on 5 cwt. per acre. It will be seen above that we recommend 3 cwt. of guano, but this conforms to the 5 cwt. rule, and happy is the man who can afford to carry out the rule in connexion with good work in dressing the land now and making hay by-and-by when the sun shines.

SPARROWS IN AUSTRALIA.—A premium of 6d. per dozen has been placed upon sparrows' heads by the Government of South Australia, acting upon the advice of a commission specially appointed to inquire into the "sparrow question," while the somewhat disproportionate sum of 2s. 6d. per 100 is offered for the tiny pale blue eggs of the bird. The bird, which only a few years ago such efforts were made to acclimatize in Australia, and whose first arrival was hailed with greater enthusiasm than would now be displayed on the landing of a Bend Or, a duchess, or a prize merino, is now doomed to extermination—if that can possibly be achieved. So rapidly have the few pairs which were introduced a few years ago multiplied under the congenial skies and amid the luxuriant vegetation of the Australian colonies, where there are few or none of the checks on their increase which exist in the old country, that the agriculturists complain of the serious injury done by them to their wheat and fruit crops, and have called upon the Government to devise some means of insuring their destruction. The evidence given before the commission appointed to inquire into the matter affords eloquent examples of the destructiveness of these hard-billed birds. One witness says that in the short space of ten days the sparrows took a ton and a half of grapes. They stripped all the figs off five trees, and kept low fifteen acres of lucerne during summer. Another complains that in the season they took £30 worth of fruit; while a third declares that he sowed peas three times, and each time they were destroyed by sparrows. The fecundity of the sparrow in South Australia is described as astonishing. A few to-day are thousands next season. Its work is done on a scale disheartening to the cultivator, and under conditions he cannot control; for the seed is taken out of the ground, the fruit-bud off the tree, the sprouting vegetable as fast as it grows, and the fruit before it is ripe, and therefore before it can be housed and saved. Neither apricots, cherries, figs, apples, grapes, poaches, plums, pears, nectarines, loquats, olives, wheat, barley, peas, cabbages, cauliflowers, nor seeds of any kind, are spared by its omnivorous bill; and all means of defence tried against its depredations, whether scarecrows, traps, netting, shooting, or poisoning, are declared to be insufficient to cope with the enemy.

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPLOUGH'S PYRETIC SALINE restores health and vigour to the system? Headache, fevers, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist, and of the Maker, 113, Holborn, London.—[ADVT.]

Exhibitions and Meetings.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—ANNUAL MEETING.

THE fifty-fourth annual meeting of the subscribers and friends of this society was held on Monday afternoon in the Mayor's Parlour of the Town Hall. The Right Hon. the Earl of Derby, president, occupied the chair, and the report and financial statement were, upon the motion of Dr. Watts, taken as read.

The President, in moving the adoption of the report and statement of accounts, said their meeting was not a very large one, and that was a circumstance which might be interpreted as showing that among the subscribers and promoters of the society there was a general feeling of satisfaction with, and confidence in the management, and therefore there was no wish to interfere in matters which were supposed to be going on in a satisfactory way. The report had not been read, but most of those present were no doubt familiar with its contents, because it had been printed and circulated among the members. He need not recapitulate it in detail, but they would observe that it was stated that the annual horticultural exhibition held at Whitsuntide was attended by nearly 50,000 persons, and that what was very rightly called the great event of the year—the International Exhibition, which was held in the month of August—had been from every point of view except one an entire success. He believed it was generally admitted that no exhibition of the kind had been held out of London, and perhaps hardly any in London, of equal merit or importance. The one thing that failed them was the weather. That was very unfavourable, and as a necessary consequence the financial results were not altogether what they had hoped and expected. It was intended that the funds expected to result from that exhibition should have been applied to the replacing of various arrangements, glass houses, and other necessary improvements in the gardens. It had not been possible to do that to the extent which was desired or contemplated, but to a certain extent it was being done. There was a surplus of £890, and that would be applied to the purpose which he had mentioned. The number of visitors who had attended the various exhibitions in the course of the year was put down at nearly 100,000, and the sum given away in prizes in the course of the year was £2,600, which was rather in excess of former years. The Council proposed that a rather more ambitious name should be adopted by the society. It was formerly and was at present known as the Botanical and Horticultural Society of Manchester, and it was now intended to add the words, "and Northern Counties," because it was found that a great deal of the support which it received, and a great proportion of the visitors who attended the exhibitions, came from districts far beyond the immediate range of Manchester. He was asked to mention the fact that assistance had been frequently given—in fact, was habitually given—to the small floral societies which were established in various parts of this county. The members of those small floral societies were generally working men, and it had been found a convenience to them, and an advantage in many ways, to be invited to hold their shows in connexion with the exhibitions of the Manchester Botanical Society. It was always an important matter, in regard to any association like theirs, that their financial position was in the main sound and satisfactory. He had told them that the surplus last year was £890, and he would add, looking at the liabilities of the society, that he observed that they were at a lower figure this year than they had generally stood during the last ten years. In 1872, 1873, 1874, and 1875, they were upwards of £6,000. Then they fell to £3,000, in consequence of an effort made to pay off the debts. In 1877 they were £2,700, and they rose again to £3,900, £4,300, and £4,400, and last year they had fallen again to £3,500. He did not call that entirely satisfactory, because, for his own part, he should be very glad to see that they had no liabilities at all; but that was a condition in which they never had been, and to which he supposed they must hardly hope to attain. It was something that they were lighter than, according to the statement presented, they had been at any period of the last ten years, with a single exception of one year. He considered that in a material respect the society was prospering, and it undoubtedly had never attracted a larger share of public attention or received more general support from all parts of the county and the surrounding districts than in the course of the last twelve months. With those few remarks he would move the adoption of the report.

Dr. John Watts seconded the resolution. He said that the unfavourable weather they had experienced had probably cost the society from £1,000 to £1,500; but they had the consolation of knowing that it did not keep away those who would best appreciate the show, and to whom it would be most useful to acquire and spread a taste for horticulture and floriculture.

Mr. S. L. Helm proposed, "That the society be henceforth called the Royal Botanical and Horticultural Society of Manchester and the Northern Counties," which was unanimously agreed to.

The Mayor, in proposing a vote of thanks to Lord Derby, said he congratulated Lord Derby upon being the president of a society which had pursued its career up to the present time very successfully. There was a time—and that period was pointed out by Lord Derby himself—when the Society approached very nearly to a state of insolvency. But, as in the affairs of men, there was also a turn in the affairs of the Manchester Botanical Society, and that turn for the better came when their present curator, Mr. Bruce Findlay, was appointed to the office he now held.

Lord Derby, in reply, said his labours, as on previous occasions, had not been severe. He had great pleasure in coming to Manchester last summer to open the International Horticultural Exhibition, to which reference had so frequently been made. He had also pleasure, some years before, in aiding a movement which was intended to get rid of the debt upon the society altogether, and which actually did succeed in getting rid of one-half of it. It was quite unnecessary, after having been for some years connected with them, to profess his sincere interest in the welfare of the society or his conviction of its great utility. In merely a material and utilitarian point of view, he had no doubt it had a great deal more than repaid any expenditure which it had caused; but, far above and beyond that, he was quite certain that in a place like Manchester and a county such as Lancashire it furnished a civilizing and humanizing agency with which they could not afford to dispense. He heartily agreed with what had been said as to the management of the society by Mr. Findlay, and he hoped they might long retain the benefit of his services.

Votes of thanks to the retiring Council and donors of plants and seeds were passed, and the officers for the current year elected. The list of officers included the Earl of Derby as president, and the Mayor of Manchester, Dr. Ainsworth, the Rev. Canon Gibson, and Mr. Joseph Brome as vice-presidents.

Correspondence.

BOROUGH OF HACKNEY AND STOKE NEWINGTON CHRYSANTHEMUM SOCIETIES.

THE three principal officers of the Borough of Hackney Chrysanthemum Society claim, in a letter published at page 30 of the *GARDENERS' MAGAZINE*, the right of their society to be considered the original Stoke Newington Chrysanthemum Society, and I should like to make a few observations thereon. First I would say, so far as their having possession of the minute and other books is concerned, their claim may have the appearance of being just. I have been conversant by observation with the proceedings of the original society from the first, and was present at the second exhibition, which was held in the skittle ground of the Rochester Castle. My memory fails to recall the fact of any specimen plants being shown on that occasion. Possibly Mr. Croxford, now of Surbiton, who exhibited cut blooms, may be able to enlighten us upon the point. Certainly, from the date of the second show the fame of the society for the great excellency of its exhibitions spread far and wide, but the contributions of plants and cut blooms were chiefly from the gardens in the locality or within an easy distance. The specimens exhibited by Messrs. Scruby, George, Wetherall, and others, were so magnificent that I would ask those who remember whether they have been surpassed by the productions of more recent date. But, coming to the question that has been raised, it may be asked whether it was from the falling-off in the support afforded by the inhabitants of the district that the society gradually dwindled until it became a mere shadow of its former self. The answer is No, and the true cause can be quickly pointed out. The society was the first established for encouraging the cultivation of the chrysanthemum, and whilst it retained its novelty florists from all parts of the metropolis, and a wide circle without it, made a point of annually visiting its exhibition, and of course helped to substantially swell the takings at the doors. As time went on, those who took an interest in chrysanthemums, and were conversant with what was being done at Stoke Newington, began to feel that societies would be of service in their respective districts. As the result of this feeling new societies were formed, one here and another there, until they were to be met with in all directions. In consequence of the formation of societies in other districts, the support of visitors from a distance gradually died away, and the financial resources of the original society were so materially weakened that at length a crisis came. This crisis might perhaps have been avoided by a little forbearance on the part of the more active members. Afterwards there came a split, and good and able men on whom the society depended for its success became opposed to each other, and thus the division. I will leave my readers to judge which of the societies has the rightful claim to the title of "original," the one which continued to hold its exhibition in the village, town, or district of Stoke Newington, or the one which went elsewhere under the same title. Of course, the retention of the society's books by the Borough of Hackney Chrysanthemum Society to some extent substantiates its claims, but their retention would at the time of the division have formed grounds for a legal squabble.

With reference to Mr. George Taylor being the author of the first treatise published on the culture of specimen or cut blooms there can be no dispute, and the honour is justly due to him. Both Mr. Holmes and Mr. Taylor read essays for discussion at the meetings, and Mr. Taylor's was printed in a weekly gardening paper conducted by Mr. R. Marnock, and favourably commented upon. This was entirely independent of the treatise published at a shilling a copy. I do not remember any other work being printed and priced for sale previous to the issue of Mr. Taylor's work, which was entirely limited to the cultivation of plants for the production of large and superb blooms. His teaching is the basis of the present practice adopted by the generality of cultivators. I am pleased to observe that one of my late assistants, by following the practice recommended by Mr. Taylor, was successful in winning the cup for cut blooms at the last exhibition of the Borough of Hackney Chrysanthemum Society, which, as is well known, was held at the Royal Aquarium, Westminster.

The Gardens, Moray Lodge, Campden Hill, Kensington.

J. F. McELROY.

The Household.

A FOWL ROASTED ON A STRING.—On one occasion M. Dumas thought fit to prove his culinary acquirements by cooking a very complicated dinner, one dish of which was a pair of fowls roasted on a string. His vice, or assistant cook, had hitherto been obedient; but at this she rebelled, standing up for the jack, until he threatened to get her paid off and turned out of the house forthwith. She yielded, and five minutes afterwards the fowls, each on its string, were spinning like a couple of spindles, side by side, before the fire. M. Dumas' plan is based on physiological facts. Every animal has two orifices, an upper one and a lower one. To roast a fowl in first-rate style the upper orifice must be stopp'd, after the Belgian fashion, by thrusting its head into its crop and sewing the skin over it with needle and thread. By the lower orifice the fowl will have been emptied. Its liver, chopped small with parsley and other sweet herbs, and mixed with butter, will be returned to the place of the absent intestines. And now, what ought to be the cook's grand object? Decidedly to retain in the creature she is about to roast the greatest quantity of gravy possible. But if she thrusts a big spit through it from end to end, and a small one across it to keep it in place, she makes four holes, instead of two, for the gravy to escape from. But if, on the contrary, you tie its feet together with a string, and suspend it vertically by that string, with its lower orifice upwards, and its upper orifice closely plugged; if you dust it slightly with salt and pepper, and baste it with the very best fresh butter, pouring a spoonful now and then in at the fowl's inferior orifice, you then fulfil all the logical conditions for having an excellent roast chicken. You have only to watch it while it roasts, to cut the string which holds it when the skin is covered with little blisters out of which issue jets of sweet-smelling steam. You then deposit it on its dish, and pour over it the contents of the lathpan, with which not a drop of *broth* must have been mixed during the whole process of basting.—From *Cassell's Household Guide* for January.

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland's Ointment, the purest, most fragrant, and non-gritty tooth-powder ever made. The hair also may be kept beautiful, soft, pliable, and glossy, and its liability to fall during, and become dry during damp and fog of winter may be arrested by the regular application of Rowland's Macassar Oil. Sold everywhere.—[ADVT.]

Notes of Observation.

CYPRIPEDIUM INSIGNE.

Owing to the large number of beautiful cypripediums that have been introduced to cultivation within the past decade, there is some risk of this fine old Lady's Slipper being overlooked. It is not perhaps necessary to institute comparisons between our old friend and the newer kinds; but were a comparison made it would be perfectly safe to aver that in point of beauty it is equal to most and superior to many of those at present at the command of the cultivator. In usefulness it certainly has no superior, and as nice little plants can be purchased at from half a crown to five shillings each, it may be truly said that it is within the reach of the blumest amateur. It is a great favourite with me, because of the facility with which it can be grown in gardens in which there is no house specially for orchids, as it thrives in a much lower temperature than any other of the species. We have no stove or orchid houses, yet we have several magnificent specimens which yield a splendid lot of flowers every winter. We have cucumber houses and melon pits, which are set to work early in the year, and with their aid, and a greenhouse, we grow the cypripediums as well as could be wished. Our practice is to place the plants in one of the cucumber houses started for an early crop two or three weeks after the flowers have lost their beauty, and at the same time we shift those requiring more space at the roots into pots of larger size. At the same time those becoming too large are divided into two or more portions, and put each part into a separate pot. In this structure they remain until the end of June, when they are removed to the greenhouse, in which they occupy a place until the end of September. About the middle of that month we clear out one of the cucumber houses that has been at work during the summer, and after the woodwork and glass have been cleaned and the walls washed over with hot lime, we fill it with such plants as bouvardias, gesneras, and epiphyllums that require more warmth during the winter than is afforded by the ordinary greenhouse. In this structure the cypripediums are placed, and there remain until after the flowering season is over, and they are removed to the early cucumber house. The temperature maintained throughout the winter ranges from 60 deg. to 65 deg. by day, and averages 55 deg. by night. Some of my friends keep this cypripedium in the greenhouse throughout the year, and succeed in flowering it very well; but the results are more satisfactory when it can have a little additional warmth both during the winter and when the new growth is in progress. It will thrive in sphagnum-moss and peat, separate or in mixture; but peat alone appears to produce the strongest growth. There is no occasion to hanker after special varieties, as the flowers of the specific form are exceedingly beautiful.

R. W.

SPECIMEN BOUVARDIAS.

For a long time past I have been not a little perplexed why cultivators do not grow bouvardias to specimen size more often than is done. At the present time they are, with but few exceptions, satisfied with small plants raised from cuttings struck the previous spring, which certainly entail a considerable amount of labour, and do not produce such a large supply of flowers in proportion to the space occupied as larger examples ranging from two to three years old. We have to maintain an abundant supply of flowers during the winter, and find the large bushes most useful for furnishing them. As soon as the plants are going out of bloom towards the end of the winter, the supply of water to the roots is reduced considerably, but in a gradual manner, and the plants are kept rather dry for three or four weeks, to give them a good season of rest. They are then pruned somewhat severely, and started into growth by the usual expedients of placing them in a warmer position and increasing the water supply. In course of time they, with the assistance of a syringing with tepid water once or twice a day, commence to make new growth, and are then repotted. They are first turned out of the pots, and have the balls of old soil reduced to about one half of their size and the roots pruned moderately. When this has been done they are put in clean pots of the same size as those previously occupied. Afterwards they are sifted once or twice, according to the progress made. We place them where they will have just sufficient warmth, and no more, to promote a steady growth, be screened from brilliant sunshine, and enjoy a moderate degree of atmospheric humidity. Under these conditions the growth is far more satisfactory than when the plants are subjected to a high temperature and an atmosphere heavily charged with humidity. During the summer season we place them in a pit, where they can have little or much ventilation, or be fully exposed by the withdrawal of the lights. The ventilation is as a rule abundant, and throughout July and August, if not for longer, the lights are entirely removed, unless the weather is very bad. The water supply is liberal, and twice a week at the least they receive liquid manure of a moderate degree of strength. If they do not have a free circulation of air about them, and a plentiful supply of water at the roots, with occasional syringings, the foliage will soon be badly infested with red spider. We grow all the best winter-flowering kinds, and they have precisely the same management. Of course the growth is stopped two or three times in the course of the summer.

GEORGE SMITH.

DUMPY HYACINTHS.

I feel sure that one cause of dumpy hyacinths is hard forcing, and another late planting. There are a good many people who like to have their hyacinths in flower early, but they pay no particular attention as to the selection of sorts that are known to come on quickly, nor do they pot them as soon as they should do. Then, to complete the failure, they subject them to a high temperature to push them into flower. To all appearance they forget that, although it is possible to have hyacinths in bloom at Christmas, the natural season for their flowering is the middle of March. It is evident that when they are forced into bloom at Christmas they must be subjected to a very high temperature. This is not all; a beautiful and useful flower is brought into disrepute, and the ability of the gardener questioned, when neither ought to be. Hyacinths to flower at Christmas should be potted by the middle of September, and then placed under the shade of a north wall and covered either with cocoa fibre or sifted coal-ashes, there to remain until the middle of November. They then should be brought into the greenhouse for a fortnight, and early in December be placed in a house in which the temperature does not exceed 60 degrees by fire heat.

J. M.

Replies to Queries.

N. Blandford.—Your letter has been handed over to a cultivator who has very much experience of the matter. The contribution accompanying the letter is not suitable for our columns.

D. W. P.—We quite agree with you as to the exclusion of politics. The question could not be fully argued in these columns; therefore it will be well to leave it untouched. Your mode of approaching it is certainly interesting.

J. P.—You have overlooked the answer to your question, which was given some time since. The onesided character of the flowers is due either to imperfect maturation of the wood, or injury done to the buds by earwigs at an early stage.

Young Beginner.—None of the plants mentioned in your letter are deciduous. We expect they have been kept too cold. They should have a temperature of about 60 deg. during the winter season, and moderate supplies of water at the roots.

Dianthus Hedderigi.—Amateur.—To obtain plants that will commence flowering soon after they are bedded out at the end of May, the seed must be sown early in February and the plants grown on freely. Sow in pans and place in a structure in which a temperature of about 70 deg. is maintained, and when the plants are large enough to handle pot off singly, and after allowing them a fortnight to become established harden off and place in a frame in which they can have protection from frost.

Glastonbury Thorn.—R. Wilcox.—Twice lately we have been reported to have declared the Glastonbury Thorn a sterile variety. We have never (according to our present recollection) made any such declaration. On the contrary, in our issue for Dec. 21, 1878, we figured a branch bearing old leaves, new leaves, old berries, and new flowers simultaneously. We have raised many young trees from the seeds, but none of them had the peculiar characters of the parent tree.

Names of Plants.—A clerical error occurred in last week's issue, in reply to "O. B.;" the name of the Constantinople nut is *Corylus colurna*. W. Saunders.—Your plant is probably *Rubus pulcherrimus*, the most distinct of all the brambles. It has a leafage that may be likened to that of the Spanish chestnut in form, but is very silky on both sides. It is a native of Java, and probably is not in cultivation. You will find figure and description in Hooker's "Icones," t. 729.

Malt Dust.—J. B. P.—This consists of the sprouts of the grain which are rubbed off in the drying and dressing of the malt. Sometimes there is an admixture with it of ashes. It is a good manure for top dressing, as it quickly decomposes, and then affords to the crop a liberal diet of alkaline salts and phosphates. The usual allowance is thirty bushels per acre. It may be dug in when making land for a crop. In any case, as it is readily soluble, it should be used rather sparingly, for what the ensuing crop does not use will be in great part lost, as it has no abiding power.

Peat.—W. R. M.—It is essential, in the cultivation of both orchids and New Holland plants, to employ tough fibrous peat that will not quickly become sour, for as soon as there are traces of sourness the roots will refuse to run in it, and the growth receive a severe check. There is a vast difference in the quality of peat from the various districts, and of the supplies available at the present moment there is none better than that obtained in the neighbourhood of Ringwood, Hants. Mr. Epps, whose peat we have employed for some years past, has a depôt at Ringwood, and if you place yourself in communication with him, stating the purpose for which the peat is required, you will be able to obtain all other needful particulars.

TRADE CATALOGUES.

THOMAS CARDEN, 69, HIGH STREET, LEICESTER.—List of Vegetable and Flower Seeds.

JAMES YATES, STOCKPORT, AND SOUTHWARK STREET, LONDON.—Descriptive Catalogue of Vegetable and Flower Seeds, Gladioli, &c.

W. AND J. BIRKENHEAD, FERN NURSERY, SALE.—List of Hardy Exotic Ferns, &c.

RYDER AND SON, SALE, NEAR MANCHESTER.—Special List of Greenhouse Flower Seeds.

GRAYSON AND CO., BURY ST. EDMUNDS.—Order List of Vegetable, Flower, and Farm Seeds, and Seed Potatoes.

W. THOMPSON, 36, TAVERN STREET, IPSWICH.—Supplement to Catalogue of Flower Seeds, 1882.

WOOD AND INGRAM, HUNTINGDON.—List of Vegetable, Flower, and Agricultural Seeds.

WILLIAM RUMSEY, JOYNING'S NURSERIES, WALTHAM CROSS.—Catalogue of Seeds for the Garden and Farm.

Obituary.

On the 15th ult., at Floors Home Farm, WILLIAM SMITH, hodger, of Floors Castle Farm. The deceased entered the service of the Duke of Roxburgh when a boy. After the lapse of two years he returned to Floors, being then in his 20th year, and continued to the close of his life a servant successively under three dukes—an uninterrupted service of 68 years at the ensuing May term. During his life of 87 years he enjoyed perfect health. A week preceding his decease he slightly injured his leg in getting over a fence; apoplexy followed, and he died within three hours of the seizure.

On the 27th ult., at Moray Place, Edinburgh, Sir ROBERT CHRISTISON, Bart., M.D., D.C.L., LL.D., the eminent toxicologist, and one of the Physicians in Ordinary to Her Majesty, aged 84 years.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7½d. and 1s. 1½d., labelled, "JAMES EPPS AND CO., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg. of 40 yrs. Chis- wick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths after Noon.	Sets.	Rises. Morn.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG		1882		
12	S	Sexagesima Sunday.	7 22	14 27	5 6	2 30	10 51	7 17	7 48	4 17	4 42	39.1	Azalea Caldwelli, G.	Rose.	43
13	M	General Peel died, 1879.	7 20	14 26	5 8	3 32	11 44	8 22	9 2	5 13	5 47	39.0	Bouvardia elegans, G.	Scarlet.	44
14	Tu	St. Valentine.	7 18	14 23	5 10	4 27	After.	9 50	10 35	6 27	7 15	39.0	longiflora, G.	White.	45
15	W	Cardinal Wiseman died, 1865.	7 16	14 21	5 12	5 13	2 5	11 15	11 55	8 0	8 40	39.0	Camellia Cup of Beauty, G.	White & Rose.	46
16	Th	J. Gurney Hoare died, 1875.	7 14	14 17	5 14	5 51	3 23	—	0 30	9 20	9 55	39.0	Henri Favro, G.	Rose.	47
17	F	Ember Week.	7 12	14 13	5 16	6 24	4 54	0 58	1 22	10 23	10 47	39.1	Erica Wilmoreana, G.	White & Rose.	48
18	S	● New Moon, 2h. 50m. morn.	7 11	14 8	5 18	6 51	6 22	1 48	2 10	11 13	11 35	39.1	Monochetum ensiferum, S. ...	Rose-purple.	49

The Gardeners' Magazine.

SATURDAY, FEBRUARY 11, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2s. 6d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (28 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2s. 6d.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, FEBRUARY 14.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Anniversary Meeting, 3 p.m.

THURSDAY, FEBRUARY 16.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

Auction Sales for Ensuing Week.

MONDAY, FEBRUARY 13, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

WEDNESDAY, FEBRUARY 15, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; 10,000 Liliun auratum.

THURSDAY, FEBRUARY 16, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, FEBRUARY 18, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

A MILD WINTER AND A COLD SPRING may be regarded as a sort of meteoric conspiracy against all classes of husbandmen. Many kinds of trees began to show leaves at the turn of the year: the filberts flowered too early; many pear trees have flowered and made themselves ridiculously barren for the season, and the wall trees are inclined to start before their proper time, and imitate the early pear trees in producing nothing. But on a broad view of the case we are bound to say we are getting on pretty well, considering the mild winter we have had; for at all events, it is now nearly completed. The cold spring we may expect, and may almost make sure of it, and at all events there must occur some miserable hours between the present and the proper opening of the summer. The lowering of the temperature that was first felt towards the close of January operated beneficially as a check to unseasonable growth. Occasional slight frosts during the next three or four weeks may be regarded as serviceable, tending to moderate the forward tendency of vegetation; but a severe frost would probably prove severely mischievous, and a continuance of dry weather will tell upon the hay crop and upon all the produce of the season.

The state of the soil and the comparative mildness of the season will favour early sowing and planting with a view to the production of early crops. Nothing venture, nothing have, says the proverb, and it is a good proverb if seasoned with a grain of salt. For all sowings and plantings proper to the season the circumstances are eminently favourable, and we would not discourage those who are disposed to incur a little risk for the chance of a special advantage. The potatoes are literally crying to be planted, and as they will grow in spite of all one's care there is a strong temptation to end the heartache by putting them in the ground. The temptation must in many instances be complied with, and, as we have all had in our time grand crops of potatoes from February plantings, it cannot be rash to risk the thing once more; but it will be well to put the sets a little deeper than usual on dry ground, or to mould them up a little higher on dry ground, to delay the time of the rising of the shaws. The sowing of early peas will also be a fairly safe proceeding, and a few other sowings may be made with a reasonable prospect that all will be right in the end. It is an early season now: it may be a late season before we have done with it. As we know nothing of what is to happen, we are bound to be always cautious, and as far as possible on the safe side.

One way of keeping on the safe side is to follow closely the teachings of experience. In many places it is the settled rule to

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make no large sowings of seeds until about the middle of March. And in this exceptional season it will be prudent to stick to the rule, but it will be also prudent to incur a few small risks by making some small beginnings of things that will be welcome if they come, but will not be greatly missed if they go. Many will be tempted to break a good rule because of the favourable circumstances that prevail, and the object of these remarks is to moderate the ardour of all such, for we have seen many a time and oft the most serious disappointments result from rashness induced by over-confidence in the weather. Whatever is the settled rule of a place should be adhered to in respect of all the more important business of the garden until experience has proved the rule capable of amendment. But exceptions may be made at discretion and within reasonable limits, for the chances will always be against success; otherwise the rule would be valueless. The limitation of the exceptions therefore will minimize the disappointments, and when the exceptions culminate in successes there may be acquired experiences tending to the expansion of the rule, and the consequent improvement of the practical routine of management. He who puts all his eggs into one basket risks the loss of all when the basket is tilted, and he who largely antedates his garden work risks a general failure in the event of severe frosts occurring in the approaching season of the east winds.

THE HORTICULTURAL EXHIBITIONS OF THE FORTHCOMING SEASON comprise all the customary arrangements both of the "all round" societies and the "special" organizations. The list of them at page 81 of the *Garden Oracle* is suggestive of activity, and we certainly could not say that there are any signs of stagnation. The Royal Horticultural, Royal Botanic, Liverpool, Manchester, Royal Caledonian, Newcastle, and the other leading organizations, have made their fixtures and await results. It is agreeable also to notice that the Auricula, Carnation, Rose, and Pelargonium Societies are in the field as usual, and intend to vindicate their respective callings as representing distinct departments of floriculture. It is to be regretted, we think, that the date of the International Potato Exhibition is not fixed in time to be included in the *Oracle* list; but if it cannot be done we must do without it and keep a look-out for the announcement in the papers. It will be observed on reference to the list that there is only one event promised that is in any way out of the ordinary reckoning, and that is the International Fruit Show to be held in Edinburgh on the 13th and 14th of September next. Although, in common with all exhibitions, the nature of the season will in part determine the character of the exhibition, it may be already spoken of as at once attractive and important, because in bad years we have seen in Edinburgh remarkable displays of grapes and other fruits; and the northern capital is an important centre of horticultural activities. A good season will of course tend more to the success of the exhibition than a bad one, but in any case we fully expect the gathering arranged for in Edinburgh will prove to be thoroughly interesting, and of some social value perhaps to the parties who are more immediately concerned. It is worth considering at this moment, perhaps, whether a special effort for something in the way of a horticultural reunion might not be attempted with advantage. Liverpool possibly has shown how it may be done at small cost both of labour and money, but with real benefit to all concerned, mere feasting being of far less importance than the healthy fellowship that may be promoted on such an occasion.

The season before us promising to be a quiet one—as compared with times when a succession of big things divides attention—it seems to be proper to mention that a great International Exhibition in London is in a certain kind of way a debt due to the world. But times have delayed the date of a performance that all who are interested in such matters agree should "some day" be attempted. It seems to us that the "day" is near at hand. Ideas and projects are intangible, and yet they do not keep well beyond a certain length of time. This idea of an International Exhibition in London has been nursed and discussed, and again and again returned to the shelf. As the engagements of the leaders in horticultural activities will, probably, be somewhat lighter than usual in the forthcoming season, it does appear that the project of a great International Exhibition might be once more taken from the shelf and turned about, and perhaps put in motion instead of going back to the shelf.

LEE AND BLACKHEATH HORTICULTURAL SOCIETY will hold its summer exhibition on Wednesday and Thursday, June 28 and 29.

YORK FLORAL FÊTE will be held on June 14 and two following days, when prizes amounting to nearly £600 will be offered for competition.

GLASNEVIN BOTANIC GARDEN had within its gates in 1881 nearly a quarter of a million visitors. The exact number was 249,911, and of these 187,114 visited the gardens on Sundays.

CELOGYNE CRISTATA ALBA is now splendidly in bloom in Mr. W. Bull's nurseries at Chelsea. This variety differs from the specific form in producing pure white flowers without any trace of yellow, and is a valuable acquisition.

MESSRS. MACKENZIE AND MONCUR, the well-known horticultural builders, of Edinburgh, had the whole of their workshops in Upper Grove Place destroyed by fire a few days since. The damage caused by the fire is estimated at between £7,000 and £8,000, but it is covered by insurance.

THE QUEEN'S SPEECH is vague and general, and gives no substantial promise of legislative attention to rural affairs. Egypt, India, and Africa claim special attentions. The Commercial Treaty with France is still an open question dragging its slow length along. Ireland is the subject of constant concern, but no new legislation is proposed for the unhappy country. It is intended to grapple with the great subject of the municipal government of London, and county affairs are recognized as demanding prompt attention, with a view to the improvement of financial administration, and a readjustment of Imperial taxation and local charges.

PUBLIC PARK AT BARCELONA.—The *Illustracion Española*, of Madrid, in a recent number gives a series of illustrations of the new Public Park at Barcelona, which has been some years in progress and is now completed. It consists of about one hundred English acres on the site of the old fortifications, which have been laid out something in the style of the Bois de Boulogne, with fountains, flower beds, shrubberies of orange and lemon trees, grottoes formed in the old military works, an aquarium, &c. The work is a hopeful sign of Spanish progress, and from the capabilities of climate and site ought to be one of the most beautiful in Europe.

THE CATALOGUE OF FOUR HUNDRED VARIETIES OF POTATOES in preparation for our issue of the 25th of this month will be founded on the synoptical list published by us last year. But it will be enlarged, improved, and corrected to such an extent as to constitute it, for all practical purposes, a new, truthful, exhaustive, and therefore, so far as we can at present judge, final revision of names, and characters, and relative values. The synoptical list was founded on accumulated notes of our own experiences and observations. Occasional reference to it has made us, step by step, sensible of its defects, and of course anxious for their expurgation. The catalogue preparing for the 25th will, we believe, prove to be of unquestionable accuracy, and of immense value as affording immediate and abundant information in respect of all the varieties named, while remaining as a trustworthy record for future reference. On the publication of the list last year it was remarked by many that a list of synonyms was much needed. This we have now endeavoured to supply. The task however is attended with much more difficulty than those unaccustomed to such labours can imagine. It is moreover attended with serious responsibilities, that cannot be held lightly by any one possessed of proper self-respect. Our list of synonyms comprises 150 names that are either spurious or insufficient. By "spurious" we mean names invented to obtain for an old variety a new character and a new price. By "insufficient" we mean names given to genuine seedlings that are not distinct enough to be worthy of names. These two catalogues will deal with 550 names in all, and all the recognized precautions of index makers have been observed, in order to ensure perfect accuracy. The lists will be printed in a form to adapt them for insertion in the garden book.

ON THE CULTURE OF THE PANSY.

By JAMES DOUGLAS.

MANY persons may exclaim, Everybody knows how to grow pansies; as well write an article on the culture of early spring cabbage. Be this as it may, there is even a good and a bad way of growing cabbages, and it is quite certain the pansy is not nearly so well grown nor so often seen in gardens as it ought to be. These pretty flowers recommend themselves to our notice by the brilliancy and variety of their colours, and when grown in suitable soil and the treatment is right, by the length of time they continue in flower. Besides all this, no plant is easier to propagate either from cuttings or seeds.

The pansy has for generations been esteemed as a cultivated plant in Britain. A gentleman, writing about the culture of the pansy more than fifty years ago, states that in six years "200 very handsome and distinct varieties had been raised," and an immense number were cultivated for sale at that time. We regret the loss of many of the choice varieties of polyanthus, carnations, ranunculus, pinks, &c., cultivated half a century ago; but there were also many fine varieties of the pansy, rich and varied in colour, if they were not so large nor so round as we have them now. One was described as having five distinct colours: "the two upper petals were deep purple, the two middle ones were of pure white with a light blue or azure-coloured blotch on each, and the bottom petal near the eye, as far as the pencil-lines extend, was of deep orange; the remaining part was buff, with a triangular purple spot at the end." Such flowers as that described above would vie with the best of the fancy varieties now in cultivation. Some of us can well remember the time, about a quarter of a century ago, when the Belgian or fancy section were introduced to this country. They were at first but lightly esteemed by the old school of florists, who fondly clung to the selfs, the yellow and the white grounds, but very gradually at first; and then by

leaps and bounds the fancy varieties have been improved until they are as good as, and perhaps surpass, the old-established varieties in form, while, as far as richness of colouring is concerned, they greatly surpass them.

The cultural requirements of the pansy are simple enough, either for pot culture or to plant them out in the open air. In order to perfectly enjoy them early in the year, some of the choicest varieties should be grown in pots and protected in cold frames. If this system of culture is determined upon cuttings should be prepared in July at the latest, and the plants must be potted up in September. A single plant, if it is large, may be put in a large sixty-sized pot, or two small ones may occupy the same space. When the plants have well filled these pots with roots they should be shifted into six-inch ones, and they must be placed very close to the glass in cold frames, and air must be admitted very freely whenever the weather is mild. As the plants increase in size the growths must be pegged over the surface of the soil. To produce a dwarf bushy specimen perfectly furnished with healthy green leaves, which in a well-cultivated plant should hang over the rim of the pot, the soil ought to be rich loam. Cow manure is the best for the pansy; a fourth part of that, and as much leaf-mould, with some sharp river sand, will be the best compost. They will flower in mild weather during the winter, but they cannot be expected to make much show until March, when they will flower freely for two months. If good blooms are specially desired all the year round, a succession of young plants must be propagated at intervals of three months, and the plants must be grown in well-prepared beds. Our plan is to trench the ground to a considerable depth—say, two feet—if the nature of the soil will admit of it, working in plenty of rich manure, and if the soil is heavy some leaf-mould will greatly benefit the plants. October is a good month to plant out for spring blooming, but it is necessary to make sure of not losing any varieties entirely by potting up one or two of each sort and wintering them in cold frames.

Green fly is a very troublesome pest to the pansy, and especially so when the plants are grown under glass. They can be quickly destroyed either by fumigating with tobacco smoke or dipping in a solution of soft soap or diluted tobacco water. The varieties of really good pansies are now so numerous that it is almost invidious to particularize them. Messrs. Downie and Laird, of Edinburgh, have for many years been successful raisers, and annually introduce some sterling sorts. Mr. Hooper, of Bath, has also been remarkably successful as a raiser, and within the last few years has given us some good blue varieties; also some good black and yellow selfs. There are other raisers in the field doing good service no doubt; but I do not happen to know so much about them as I do about the work of those two firms.

HOW TO RAISE CLIANTHUS DAMPIERI.

THIS splendid plant has probably given rise to more vexation and disappointment than any introduction of recent years. Much of the imported Australian seed is entirely without vitality, and of the few seeds which may chance to vegetate not one in fifty reaches the flowering stage. A German cultivator, Mr. Louis Vieweg, who has been very successful with this plant, has published some instructions of which the following is a translation:—

"About the end of March I place the clianthus seeds between two pieces of thick moist woollen cloth, which are laid on a small board, and placed on a heated stove or greenhouse flue. The cloths will require to be sprinkled with lukewarm water four or five times daily, to keep them uniformly moist and warm. When the seeds have swelled and softened, it is well to remove very carefully the outer brown skin with a small penknife or a pointed stick. Should there be underneath the skin a gummy substance enveloping the seed, it must be cautiously detached with the knife or stick. This viscid matter is often so tenacious that the seed appears unable to extricate itself from the mass, and is, as it were, stifled in its birth. In a few days, according to the degree of warmth applied, the seed will germinate, and must then be removed from the cloths before the delicate radical fibre has buried itself in the woollen stuff (as it will do if allowed to remain), and be planted in a small pot filled with the following compost: of peat earth 8 parts, of sand 4 parts, of loam 1 part. These should be intimately mixed, but not rubbed too fine. When the sprouting seed has been transferred singly to small pots filled with the above soil, they should be placed near the glass in a warm greenhouse, and at the appearance of the first true leaves I begin to harden the young plant gradually. If a greenhouse is not available, the pots may be placed in the window of a sitting room close to the light. When the roots begin, about the end of April, to grow round the sides of the pot, it is time to plant them out. If allowed to become more strongly rooted, the roots suffer from the transfer from the pot to the open ground, becoming black and decayed, owing to which the plant dies off by degrees. It has sometimes happened that the plants have been ready before the weather was sufficiently warm to permit of their being planted out, and from being kept too long in the pot have entirely failed.

"In selecting a place for planting out the clianthus, preference must be given to a sheltered sunny position, where it will be protected from the wind, and when growth has commenced water must be copiously given. Sunshine and water are in fact the two chief conditions of success. This need of warmth, especially at the root, suggested to me the idea of constructing against or near a wall with a south aspect a terrace of rough stone, two feet wide and one foot in height. This terrace I filled with a compost made of 4 parts of hotbed manure, 3 parts of loam, and 1 part of sand, all old and thoroughly rotted, and in this I planted the clianthus at the beginning of May, where it succeeded admirably, owing to the soil about the roots becoming warmed by the sun's rays. The *Clianthus Dampieri* only suffers from moisture when it is associated with cold. Cold and moisture are the death, warmth and moisture are the life of the plant, on which account I often water it with warm water. By following this method a favourable result will be ensured."

Tavern Street, Ipswich.

W. THOMPSON.

THE EDELWEISS.

THIS plant has obtained considerable attention within the past few years, owing in some degree to the fame it enjoys as an alpine flower, and in still greater degree to the fact that several adventurous tourists have lost their lives in rash endeavours to obtain specimens from places difficult of access. It is true the Edelweiss may be secured in its native heights without incurring any danger whatever; but the tourists are not all aware of this, and moreover some of them delight to expose their necks to the risk of being broken, and others simply do not know what danger means, and therefore cannot avoid it. But there is a charm in hunting for a flower that has some fame, and a scrap of Edelweiss, or, for all that, of wild thyme or heather, nursed in a pocket-book, may be a frequent and delightful reminder of far-off scenes and of times that hold a sunny place in the memory. Let us not condemn the tourist who comes to grief in search of joy, for, whether he succeeds or fails, the tourist, as a collective entity, is contemned enough, even by tourists when they are not on the rampago.

The Edelweiss is the Lion's Foot aster, *Leontopodium alpinum*, a true composite, though very unlike the typical aster, and seemingly designed

and yet to screen it from heavy rain and very strong sunshine. In August they may be planted out where they are to remain, and this brings us to consider the after culture.

The proper place for the Edelweiss is a sunny part of the rockery. Any good deep sandy loam will suit it, but a peaty soil is to be preferred, and the situation should be somewhat moist, but nevertheless a swampy soil is entirely unsuitable. It is well to select a position in which the plant will be sheltered from heavy rains and the fiercest sun heat of mid-summer; otherwise full exposure is desirable.

When planted in the common border it is likely to thrive, but is also likely to be lost; for it has all the characters of a common herbaceous plant, and shrinks away to nothing in winter. Then, being unseen, it may be destroyed by the all-devouring spade; for winter digging is still permitted in English gardens where there are collections of hardy herbaceous plants, and hence the spade is made a systematic destroyer. However, if the Edelweiss remains undisturbed, the spring will renew its beauty, the grey specks that mark the crowns of the plants will rise and spread, and the silvery plant will reappear in all its wonted beauty.

As the seed may now be purchased at any seed store, many who cannot raise the plants in frames would nevertheless like to grow it. We advise



EDELWEISS, LEONTOPIDIUM ALPINUM.

to puzzle the unfledged botanist. The best-known plants that come near to it in general character are the gnaphaliums and antennarias, of which one known as *A. margaritacea*, a very woolly plant, has been employed as a bedder to afford cheap material for silvery lines. And it may not be irreverent to say that this woolly lion's foot presents a remarkable appearance when grown in a mass, as it often is grown now by choice horticultural spirits, who would be shocked beyond recovery if suspected of the slightest sympathy with beds, or bedders, or bedding of the flowery or leafy kind. For such as may contemplate forming a plantation or large group, it may be proper to say that it rises to a foot or more in height, and forms flower heads five or six inches across. A sufficient space for such growth must be allowed in the planting, for a fine strong growth is always to be desired.

As regards the cultivation there is not much to be done, but it must be done in the right way. The best time to sow the seed is in February or March. It should be sown in pans on a soil consisting of peat, leaf-mould, and sand, or very sandy loam will answer where peat is not to be secured. It is well to keep the seedlings in the pans until August, and to let them have careful frame culture, but with plenty of air. It is a point of some importance to allow this plant the fullest possible exposure,

such to prepare a little plot of sandy soil in a sheltered corner, and thereon sow the seed, covering it with a little fine mould and then putting on a handlight. The plants will soon appear, and the handlight must then be placed on bricks or small blocks of wood, to allow of a circulation of air, and after a time be removed entirely. It will be well perhaps to allow the plants to remain until the next spring, and then, when they have begun to grow freely, to transplant them to suitable places in the border.

THE DISEASES OF PLANTS are so nearly allied and sometimes identical with the results of the attacks of insects upon them that a letter from Miss Ormerod, lately printed in the *Standard*, may be quoted in illustration of our proposal that to make the plant grow is of more importance than to attempt specific treatment of the disease. There is a world of wisdom in Miss Ormerod's remarks where she says:—"A large proportion of the so-called 'remedies' are utterly useless—worse than useless—for they waste time and money, and take off attention from the points that are serviceable; and the object of my work, now for some years, has been to gain from practical men throughout the country information of the measures of cultivation or other means, practically and remuneratively applicable, which they found by their experience were serviceable."

CULTIVATION OF VEGETABLE MARROWS.

By JOSEPH MACDONALD.

EARLY CROPS IN FRAMES.

WHERE vegetable marrows are required as early in the season as they can be had, they must be grown in frames with the aid of a well-prepared hotbed, but commencement must not be made until the season has far enough advanced to admit of the plants enjoying a free circulation of air about them. For all ordinary cases the hotbed should be ready to receive the plants in the first week of April, and a heated brick pit is better than a garden frame placed upon a common hotbed. In any case the seed should be sown singly in five-inch pots about the middle of March, and the plants be raised in a cucumber or melon bed. In the meantime prepare the pit for their reception. If they are to be grown in a brick pit fitted with hot-water pipes to supply top heat only, a hotbed must be provided on which to make up the bed of soil. This can be done by filling up the pit with fermenting materials, half leaves and half stable manure, previously well prepared, being preferable. This mixture is better than all manure, as the leaves maintain a steadier heat and retain their warmth for a longer period. Where they are to be grown in a frame placed on a hotbed, the bed should be made ready a week or ten days before the time arrives to put out the plants. This remark will apply to the pits also, as time must be afforded for the heat in the bed to rise, and the soil to be well warmed. Three days at least should elapse after the bed of soil is made up before the plants are put out.

The principal point in forcing vegetable marrows is to be very careful in supplying artificial heat; for, until the pit or frame can be freely ventilated, they are very impatient of too much heat. A temperature of 65 deg. by day is a safe point in dull and cold weather, but with sunshine and the frames well ventilated a rise of 10 or 15 deg. is of no consequence. Care should also be taken to maintain the night temperature as regular as the weather will admit. If the heat in the frame stands at 55 deg. in the morning the plants will take no harm. They are also impatient of too much water when forced. If grown in a brick pit heated by hot-water pipes, a small quantity of water should be poured over the walls occasionally to maintain a moderate degree of atmospheric humidity. The leaves may be sprinkled lightly in the evenings of fine days with water heated to about 80 deg. When they are grown in a frame in which the heat is furnished by a hotbed very little damping of the leaves will be necessary before the month of May. The roots must be supplied cautiously with water, but in sufficient quantities at all times to well moisten the soil without saturating it. The water should be of a temperature of about 80 deg. when used.

The regulation of the growth of the plants is very simple. When they have made shoots about eighteen inches long they should be stopped by nipping out the point, which will be all the stopping they will require. Much lateral growth must not be allowed, or they will become too crowded. Overcrowding must be avoided or the young fruit will turn yellow, owing to insufficiency of light and air. In a general way, the shoots should be trained regularly about twelve inches apart, and as they reach the outside of the frame trace those not required back to near the stem, and cut them clean away: nipping the points off will not answer.

VEGETABLE MARROWS IN OPEN BEDS.

It is always best to give the plants a little protection when first planted, as to obtain early supplies the plants should be raised in a warm house or hotbed, which makes them rather tender. A hand-light is sufficient protection until the plants begin to make fresh growth, when the lights should be removed altogether. To secure a vigorous and continuous growth, vegetable marrows require a rich deep soil, or to be planted on a bed specially prepared for them. Much is gained in time by making up a bed with manure and leaves, or any other refuse that will furnish a little bottom heat for the roots. They then start away quickly, and come into bearing sooner. They will grow well in any warm corner, and in most places there are heaps of garden refuse on which to plant them. When planted on these heaps, after they have undergone a little preparation, and if protected for two or three weeks when first put out, a large supply may be obtained with a very little trouble.

The end of April is a good time to sow the seed to raise plants for this purpose, and it is better to raise them in a moderate temperature, such as a cucumber frame in which, owing to its having been made some time, the heat is not great, than in one much higher. The plants will be tender in proportion to the heat in which they have been raised, and it is not desirable to have them very delicate. Very good crops may be obtained, but not quite so early in the season, by sowing the seed where they are to grow; and if there is no better shelter to be had, a few stout sticks placed so as to support a mat; let them have the advantage of that. The second week in May will be early enough to sow the seed in the open ground when no glass protection is to be given. Vegetable marrows very often fail to be productive in dry weather for the want of more moisture at the roots, especially during August and September. Whenever there are signs of the plants decreasing in vigour and producing less fruit in dry weather, it may be safely concluded that they want more moisture at the roots. This should be immediately supplied in the form of a thorough soaking that will reach all the roots. The best varieties to grow are Hibberd's *Prolific* and Moore's *Vegetable Cream*.

VEGETABLE MARROWS ON FENCES AND WALLS.

Training them over a fence or low building is a favourite way of growing them with a good many, and when so trained they are both ornamental and useful. When it is desired to cultivate them this way a suitable bed must be prepared if the ground is any way poor, for this vegetable is a gross feeder, and must have rich soil to sustain a vigorous growth. To ensure the growth covering a wall or building, some assistance must be given them in the way of training. Some feathery pea-

sticks will do for a low wall for them to attach themselves to, but if they are to reach the roof (which must not be a high one) they will require either a framework of wood or some stout string stretched at convenient distances for the support of the growth.

Whichever way they are grown, if the plants are expected to continue producing young fruits for the table throughout the season no large fruits should be allowed to remain on them. If they are allowed to mature fruit early in the season they will be considerably weakened, and the supply will later in the summer be much reduced. If two or three large ripe fruits are required, it is better to allow them all to grow on one plant: this will prevent the others from being checked.

TALLIES.

In Kew Gardens, Museum No. 1, Room No. 2, Case 113, "*Salicinia*," are two "*Exchequer tallies made of willow-wood*," dated respectively 1785 and 1822, together with a framed and glazed broadside "*dedicated by permission to the Right Hon. Sir Robert Peel, Bart., Chancellor of the Exchequer*," and consisting of three lithographed representations, full size, of "*the Exchequer tally, fac-simile from an original*." The upper lithograph represents the "*face of the tally*," back sum £534 15s. 4½d., front sum £1,000 0s. 0d." The face of this tally is inscribed, "*Lord David Parry Ar. Gubernat. Barbadoes denar. resolut. P. manus Abrah. Newland Ar. Capita de Capsar. Collyb. Anglican, Mag. Brit.*" Below this is "*the counterfoil, showing the test, or day of payment*;" and again below this, the "*section of the tally, showing the counterfoil split off*." This latter is, however, not a section, but a perspective view, showing the notched front of the tally in question. Then follows this "*printed explanation*:"—

"The recent destruction of the two Houses of Parliament in consequence of the burning of the old Exchequer tallies and foils, or counterpart, in one of the stoves of the House of Lords, and the disuse of the ancient forms of keeping the Exchequer accounts, renders the tally an object of considerable interest. The first establishment of the Exchequer, like most of our earlier institutions, is involved in great obscurity. It is most probable that some establishment of the kind had been in use before the Conquest, but there is no doubt that it was entirely remodelled by King William the Conqueror after an institution of a similar nature that had long existed in Normandy; but as the Norman and English Exchequers, in many instances, differed materially, it seems probable that William retained some of the Anglo-Saxon customs and engrafted such of the Norman ones upon them as were then applicable to the English nation; and thus founded an institution that has remained, with comparatively little alteration, to the days of King William IV. The name of Exchequer is generally supposed to be derived from the word *Scaccarium*, a chequered cloth, on the squares of which it was anciently customary to reckon money paid or received. A chequered cloth covers the table of the Court of Exchequer to the present day. The tally was coeval with the Exchequer, and comes from the old Norman word *tallier*, to cut. It was devised as an acknowledgment for money paid into the king's receipt of exchequer, and as a guarantee against fraud; for both which purposes it was admirably contrived, and nothing can be conceived more primitive nor yet better adapted for the uses of an age when the art of writing was almost a wonder and printing was unknown.

"A thick stick, resembling a hedge stake, of hazel, willow, or alder, varying from eighteen inches to four feet long, was put into a vice and roughly squared. On one side was written in Latin the name of the accountant and for what service the money was paid; on the opposite side the same particulars were written. On the other two sides were written, in front, the test or day of the payment, and the year of the reign of the king, and on the back the word *sol.*, a contraction for *solutum*, signifying that it was a tally for money paid, and in contradistinction to the *pro.*, certain tallies being called *tallies of pro.*, denoting the issue of money out of revenues belonging to the first fruits of the clergy, payable by their receiver-general; and on these two sides the sum paid in was represented by notches of various sizes cut in the wood, each size denoting a certain amount. Thus, a notch of the largest size stood for M, or £1,000; one next smaller for C, £100; the next for XX, £20, or a score; half a notch for X, £10, or half a score; a notch of a different shape for £1; another for 10s.; another for 1s.; a stroke for 1d.; and a small hole or point for ½d.; and q. for a farthing. . Thus written upon and notched, the stick was put upon a strong block, and on one of the written sides, about three inches up, a short thick knife was placed diagonally, and struck with a heavy mallet, cutting the wood half-way through; the stick was then turned and the knife inserted on one of the notched sides, at the diagonal cut, when two or three sharp blows split it down to the end into two parts, one part having exactly the same writing and the same notches as the other. Being thus cleft, one part, called the *tally*, was delivered to the party, the other part, called the *foil*, or counterpart, remained in the office of the Exchequer. [With reference to the above drawings, the following translation may be permitted:—From David Parry, Esq., Governor of Barbadoes, for money repaid by the hands of Abraham Newland, Esq., Chief Cashier of the Bank of England, Great Britain. The sum expressed by the notches is £1,534 15s. 4½d.] Of the many payments made into the Exchequer some were very curious. A tally is in possession of the publisher for the sum of £550, paid 'by a person unknown for conscience' sake.' The difference in amount is equally curious. A tally has been struck for a single farthing, and is still in existence, while to represent a million it required forty tally sticks, as no character was used to express a higher number than one thousand, and not more than twenty-five notches were put upon one tally or receipt, except upon some extraordinary occasions. The death-blow was given to the existence of the old tallies by the Act 23 Geo. III. c. 82 (1783), which enacted that after the death or surrender of the then two Chamberlains of the Exchequer, instead of the old tally an indented cheque receipt should be substituted, which did not take place until the 10th of October in the year 1826, from which time the use of the old wooden tally was discontinued; and it is well worthy of remark, that from the time of the first introduction to the year when they ceased to exist, a period of more than seven hundred years, the forgery of a tally was never committed."

There is no name of printer or publisher to the above account.

ALBERT HARTSHORNE, in *Notes and Queries*.

FRAME CULTURE OF THE MELON.

By WILLIAM COLE, The Grove Vineyard, Feltham.

IN the production of melons of first-class quality a comparatively high temperature is a prime necessity from the time of sowing the seed to the fruits attaining maturity. It matters not whether the heat is derived from the sun or provided by artificial means, warmth the plants must have; and those who are led to believe, from reading high-flown descriptions of crops brought to perfection without artificial heat, that melons can be properly ripened in a low temperature will sooner or later meet with disappointment. Some kinds are harder than others, but the hardiest are by no means the best in quality, and there are not many cultivators who will not readily agree with me that a melon of inferior quality is one of the most obnoxious fruits that could be put on the table. Attention is directed to this important point in melon culture at the outset, to impress upon readers the fact that good melons cannot be had without the plants receiving some assistance from artificial heat, unless the summer should be exceptionally hot. Further, to show that those who would grow them with the least possible expense, and are not particular as to the time of the crop attaining maturity, should commence at a time that will enable them to take full advantage of sunshine during the hottest months of the year—that is to say, they must begin early enough, and not before, for the plants to be strong enough for bedding out at the end of April or early in May, when the sun has considerable power, and with the assistance of a good hotbed will be able to maintain a suitable degree of warmth.

Those who have the command of efficiently-heated pits or houses, or a plentiful supply of fermenting materials, may of course commence at any time that will suit them after the new year is fairly in; but for those who have to carry on their work with a small quantity of stable manure there is no better period in which to make a beginning than the last fortnight in March. The first step will be to obtain and prepare a quantity of stable manure, and leaves if they are available, to form a bed four feet high and three or four feet longer and wider than the frame to be devoted to the melons. The frame should consist of not less than two lights of the usual size, and as a bed for a three-light frame can be made up with about one-fourth more manure than is required for one with two lights, a frame of that size should be employed when practicable. When both manure and leaves are available they should be mixed together in about equal proportions, and the bulk may be further augmented by the addition of any littery hay or straw that is available. But if there is any considerable quantity of the refuse in proportion to the other fermenting materials, the bed should be a foot deeper than mentioned above, and be fully four feet wide. When the crops are to be grown in brick pits, sufficient fermenting materials must be provided to fill them to within about twelve inches of the glass when the bed has been well trodden. In cases where the pits are deep, and the fermenting materials small in quantity, a layer of faggots or brushwood may be put in the bottom, or a temporary platform of rough boards may be formed. In preparing the manure it must in the first place be well shaken out, and if at all dry have a few cans of water thrown over it to promote fermentation, but no water must be used unless really necessary, and then only in sufficient quantities to moisten the materials without making them wet. In some cases it will be necessary to pour a little water on the materials or a portion of them as they are turned over subsequently, whether they were moistened on the heap being formed or not. The heap will need turning over two or three times according to the freshness of the manure when first taken in hand, and each time care should be taken to well shake it out. From ten days to a fortnight will be required for the preparation of the materials, and as soon as the heat is moderately steady and sweet the formation of the beds should be proceeded with. In filling pits the bed must be trodden firmly all over several times to prevent its sinking to any considerable extent after the soil is put upon it. The first point in making up the bed on which a frame is to be placed will be to mark out the exact position it is to occupy, and to be careful to have the corners square. The next is to build the sides straight, and to spread the materials evenly as each layer is put on, and to well beat them with the back of the fork. Treading is not necessary, as the frame will sink with the bed.

The frame can be put on at once, and in a day or two the seed may be sown. There is no occasion to wait until the whole of the rank steam has passed off, as when plants are put out, because the pots can be stood upon the surface, and until the young plants are making growth the frame can be ventilated freely both night and day; and in the ordinary course there will be no difficulty in maintaining a perfectly sweet atmosphere after the germination of the seeds, by judicious ventilation during the day and placing at night a thin strip of wood under the lights at the back to raise them about a third of an inch. It is very essential to avoid covering the lights in such a way that the ends of the mats hang down over the outer portion of the bed or nearly touch it when first made up, or immediately after linings have been applied, because of the risk of the rank steam being conducted into the frame, to the serious injury of the occupants. It is in all cases preferable to raise the plants in other structures, and have them strong enough for planting out in about ten days or a fortnight after the bed is made up, and then there will be no loss of time or heat. When this can be done, it will not be necessary to begin the preparation of the materials so soon by a fortnight or so as it will be quite early enough if the plants are put out in the third week in April. In the case of varieties of which the seed is cheap the best course is to sow in small or large sixties filled with light and friable soil, two seeds in each. If both germinate, the weakest of the two plants can be removed as soon as it can be seen which is likely to take the lead. In sowing seed that is more or less expensive or scarce use small sixties, and put one seed in each. By this simple arrangement the trouble and checks incurred by sowing in large pots and then potting off are avoided; and as so few plants are required, even for a large frame, the question of space is not worthy of a moment's consideration.

We have now to consider the question of preparing the compost, and as elaborate mixtures are not required this part of the work is not of a character likely to occasion any difficulty. In the first place, it must be stated that melons do best when planted in sound turfy loam to which but little if any manure has been added, the loam to be rather heavy than otherwise. If the soil is naturally rich no manure will be necessary, otherwise well-rotted stable manure should be added in the proportion of about one barrowful to every five or six barrowfuls of the loam. When manure is used too liberally an excessive luxuriance is promoted, and unless the heat is well sustained throughout, and water carefully applied, the vines as a rule become more or less cankered. The loam will require chopping over moderately, and when manure is added let it be well incorporated with it. In two or three days after the bed has been made up the soil can be put in the frame in the form of a small hill under the centre of each light, or a ridge extending along the middle from end to end. About two barrowfuls will be required for each hill, and the ridges should be about thirty inches wide at the base and eighteen inches wide at the top. Of the two, the ridges are the best, more especially for amateurs who have not much spare time on their hands, as they do not require an addition of fresh soil so soon as is necessary in the case of the hillocks. In all cases the soil must be made rather firm, and somewhat level on the surface. The soil will have become warm enough in two or three days after it is placed in the frame for the plants to be bedded out, and unless the plants are being raised in it the lights may be kept quite closed, or tilted sufficiently only to allow of the escape of the rank steam. Sometimes the bed of fermenting materials becomes so hot as to heat the soil to a dangerous degree, and then the cultivator must keep a sharp lookout for any such contingency. It will be perfectly safe to plant in soil at a temperature of 85 deg., provided it is not likely to rise materially, and in cases where there are signs of the bottom heat rising beyond 90 deg. after the plants are bedded out a portion of the soil should be drawn from the hillock or ridge immediately underneath them, to allow the heat to escape. On the temperature beginning to decline the soil must be replaced and made firm.

Two plants will be required under each light, and they should be put from ten to twelve inches apart. Press the soil firmly about the ball, then water liberally, and keep the frame rather close for a few days, to enable the plants to recover quickly from the check. In bright weather shading will be necessary until they are well established, after which shading should only be employed early in the season, either immediately after a long period of dull weather or when the wind is so keen that sufficient air cannot be admitted to keep down the temperature without some risk to the tender growth. In a very short time they will commence to grow freely, and when they have made three or four joints nip out the points to encourage the production of side shoots. Three or four of the latter will suffice for each plant, and they must be trained out regularly over the frame and have their points nipped out when they reach the sides. After the second stopping laterals will be produced at nearly every joint, and the majority will bear fruit. Of these a few of the weakest should be removed, but the final thinning must be deferred until the fruits have set and made sufficient progress to show that there is every prospect of their swelling up. This is a rather critical stage, and the watering has to be regulated with great care. As a rule, the plants should have a liberal watering just as they are coming into flower, for from that time until the fruits have attained the size of pullet's eggs little or no water must be supplied, or the young fruits will turn yellow and fall off. When the crop has passed this stage select from four to six of the most promising fruits on each, remove all the others, and thin out the laterals, removing a few at a time to avoid giving a severe check. Afterwards keep the lateral growth within proper bounds by stopping the young shoots with the finger and thumb as they make their appearance. This timely removal of the new growth is far better than allowing it to choke up the frame and then cutting it away in a wholesale manner. The shoots bearing fruits ought to be allowed to grow unchecked, as in their case no stopping is necessary. The young fruits should be laid on pieces of tile, and when about three-parts grown place them upon inverted flower pots just high enough to raise them partly above the surface. They must be so fixed that they will not roll off the pots, for when that happens the stems are frequently twisted to a very injurious extent.

The routine management consists in adding fresh soil to the hillocks or ridges as the roots make their appearance, syringing once or twice a day, supplying the roots with water, and regulating the ventilation. The bed of soil should in a general way be completed with about two applications of fresh soil, which must be of the same temperature as the bed when placed in contact with the roots, and each lot should be put to the bed before the shoots have extended far over the sides. The new soil ought also to be pressed firm, and it may of course be put in the frame a day or two before it is put to the sides of the bed. Morning and afternoon are the best time for syringing melons, and if the plants are regularly syringed when the frames are closed in the afternoon red spider, which so often does an immense amount of mischief to melon crops, will not be able to make much headway. At the same time, the application of water overhead must not be excessive.

With reference to the best varieties for frame culture, it will suffice to say that, taking all points into consideration, *Hero of Lockinge* and *William Tillery* of the green-fleshed varieties, and *Blenheim Orange* and *Victory of Bristol* of those with scarlet flesh, are quite unsurpassed.

EPSS'S COCOA.—GRATEFUL AND COMFORTING.—“By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epss has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame.”—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—“JAMES EPSS AND CO., Homeopathic Chemists, London.” Also makers of Epss's Chocolate Essence for afternoon use.—[ADVT.]

SELECT ASPIDIUMS.

THIS immense genus of ferns comprises many that are classed under *Polystichum*, *Cyrtomium*, and *Cyclodium* in Hooker's "Synopsis." It is a section of great importance to the cultivator, and we continue therefore our selection of species and varieties that are especially worthy of cultivation. The family likeness appeals to the casual eye with tolerable distinctness. The sori are sub-globose, and dorsal or terminal on the veinlets; the involucre orbicular, fixed by the centre.

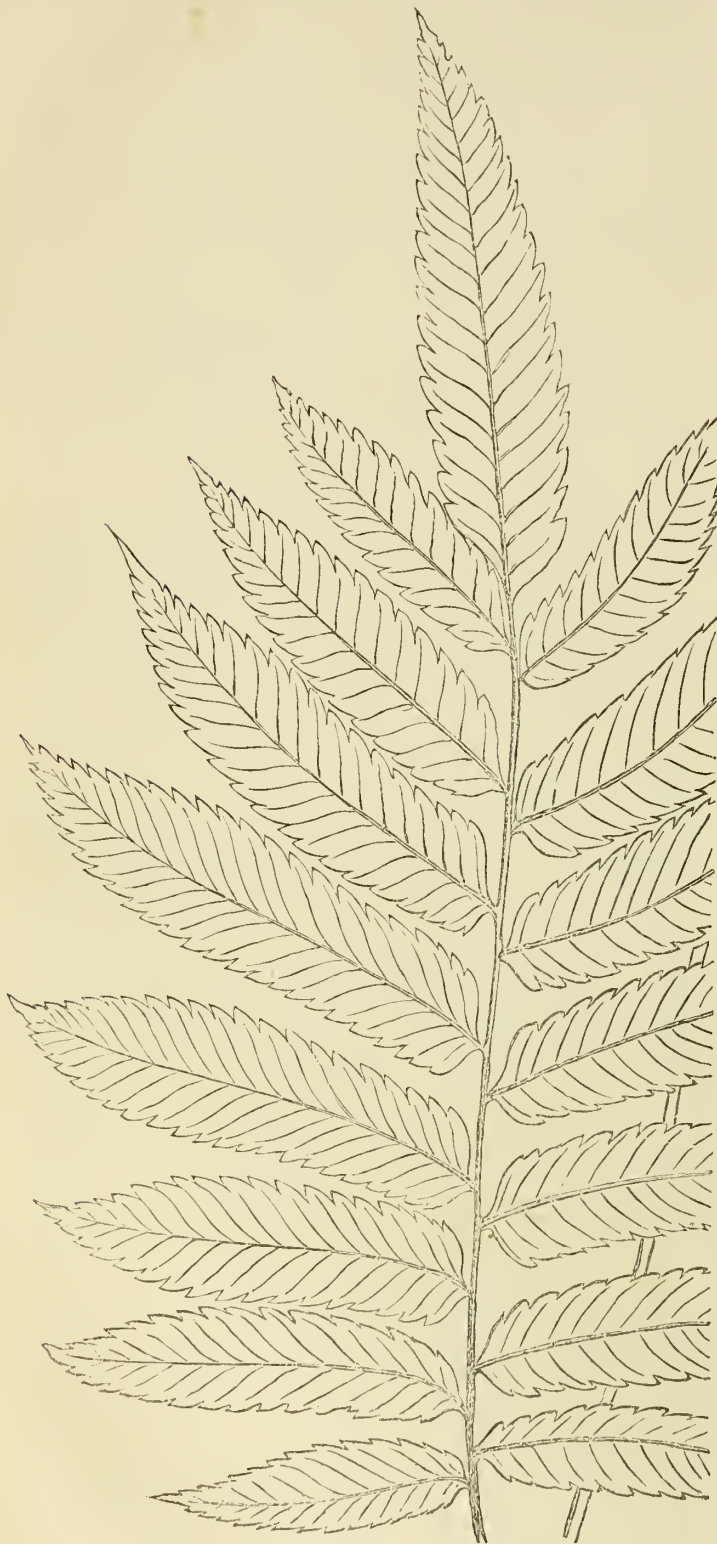
In the sub-genus *Polystichum* the veins are all free, the texture coriaceous, and the teeth are usually rounded.

Aspidium (*P.*) *glandulosum* is a native of Cuba and Jamaica, and therefore requires a stove temperature. It is a bold handsome leafy fern of

oblong or sub-falcate, boldly auricled and serrate. The fertile fronds are densely clothed with sori on the upper half or third of their length, the fructification giving to the under side a rich deep brown colour. This species is a native of North America, and is quite hardy in the English garden.

Aspidium (*P.*) *lonchitis* is a well-known British fern, pretty freely scattered throughout Europe and British America. It is known as the "Holly Fern" and the "Alpino Shield Fern." It is of fine bold habit; the stipes scaly, the fronds very leafy, the pinnae falcately lanceolate and auricled. The fructification occurs on the upper half or third, and is boldly defined in crowded lines of sori, which mark the outlines of the pinnae.

The cultivation of the holly fern is considered difficult, but we have found it a tolerably easy matter to obtain and keep fine examples in the



ASPIDIUM GLANDULOSUM.



ASPIDIUM SPINESCENS.

tufted growth; the fronds rise to from twenty-four to forty inches, the divisions linear oblong, and deeply rounded, toothed; the colour a full grass-green. The sori are small and inconspicuous. Quite suitable for specimen culture.

Aspidium (*P.*) *rhizophyllum* is of tufted growth, smallish, the upper half of the frond lengthened out and rooting. The lower half cut down into oblong rhomboidal lobes; the texture coriaceous, the sori scattered. A pretty fern for the rockery in the warm fernery. It is essentially tropical in character.

Aspidium (*P.*) *acrostichoides* is one of the most distinct, and very Lomaria-like. The beauty of the plant is indeed less striking than its character; the stipes are densely clothed with brown scales, which often present the appearance of spines; the pinnae are in pairs nearly opposite, somewhat distant,

near neighbourhood of the metropolis. If roughly transferred from its mountain home to the lowland garden the holly fern will be likely to perish, and in fact, however treated, strong old plants are always likely to fail when suddenly transplanted into a garden. We therefore propose a course of procedure, simple, but none the less essential, for establishing this fine fern on the open rockery. Secure young plants, handle them with care, so as to keep the roots intact, and pot them in a mixture of mellow loam, fibrous peat, and sharp sand, the loam to constitute fully one-half the bulk of the compost. Give these frame culture for one whole year, to ensure strong and complete tufts of roots. Then turn them out on a body of soil consisting of loam and peat in about equal proportions, and they will be likely to become established without a shock, and do full credit to your care. The

holly fern needs a moist atmosphere, and therefore throughout the summer the plant and the ground around it should be frequently moistened, especially during dry hot weather.

Aspidium (P.) aculeatum, the common Prickly Shield Fern, is one of the best known and most useful of British species, its brilliant colour and richness of fructification rendering it a general favourite. The fronds are bipinnate, the pinnae numerous, divided into elliptic pinnules, those at the base on the upper side larger than the rest.

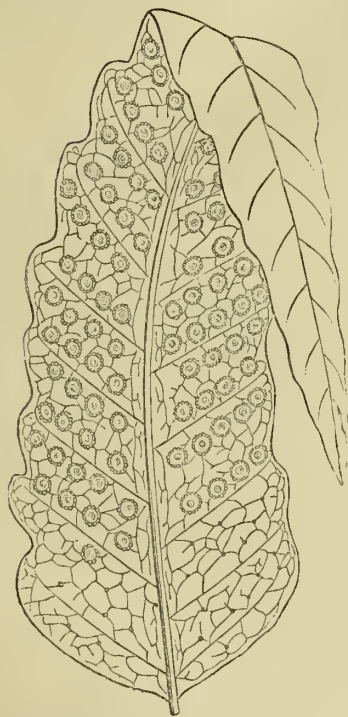
This hardy fern is easily grown, and is a good adornment for the front of a rockery. It is also a good pot plant, and when well grown is useful for decorative purposes on account of its brilliant colour. Moreover, it is one of the best ferns known for room culture, the writer of these notes being acquainted with many fine specimens that have been grown in windows

of the pinnules in the first forms an acute angle, in the latter an obtuse angle, "the point of the angle being not attached directly to the rachis, but connected therewith by a short and slender but distinct stalk." In Hooker's "Synopsis" they are lumped together, a proceeding justified by the gradations between them afforded by tropical forms, of which there are many; while *A. pungens*, and *A. obtusum* are regarded by Hooker as probably referable to the same specific basis.

Aspidium (Cyrtidium) falcatum is one of the noblest of hardy ferns known to our gardens. It is of bold habit, evergreen, the fronds rising a foot and a half to three feet; they are once-divided, the pinnae being ovate-acuminate, slightly rounded at the base, the colour rich full green, the texture coriaceous. The fructification is a conspicuous feature, the sori being scattered over the under side of the frond profusely.



PINNA OF ASPIDIUM FALCATUM.



PINNA OF FERTILE FROND OF ASPIDIUM TRIFOLIATUM.



ASPIDIUM REPANDUM.

during several years, and are always in the best of health. The varieties are numerous, and some of them are beautiful.

Aspidium (P.) angulare is at once extremely beautiful and extremely useful, and the best of the varieties, named *Proliferum*, stands almost alone in its value for pot culture, and as a window plant. One of the more striking characteristics of this species is the rich brown colour of the stipes and scales, which contrast agreeably with the rich green of the fronds. It is a shade-loving species, and likes a good loamy soil. When grown in pots it should be shaken out every year and repotted in fresh soil, and with as much pot room as can be reasonably afforded it.

These two ferns may be readily distinguished, although they are so nearly alike. *A. aculeatum* is more rigid than *A. angulare*, and the base

Although beyond all doubt a hardy plant, it does not answer well as an outdoor fern in the neighbourhood of London. It is however invaluable for all that. As a cool-house and case fern it is unique for its bold character, free growth, and genuine beauty. To speak of its requirements would be almost waste of words, for it grows in any good soil, and will thrive in sun or shade, but the very best place for it is a shady spot in a roomy and cool fernhouse.

Aspidium (C.) caryotideum is a variety of *A. falcatum*, the pinnae of which are usually auricled on both sides.

Aspidium trifoliatum.—A magnificent fern with bold fronds and gigantic fructification, native of the West Indies, and requires stove temperature. The fronds rise one to two feet; they are once-divided, the divisions boldly lobed,

and the basal lobes being very large give to the pinnae, and more especially the lower ones, a trilobed character, which is more apparent than real. The colour is bright grass-green, the texture papery, the sori large, numerous, scattered, and conspicuous. A noble fern when liberally grown.

Aspidium repandum is a noble evergreen stove fern, native of the Philippines. The sterile and fertile fronds differ, the first being of bolder character and less deeply divided than the second; the divisions in both cases are simple, but the lower pinnae are deeply lobed. The texture is coriaceous, the colour a brilliant green, the fructification rich and conspicuous. A robust and splendid species for specimen culture.

Aspidium spinosum is sometimes catalogued as a *Lastrea*; it appears not to be included in Hooper's "Synopsis." In Lowe (vol. vii., p. 6) it is classed with *Aspidium*, and a figure is given from a frond supplied by Mr. Moore. It is a rich fern of free growth, with scaly rhizoma and fronds triangular in general outline, somewhat regularly divided into triangular pinnae, of which in the lowest the basal divisions are out of symmetry by reason of their extra length. Owing to its fine divisions and light cheerful colour it has a davia-like expression, and makes a truly beautiful specimen under good stove culture; but warm greenhouse temperature suffices for it in careful hands.

Aspidium podophyllum is classed as a *Lastrea* and a *Pycnopteris*. It is a peculiarly interesting species, native of Japan, and should have a place in every cool fernery, and in fact may be tried as an open-air fern in those favoured spots of the south and west where the rhododendrons bloom in the depth of winter. The fronds are once-divided, the barren ones having oblong rounded divisions, the fertile fronds oblong and acute divisions, which are almost angular at the base. When in fruit these are extremely handsome, the sori being large, crowded, and of a beautiful ochreous colour. Being as distinct as it is handsome, this should be marked down by every collector as a desideratum.

METEOROLOGY OF 1881.

By H. COURTENAY FOX, M.R.C.S., Stoke Newington.

THE meteorological record of the past year is perhaps characterized by a more than usually varied experience. The temperature curve exhibits in an uncommon degree those sudden fluctuations which are more or less habitual to our climate. Conspicuous on the one hand is the severe frost of January, and on the other the brief spell of almost tropical heat in July, each of which wrought to a pitch of high intensity (though not of long duration) the typical features of winter and summer respectively. Closely following the latter came the heavy rains of August, which spoiled what might otherwise have been a fair harvest; and with them commenced a long period of chilly weather, which extended until the beginning of November. That the winds have been unusually busy during the year will be sufficiently evident if we simply recall for a moment the memorable snowstorm of January 18, the "great gale" of October 14, and also the storm at the end of November, which destroyed the Calf Rock Light, off the south-west coast of Ireland, and for twelve days foiled every attempt to rescue the six men from their perilous imprisonment upon the rock. At the same time, it is gratifying to be able to record that 1881 has been a remarkably healthy year. The mortality throughout England during the first three quarters (the only ones for which complete returns are yet to hand) has been almost, if not quite, the lowest recorded since the commencement of civil registration.

TEMPERATURE.—The mean temperature of 1881 at the Royal Observatory was 48·7 degrees, or 0·7 deg. below the average of forty years. Succeeding to a very warm and moist December, the new year was not long in dispelling the hopes of a mild winter that were being indulged in. Cold weather set in on the 6th January, and continued without interruption for twenty-three consecutive days to the 28th. The mean temperature of the month was 31·6 deg., actually below the freezing point, and 6·8 deg. below the average of former years. This was the coldest January on record since the great frost of 1838. The lowest temperature registered at Greenwich, for the winter was 12·7 deg., on the 17th of this month. It had not been so low as this since Christmas Day of 1878, when the thermometer indicated 12·2 degrees. Evidently, therefore, our recent frosts—severe as they have been—have not equalled in their momentary intensity such a day as the 5th January, 1867, when the minimum recorded at the Royal Observatory was only 6·6 degrees above zero. Yet striking evidence was afforded of the length and keenness of the frost of 1881 by the unwonted spectacle of masses of ice crowding the Thames as low down as London Bridge, and even beyond. The frost broke up rather suddenly about the end of the month, and the first few days of February were warm. These were however soon followed by a return of cold weather, which rather increased as the month advanced. The mean temperature of February was 37·7 deg., or 1·8 deg. below the average of forty years.

Taken as a whole, the winter (from December to February) must be classed among the moderately cold ones (owing to the warm December having somewhat counterbalanced the low temperature of the ensuing month). The mean temperature of the three months was 37·5 deg., or 1·9 deg. below the average. It formed the last of a remarkable group of three severe winters in succession. The first and the last were very wet, and the intermediate winter was a very dry one. In the first and the second the winter set in early with a very cold November, but the chief part of the frost was over by the end of January. The first of them (that of 1878-9) was the coldest; the next one included the coldest December recorded at Greenwich in this century—that of 1879, which was saddened by the unspeakably awful railway disaster of the Tay Bridge. The number of days on which mean frost occurred in these three winters was thirty-nine, twenty-eight, and fifteen respectively; whilst the instances in which entire frost was concurrent with the former were eighteen, ten, and twelve. (On the average of twenty-two years the mean amount to fourteen and the entire frosts to four for each winter.)

March was very warm and genial from the 4th to the 20th, so that only one night frost is said to have occurred in this interval. Then followed a cold and stormy period, extending to the 10th of April, comprising, with but one exception, twenty-one consecutive cold days, and thus presenting a good example of a post-hivernal winter. Not only did March himself "go out like a lion," but the traditional three days which he is said to borrow from April were this time considerably exceeded. The mean temperature of the month was 42·6 deg., being 0·9 deg. above the average. April was a chilly month, its mean temperature, 45·9 deg., being 1·2 deg. below the

average. In May the temperature was variable and attended by sharp night frosts until the 21st. This was directly followed by a fortnight of bright and warm weather, one of those pre-estival summers which are so delightful to the senses, though it may perhaps be questioned whether they are wholly desirable from a purely agricultural point of view, as tending to induce premature ripening of the early crops. The mean temperature of May rose to 54·1 deg., and was 1·5 deg. above the average.

The lovely and promising weather with which June opened was quickly overtaken by a few days of copious showers, attended with sudden reduction of temperature. This dull weather brightened the farmers' prospects, which had been looking very gloomy, in consequence of the long drought of the spring. The mean temperature of June, 58·7 deg., was only 0·2 deg. below the average. July came in very warm; but upon the 6th there occurred another sudden drop in the temperature, amounting to a difference of no less than 17·5 deg. between the mean temperature of two consecutive days; this change being accompanied by a violent storm and nearly an inch of rainfall. From the 10th to the 19th a heat-wave of extraordinary intensity visited London and the Midland counties, but it was less marked at stations to the north and south. The mean temperature of the month was 65·4 deg., and showed an excess of 3·3 deg. over the average. The last instance of a very warm July was in 1876, when the mean temperature of the month was slightly higher than was the case last year. With the close of this brilliant episode on the 19th the really summer-like weather may be said to have been practically at an end. August, the harvest month *par excellence*, proved unfortunately to be cold and wet; just the converse of that of the previous year, but nearly resembling that of 1879. Its mean temperature, 59·1 deg., was 2·4 deg. below the average. There were no fewer than thirty-nine cold days in succession from August 9 to September 16.

Taken as a whole, the summer is to be ranked among the moderately warm ones, its mean temperature, 61·1 deg., being 0·2 deg. above the average. As in the case of the preceding winter, its typical features were of considerable intensity, although of short duration: it was a summer of extremes.

There were four hypertherms, or days on which the maximum temperature reached 90 deg. or upwards, against an entire absence of such high temperatures at the Royal Observatory in the four preceding years. The hottest day of the summer was the 15th of July, when the mean temperature was 79·5 deg. and the maximum reached 97·1 deg. This was the highest temperature recorded at Greenwich for at least twenty-five years, the nearest approach to it having been in July, 1868, when 96·6 deg. was once registered.

From August to October the temperature, with slight exception, remained below the average. The mean temperature of September, 55·4 deg., showed a deficiency of 1·8 deg.; and that of October, 45·3 deg., a further deficit of 4·9 deg. Indeed, this was the coldest October but one back to 1815. From August 9 to November 3 there were only eight days that were above the average temperature. Instead of a fall of six and a half degrees (which is the normal difference between October and November), the mean temperature of the latter month rose to 48·7 deg., or 5·1 deg. above the average, and formed a St. Martin's summer of unusual length. With one exception, there were no fewer than thirty-four warm days in succession from November 4 to December 7. There have been only two warmer Novembers in the previous sixty-six years. December was alternately warm and cold, and its mean temperature, 39·8 deg., showed a deficiency of 0·4 deg. Not a few readers of this paper will doubtless recall some curious instances in which, deceived by the extraordinary mildness of this season, the spring flowers put forth their blossoms, and even the birds built nests and reared their young.

RAINFALL.—Unfortunately the exact amount of the rainfall for 1881 at the Royal Observatory is not susceptible of accurate determination, in consequence of the violent behaviour of the gale during the memorable snowfall of January 18. The Astronomer Royal recorded 0·35 inches for that day, but appended to it the statement that, "it is probable that this measurement fell far short of the amount which should have been collected, in consequence of the snow drifting out of the gauge." So far, however, as it could be ascertained by measurement, the rainfall for the year amounted to 25·2 inches, against an average for sixty-six years of 25·4 inches. Thus it was very different from the last two years, both of which were very rainy ones. The really wet months were only two—February and August. The former of these happens to be, on the average, the driest month of the year. The last three years have however afforded us a succession of Februaries of the "fill dyke" description, and it may perhaps be for this reason that we have not had a very cold February for several years past. The rainfall of the month was 2·4 inches, or 0·9 inches above the average. Except during the first five days of March there was a general deficiency of rain throughout the spring; a succession of north-east winds dried up the ground, rendering it unworkable, and the hay crops suffered from lack of moisture. The season has been described as "brilliant, but heartless; bright, but unkind." March, as a whole, was however a rather wet month, whilst April and May were moderately dry. The rainfall of August was 3·9 inches, or 1·4 inches above the average. There is a proverb current in Spain that "when it rains in August it rains wine or honey." I fear however this would hardly find acceptance amongst the farmers of Britain, to whom August must have proved as unsuitable a harvest month as could well be imagined. The heavy showers and gusty winds drenched and laid the corn mercilessly, and the damage was but poorly compensated by the heavier quality of the root-crops which followed. With the exception of December, which was rather wet, no other month (besides those to which I have just referred) appears to have shown in its rainfall any special departure from the average of former years. Twice during this year the rainfall amounted to as much as an inch in one day, namely, on August 12, when it was 1·3 inch, and on October 23, when it measured an inch exactly. Whatever credence may be due to the well-known tradition attaching to St. Swithin's Day, it may be of interest to remark, *en passant*, that the 15th July could not possibly have been finer, and yet it was followed by heavy rains before the end of the month, and by a weeping August.

The fall of snow at the Royal Observatory was recorded six times in January, and as often in February; four times in March, and twice in April; making eighteen days in the first half-year. There appear to have been but two instances in the latter half, the former of these occurring on November 1.

The presence of fog was noted on nineteen days in the winter (inclusive of three days in December, 1880), on six days in spring, seventeen times in autumn, and seven times in December.

The mean velocity of the WIND considerably exceeded the average of former years. Especially was this so in the three spring months, also in August, and again in October and November. But, on the other hand, January and September would seem to have been upon the whole very calm months. The first six months were characterized by an unusual prevalence of north-east winds, and the opposite, or equatorial, current seemed to be nowhere before May. No fewer than six out of eighteen principal gales of wind had distinct *casting* in them; a much larger proportion than is commonly observed. The most noteworthy storms were—that of January 18, from E.N.E., attended by an enormous fall of fine granular snow of extraordinary penetrating power; a severe gale from February 7 to 11; then a N.E. gale from April 2 to 7. The great south-west gale of October 14 surpassed all that have ever been measured by Robinson's anemometer, its velocity attaining no less than 999 miles in twenty-four hours! Lastly, the end of November and the middle of December were also marked by storms, and the latter of those was accompanied by thunder and brilliant lightning, recalling to mind the old adage—

Winter thunder and summer flood
Ne'er bode the land good.

The readings of the BAROMETER were generally low during the winter, and more particularly in February, which (as we have seen) was a very rainy month. A brisk recovery of pressure took place as the spring advanced, with its dry north-easterly winds; in April the mercury was exceedingly steady, and in May it touched its highest point, denoting the presence of what we may (if we like to use a fashionable expression) term an *anti-cyclone*. The gusty rains of August were attended by markedly low values of the barometer, but after this point the quicksilver rose gradually for the next two months, so that the usual depression which is apt to occur in October was exchanged for high readings in this month. Thereafter the mercury continued to be more or less above the average at Greenwich, though with large fluctuations, until the end of the year.

SUNSHINE.—As compared with the previous three years, the amount of bright sunshine recorded in 1881 was rather over the average, this excess being greatest in May, July, and December. On the other hand, February and September were very dull months; but these were the only ones as to which a real deficiency of sunshine may be reported. The winter (December to February) was a very gloomy one; the mean daily duration of bright sunshine was only 0.8 hour, being 9.5 per cent. of the actual time that the sun was above the horizon. There were fifty-four days in which the Greenwich photometer recorded *no* sunshine. This winter was little more than half as sunny as the last, but it closely resembled that of 1878-9. A brilliant spring succeeded, with a mean of 4.8 hours of sunshine daily, equivalent to 35.0 per cent. of possible sunshine, and almost equal to the spring of 1880. During summer the solar record averaged 5.8 hours *per diem*, being 36.9 per cent. of possible sunshine. It was a much brighter summer than the last two had been, but was not nearly equal to that of 1877. The highest percentage was observed in July, which was the brightest month in the year, and the best July in five years. The registered sunshine was then at the rate of 6.8 hours *per diem*, and yet even this favourable figure amounted to but 42.5 per cent. (or considerably less than one half) of the time that the sun was above the horizon. It is evident therefore that our designation of *possible sunshine* is a term which requires to be understood with some qualification. The autumnal sunshine averaged 2.5 hours daily (23.1 per cent.), and there were twenty-four days of *no* sunshine recorded. Curiously enough, the aggregate solar record has scarcely varied at all for the last five autumns. December, although its daily average was only 1.2 hours, was decidedly the brightest of five years. The fitful manner in which the sun reveals himself was oddly illustrated in the last two weeks of the year; for, while in the former there were between seventeen and eighteen *hours* of sunshine registered, the record for the whole of the next week could muster not more than eighteen *minutes*! There were ninety-two days of *no* sunshine during the year.

OZONE.—This mysterious constituent of the atmosphere appears to have been present in about the same proportion as in the last two years, but to a considerably less extent than in 1877 or 1878. It was extremely deficient in April and May, in spite of the fine weather and the high north-easterly winds of those months. November, on the other hand, showed a decided excess, whether in consequence of the strong south-westerly winds or not it would be hard to determine. If the average of four years may be approximately relied upon, this element (so little comprehended at present in its meteorological relations) would seem to be most abundant in April and May, and most deficient in November and December. There were 143 days in the year in which *no* ozone was manifested.

In concluding this brief review of the principal changes of the past weather, I am aware that many points of interest have been, from the want of time and space, untouched upon. Yet would I hope that it may encourage others to pursue the study of a science of such abiding interest to mankind.

January 31, 1882.

THE COLOUR OF WATER.—The colour of water forms the subject of a recent inaugural dissertation by Herr Boas, in Kiel. After reviewing previous observations, he describes his own experiments, the first of which were qualitative, sunlight being sent through water in a zinc tube about 46 feet long, closed with glass plates. Distilled water thus gave a fine deep blue-green colour; the red was quite gone, the yellow feeble, while the maximum brightness was in the green. Water of the Kiel supply let no light through the length of the tube stated; with half the length it appeared deep orange; blue and green failed. In his quantitative experiments the author illuminated two screens with the same light-source (sodium light or a gas flame), before which was placed red glass, or sulphate of copper solution. The light from one screen went through water in a tube; that from the other along the tube outside. Both beams were brought into a position for comparison by means of total-reflection prisms; the screens were shifted till equal brightness was reached, and from their position the coefficients of absorption could be approximately inferred. The decrease of absorption towards the blue in the case of distilled water is thus clearly shown. Herr Boas further studied the polarization of the light issuing from the water by depolarizing it. It was weakly polarized in a plane passing through the sun and the direction of the beam. Experiments with a view of detecting fluorescence had a negative result.—*Nature*.

The House, Garden, and Home Farm.

AD MATREM.

When the vast heaven is dark with ominous clouds,
That lower their gloomful faces to the earth;
When all things sweet and fair are cloaked in shrouds,
And dire calamity and care have birth;
When furious tempests strip the woodland green,
And from bare boughs the hapless songsters sing:
When Winter stalks, a spectre, on the scene,
And breathes a blight on every living thing;
Then, when the spirit of man by sickness tried,
Half fears, half hopes, that Death be at his side,
Outleaps the sun, and gives him life again.
O Mother, I clasped Death; but seeing thy face,
Leapt from his dark arms to thy dear face.

JULIAN FANE.

THE HOUSE.

OWING to the mildness of the winter, bulbous plants, both in pots and glasses, are much more forward at the present moment than is usually the case at this date, and they should have a light position and enjoy a moderate circulation of air about them to keep the leaves and flower stems dwarf and strong. It is very essential that those who grow bulbs indoors should not overlook the importance of light and air in their cultivation, for when the leaves become drawn at an early stage they fall about when full grown and present an appearance more or less unsightly. Those required in bloom at an early date may be forced without difficulty in a heated frame, which must be placed if possible in a room having a south aspect, and near to and facing the window. A layer of cocoa-nut fibre refuse should then be spread over the bottom of the case and the pots stood upon it. To commence with a temperature of 55 deg. will suffice, but as the plants show signs of growing freely the warmth must be gradually increased until the temperature reaches 65 deg. Watering must be carefully looked after, and from the time the plants are placed in the case until they are put in the ornamental receptacles in the indoor apartments tepid water must be employed. Lily of the valley may also be forced in a small heated case, but it will require a rather higher temperature and a covering of moss or cocoa-nut fibre refuse over the pots until the flower spikes are pushing up freely.

THE GARDEN.

ASPARAGUS BEDS that are being forced should be lined if the heat is declining; the heat ought to be near 60 deg. to ensure a quick growth of eatable shoots. Ground for new plantations should be made ready at once by deep digging and liberal manuring, but the planting must not be done until April, just as the crowns are commencing to make new growth.

BEGONIAS of the tuberous section may be readily raised from seed, and if the plants are required for flowering early in the summer a sowing must be made at once. Sow in pots in an even temperature of about 65 deg., the pots being well drained, and containing a good compost at the bottom, with fine sandy loam on the surface, pressed closely together. Before sowing sprinkle the soil with hot water, and, when cool, sow the seed evenly over the surface. As the seed is always a considerable time, as well as irregular, in germinating, the plants should be pricked off into larger pans or small pots as they become large enough to handle, and for some time afterwards other seedlings will appear in the seed-pan and require transferring. They may then be shifted on as the growth of the several plants may require.

CAULIFLOWERS from the early sowings to be potted in pairs into six-inch pots as soon as large enough to handle. Use a mixture of loam, leaf-mould, and old dung in a state of powder in equal proportions. Make the ground ready at once on which the first lot are to be planted out.

FRUIT GARDEN.—Planting of all kinds in this department must be finished at once, for when this work is left until vegetation commences the trees suffer a considerable check, and make but little progress unless they receive attention in the way of being kept well watered. Finish off the pruning of fruit trees, whether growing in the open borders or trained to walls. In nailing wall-trees use new shreds, and have them long enough to allow plenty of room for the roots to swell when growing.

PINES may have an increase of bottom heat, with liberal supplies of water, and occasional syringing overhead. Put suckers in a tan bed, or a sweet and active dung bed, to ensure a plentiful growth of roots.

POTATO SETS should, as far as possible, be selected for evenness of size and shape; and sets of a medium size are much to be preferred to those that are either very large or very small; but it would add much to the uniformity of the crop if the different-sized sets were planted together. Sets intended for planting should be kept dry, and be placed where they have plenty of air: cellars, sheds, or rooms where good ventilation is not provided should be avoided. These become too warm as spring advances, and premature growth is induced, which is indicated by the long white shoots, which weaken the tuber and result in a late growth. Large whole sets generally disappoint the planter; the reason why they produce so little is as far removed from mystery as that two and two make four. A large set contains a large number of eyes, and the first result of growth is a crowded haulm, and the multitudinous shoots suffocate one another; for it is only when every shoot, and we might almost say every leaf, is fully exposed to air and light, that the growth underground is satisfactory.

RHUBARB occupying quarters that are much exhausted should be taken up and divided and planted again in rich moist soil, every separate piece to have only one good eye. Do not gather this season from the new plantation, but always have a piece one year old to furnish supplies. This method will ensure sticks to be proud of, not only for size, but for colour and flavour. The small high-coloured sorts are the best for home use.

SEED SOWING begins to be a matter of business now, and as regards the work, it should be done nicely and at the proper moment. The ground should be mellow, fine on the top, nearly dry, and even-surfaced. There is a rule more talked of than observed, that the size of the seed gives the measure of the depth of sowing it; but everybody knows that seeds vary, and must be sown many times deeper than the measure of their size. But the rule is useful, so far as it reminds us that large seeds may be put deeper than small ones, and those that are very small should be but slightly covered.

VINES swelling fruit will require plenty of moisture. "Rust," of which frequent complaints are made, is in the majority of cases caused by allowing cold currents of air to pass over the berries when in a very young state; therefore the greatest care should be exercised in the regulation of the ventilation at this early period.

THE HOME FARM.

THE profitableness or otherwise of pigs depends in a great measure upon their management, and in a general way it may be stated that when suitable kinds are selected, the feeding carefully managed, and a supply of garden refuse available for supplementing other food, they will yield a fair return for the labour involved in their management. Animals with large frames are not in a general way so desirable as those of medium size; for in the production of a given weight of meat a greater cost is incurred, and when fat they are of less value, whether for home consumption or the butcher. Especially is it necessary to have a small breed when intended for pork, as that from pigs weighing from fifteen to twenty-five stone is much more delicate than that from pigs nearly double that size. One of the best breeds for bacon is that known as the Berkshire, and for pork the Sussex and Essex breeds are both good. The styes should occupy a sunny position, be sheltered from the north and easterly winds, and have a floor high enough to admit of efficient drainage. The animals should have a liberal supply of nourishing food from the first. A little bran or pollard at each meal, with corn occasionally, is desirable, for when fed exclusively upon vegetable refuse and wash when young the meat is more or less flabby and extremely wasteful when cooked. Dry food should be either boiled or mixed with hot water before it is given to the animals, as it is then more nutritious than when mixed with cold water.

GAS-HEATED GREENHOUSES.

WHEN, after numerous trials, failure after failure has followed attempts to apply a principle which seemed to afford great promise, it is not to be wondered at that a popular verdict of "impossible" is recorded, further attempts are abandoned, and the idea is shelved. The heating of greenhouses by gas affords a case in point. Everybody who knows anything about horticulture cannot fail to be struck with the advantages that gas heating would present over stove or hot-water heating, if certain defects in the application of gas to this purpose could be surmounted. Firstly, as regards stove-heating, the labour, and, more important, the responsibility and risk of stoking, especially of night stoking, would be avoided. A suitable arrangement of gas-burning having been devised and resolved upon, the entire labour of managing the calorific apparatus would resolve itself into turning on the gas at a proper height, shutting the green or hothouse door at night, and letting things rest till morning. Secondly, a properly-devised system of gas-burning within the structure to be heated, involving, as it must, to be properly devised, a thorough and perfect ventilation, presents an enormous advantage over any other system which only secures the necessary amount of heat, ventilation being provided for by some extraneous means. It is not a matter of surprise that gas-heating has so generally failed when we take into consideration the principles violated in this horticultural application. Universally, so far as the writer of this has seen, the mode of utilizing gas for the purpose in question has consisted in the adoption of some variety of gas stove, yielding a smokeless flame, with no provision whatever for conveying away certain invisible and inevitable products of gas combustion. Not merely the public, but engineers, have yet to learn the potential agency of many invisible things. Beyond steam and air in motion (steam, let it be remembered, is invisible when dry), their notions of the potential agency of things invisible do not commonly go. Thus the gas engineer, when he has provided a smokeless gas-flame, and lighted it under a bath, guarantees his customer against all atmospheric foulness. If his conception of the potency of invisible things had been more profound—if he had been brought to reflect on the restricted area of bath rooms and the noxious emanations evolved from a gas flame, however smokeless, he would have been more chary of his guarantee, not needing the evidence afforded by many recorded cases of asphyxia arising from this cause. About four years ago the writer of this applied himself to solve the problem of heating a greenhouse by gas, and succeeded, as anybody else may succeed, by attending to what follows, and putting it into execution. He subsequently, with equal success, applied the same principle to a hothouse. The theoretical proposition was simple enough, viz., to get rid of all combustion products: the permanently gaseous ones by a ventilative current, the condensable ones by downcast tubes perforating the heating and ventilating main at suitable distances. Simple in theory, the solution of this problem was more hard in practice. Not until after many trials, and numerous failures, was success achieved. These shall be specified. The educational value of recorded failures pioneering success is so much more valuable than a bare record of success that it becomes a matter of regret they are not more frequently recorded.

The first resolve was to do away with any form of gas stove. Why not burn the gas at one end of a horizontal main connected at its further end with an upright chimney? The gas-burner adopted was that commonly known as Liebig's, consisting of a drumhead of wire gauze stretched over a cylinder, left open at the bottom, so as to permit a free admixture of atmospheric air. The horizontal heat-distributing and ventilative main first tried was made up of joined lengths of ordinary 4-inch wrought-iron stove pipes. Though horizontal in its general aspect, downward bends or droops, almost imperceptible, were established, and at the lowest part of each a small leaden tube was fixed vertically, so as to give exit to all liquid condensed impurity. The contrivance failed ignominiously. Not only did the sulphurous acid product of gas combustion eat through the sheet iron with a rapidity altogether incompatible with every practical need, but for some reason not obvious at first, but plain enough on reflection, the system would not ventilate. On the first day of erection the draught was bad, and it became worse from day to day.

Abandoning the wrought iron stove-pipe, one of cast iron was substituted. It answered better than the first, but from some cause, not at once evident, the ventilation grew worse and worse. Being taken to pieces, it was found choked with an accumulation of crystals, the mass containing a certain proportion of ammonia-sulphate and ammonia-sulphite, but still more sulphate of iron, it being well known that sulphurous acid, a first product of gas combustion, rapidly changes into sulphuric acid, and it was this which, by attacking the iron, had yielded the crystals of iron-sulphate.

Yielding to this evidence, iron, both wrought and cast, had to be abandoned; equally would it have had to be abandoned for another reason, viz., the too easy heat conductivity of these materials. By accurate thermometric investigation it was discovered that all the heat for distribution had been evolved at a point very short of the upcast pipe or chimney; under which condition there was no draught, as theory indicates there could have been none. Here it may be well to direct attention to the fact that in all cases of heat distribution by tubular radiation provision must be made for conservation of sufficient heat to effect an ascending ventilative column in the upcast shaft or chimney, otherwise ventilation cannot go on.

Having abandoned iron, the third venture consisted in substituting earthenware. Common drain-pipe was tried and succeeded; but sufficient evidence has accumulated favourable to abandoning the use of any sort of tube, substituting in its place a rectangular trunk of brick or terra-cotta tiles. Many advantages suggest themselves from the adoption of this device. First, the distribution of heat would be more equal, being radiated from a larger area; secondly, the larger capacity of the rectangular tile-built chamber would nullify any back current which might be momentarily caused by a sudden gust of wind blowing down the chimney.

As already detailed, the result of substituting earthenware drain-pipe for iron was wholly successful; but some little points had to be studied, and the teaching of study applied before entire success was achieved. It was found, for instance, that full reliance could not be placed on a continuity of equable gas pressure throughout the night, which difficulty was easily solved by using a gas-regulator. Again, many trials, and much thermometric observation were brought to bear on the determination of best effective area of chimney gape at the out-of-door extremity of the chimney. This was accomplished by contracting the extremity of the chimney tube with Roman cement, moulded on from day to day, until a satisfactory result had been achieved. A round gape of 1½ inch was found best adapted to insure maximum ventilation with minimum loss of heat, in the case under consideration. Another detail consisted in finding a suitable material for the gas flare to exhaust the severity of its first shock upon. An earthenware bend at first essayed for this application was found inapplicable, on account of its repeatedly breaking. A cast iron bell was ultimately adopted, and with success. The chemical objections to cast iron, when employed throughout the entire system, reduce themselves to a minimum of practical zero in the case described.

The fact should here be stated that the system of gas-heating now described remained under the writer's personal ken for two years, giving full satisfaction. He learns that it does so still, but the locality is many miles away, and for a long time has not been personally visited.

Finally, it will be here well to impress some pertinent facts on the memory of any one who, having perused this statement, may desire to adopt the expedient. To be successful, the underlying principles which dominate the process must not for a moment be lost sight of. It is no case for application of rough measurements or rough-and-ready workmanship. The shape as well as the dimensions of the green or hothouse must be regarded; also its site, whether sheltered or exposed, whether there are or are not neighbouring erections, the effect of which would be to determine extraneous air currents. The whole case must be treated as one of arrangement of a piece of chemical apparatus. But once settled, always settled. The practical working conditions of gas-heating for any particular structure having been once determined remain constant to the end.

It was not a little instructive on a sharp frosty day to watch the exit chimney and note the torrents of impure watery vapour continuously discharged. Anybody seeing them would never wonder again, if he had wondered before, at the destruction caused by gas stoves in greenhouses. Equally instructive it was to note the foul acid fluid liberated by the downcast exit tubes, and to remember that all this would have been dispersed amongst the growing plants by an ordinary gas engineer having no knowledge of invisible combustion results.—*The Builder*.

PLANTS IN BLOOM AT KEW.

A GOOD specimen of the beautiful and fragrant *Luculia gratissima* has been in bloom for some time past in the eastern wing of the conservatory, where it is planted out in company with camellias. It seems to prefer an open soil, and is easily propagated in summer by cuttings inserted four in a pot, plunged in a gentle bottom heat, and covered with a bell-glass. The young plants when dealt with liberally make rapid growth, and may soon be planted in the positions which they are to permanently occupy in the greenhouse or conservatory. At this dull season they more than repay any trouble that may be taken with them by their beautiful flowers and grateful perfume. At the present time, when the demand for flowers is usually so much in excess of the supply, gardeners should not lose sight of the beautiful lachenalias, especially *L. tricolor* and *L. pendula*. The former may now be seen on the shelves in the conservatory, and bears itself right gracefully in comparison with its stiffer if more gaudy cousins, the forced hyacinths. It is a bulbous plant, and a native of the Cape, whence it was introduced by Francis Masson in 1776. It succeeds well under the same management as hyacinths, but is, if anything, easier of cultivation. An extremely useful plant for producing flowers for button-holes or bouquets at this season is the New Holland evergreen shrub *Leucopogon lanceolatus*. It bears compact racemes of small pure white flowers, which have a decided resemblance to the white myosotis. Among the orchids in flower in the Royal Gardens may be mentioned as worthy of notice two specimens of *Dendrobium aureum* in baskets, which are grandly in bloom, one spike being fourteen inches in length; *Epidendrum ciliare*, a curious-looking species from tropical America; *E. nocturnum*; *Maxillaria scabrilinguis*, a very pretty species, the flowers yellowish spotted with dull red; it has been in flower for more than three weeks, and seems likely to last for some time longer; *Odontoglossum Alexandrie*, so well known and highly appreciated, and *O. Oerstedii*, a rather rare species. A bank of *Cypripedium insignis* facing the entrance to the orchid houses is a noticeable feature. Several large plants of *Angreum virens* are bearing splendid spikes of bloom, and are very attractive. *Pometia planifolia*, *Sophranitis grandiflora*, *Ansellia africana* are also now in flower, and contributing their share to the attractions of the orchid houses. M. M.

PORTABLE POULTRY HOUSES, Movable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railings, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Figgeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

Notes of Observation.

THE SEASON AND THE FILBERTS.

We have passed the month of January, certainly, in this memorable mild winter, and so also have we, strange to say, already—at least in this district—passed the blooming season of our garden filberts. The catkins hung in abundance, and once or twice have I coaxed them to disburse on the strange, still, damp air their showers of golden pollen. But this is not all: the minute scarlet blooms, or female flowers, have also given their (always pleasing) display, and ere the last days of the past month had departed these had done their season's duty, and were passing away into discoloration and old age. Will they—for it remains to be seen—undertake the fertilizing duty and remain *in transitu* until the time for active growth comes round (indeed, can they do so?), or is deprivation of our crop of home-grown filberts and "cobs" for the next season of hope already a *fait accompli*?

WILLIAM EARLEY.

NEW SCARLET GLOBE RADISH.

Among the many fine oval-shaped radishes now in cultivation there is not, according to my experience, which is not very limited, one to equal the New Scarlet Globe introduced by Messrs. Sutton and Sons, of Reading. The name is somewhat of a misnomer, for the bulbs are oval rather than globular, but that is a matter of no importance. The great point is to know that it is elegant in shape, exceptionally brilliant in colour, and of the most delicate flavour. The flesh is of the purest white, and its peculiar crispness and delicacy are retained much longer than by any of the other varieties. In hot dry weather it is possible to procure supplies from the bed of this variety long after the other kinds have become stringy, hot, and worthless. To show that I am not singular in my opinion of the New Scarlet Globe, I would mention that it has been certificated by the R.H.S.

J. W.

AMERICAN WONDER PEA.

It is satisfactory to be able to report the fact that in the American Wonder we have an early pea that is both distinct in character and of the highest excellence, for we are not as yet very strong in the first earlies. As last season was the first year of its being sent out, the price was too high to admit of my giving it a trial on a very extensive scale; but I had three pints, which were sufficient to enable us to subject it to a thorough test. The peas were sown in drills two feet apart on a warm sloping border in the third week of February. They had the usual attention to ward off slugs, and in the first week of June we were able to send supplies to the table. In earliness it is about equal to Ringleader or First Crop; but it is far superior in quality, appearance, and productiveness to that well-known variety. The plants attained a height of ten or twelve inches and branched freely, each branch being well studded with well-filled pods; but the pods were hardly so plentiful as to nearly hide the haulm, as represented in an illustration I have seen. But they were produced quite as thickly as on the plant of which an illustration was published last year, if the average did not exceed the number shown. The pods were well packed with peas, each containing from seven to nine, and the latter when on the table are of a bright green colour, and, in common with other wrinkled sorts, are of the finest flavour. I consider it an important gain amongst the earliest sorts, and have sown it much more largely this year. I have more than doubled my sowing on the open border, and I have a twelve-light pit filled with it, from which I anticipate a liberal supply a short time in advance of the outside crop. Those in the frame were sown in January, and they are coming along remarkably well. I am keeping the frame well ventilated, as the weather continues so mild, to maintain a stocky growth and prevent their coming on too fast. I do not want them much in advance of the outdoor crop, for a long break in the supplies is not by any means desirable. I expect to be able to commence gathering from the frame in the middle of May; and, as the outdoor crop will be ready by the end of the month or very early in June, the supply for all practical purposes will be continuous.

J. W.

TROPEOLUM SPECIOSUM.

This plant has received a good deal of attention during the past two or three years in various quarters, and from the number of inquiries made it seems that it is not a very accommodating subject to grow. Or perhaps I ought to say, it is somewhat particular as to soil. But I can hardly understand how this can be, for it may be frequently seen in this part covering the walls and porches of the country cottages, and very elegant and useful it is. It gives no trouble if it is provided with something to climb to, for when once planted it takes care of itself, as it is quite hardy, and the tubers increase in numbers at a moderate rate. I remember seeing it in fine condition in the autumn of 1880 at Messrs. Wood and Sons' Nursery, near Uckfield, where it had taken possession of an evergreen hedge, and was rambling about in its own way in the most luxuriant health and gaily decked with flowers. As a quick-growing summer creeper it is a capital companion to *Tropeolum canariensis*. Those who have not yet grown it, and wish to do so, should lose no time in having it planted. The tubers are not large, but one about the size of a walnut will produce sufficient growth to cover a large space in one year if well trained.

J. C. C.

FLOWERS IN THE HOUSE.

I have just completed the arrangement of my flowers in the house, preparatory to receiving some friends. The first arrangement consists of three small vases standing on a pedestal about nine inches high. In the centre of each I have a spike of *Calanthe vestita rubra-oculata* surrounded with four trusses of Dr. Denny pelargonium, two sprays of *Acacia Drummondii* with its foliage, the whole finished off with a few fronds of *Adiantum formosum*. The next is a glass dish, which I first filled with sand and then made it just moist with a little water. In the centre I have five flowers of the beautiful hardy *Anemone fulgens* surrounded by a band two flowers wide of the winter aconite: this I think is a really pretty arrangement. A large goblet glass is filled with three pieces of *Iresine Herbstii*, sprays of *Erica Wilmoreana*, and white and red *epacris*, and a deep fringe of Christmas roses, with maidenhair fern intermingled. The *Iresine* and *epacris* stand up well in the centre. Perhaps the prettiest arrangement of all is a companion glass to the last mentioned. This has for a centre a small branch of *Croton Disraeli*, surrounded by five flowers on stems of *Eucharis amazonica*, three red *camellias*, and a fringe of white and red *cyclamens* with their leaves.

LAURA L—.

HELLIWELL'S PATENT SYSTEM OF GLAZING.

Although I cannot write from a practical experience of this particular system of glazing, I should like to make a brief reference to it. I have lately had an opportunity of thoroughly examining two new houses recently erected by Mr. Helliwell, and I have no hesitation in saying the system of glazing is an excellent one. Nearly all the woodwork is covered by glass, which considerably reduces the cost of maintenance, besides the fact that woodwork under the cover of glass must be more lasting. The houses which I saw had a very light appearance, and are substantial. The system differs from other similar patents, as no zinc bars are required to support the glass. Each square of glass in this case is kept in position by two brass clips, which admit of the glass being taken out with very little trouble. I like the principle on which this glazing is done, because we have in the gardens here a large house glazed on a similar principle, and it has given every satisfaction.

J. C. CLARKE.

NICOTIANA AFFINIS.

The white-flowered species of Tobacco have long been favourites, owing in great part to the agreeable fragrance emitted by their blossoms at dusk. They possess the further attraction of concealing their beauty during the period of the day when the sun puts forth his greatest strength, unfolding their flowers only as the day wanes, and producing a startling effect by this contrast of the two alternate phases of their existence. Several species of this class are occasionally met with in cultivation, among which may be named the *Nicotiana undulata*, Vent., recently re-introduced under the name of *N. suaveolens*; the *N. longiflora*, and the *N. acutifolia*, a species to which the present plant seems nearly allied, all of which are desirable plants of the easiest cultivation. The *N. affinis* is believed to be botanically distinct from any of the preceding. It grows about 2 feet high, with erect branching stems, the lower leaves nearly 6 inches long, with winged petioles, the upper ones rather smaller, somewhat stem-clasping, and acute at the point. The flowers are produced near the upper part of the stem, each on a short foot-stalk, and are from 3 to 4 inches long, with a slender tapering tube, inflated near the mouth; and a spreading limb nearly 3 inches across, divided into 5 ovate blunt segments: these are pure white above, but greenish purple on the lower surface, where the purple tint deepens as the flowers fade. The entire plant is clothed with glandular viscid hairs. Its flowers are more or less folded during the daytime, but expand fully at dusk, and then exhale a powerful jasmine-like fragrance. It requires the treatment of the half-hardy annuals, and may be cultivated either as a pot plant in the greenhouse or in the open border.

Tavern Street, Ipswich.

WILLIAM THOMPSON.

A NEW DECORATION.

In referring to the Roman hyacinths, I am agreeably reminded of a charming combination pot for a vase. We take a seven or eight inch pot, crock it in the usual way, and in filling it with soil a four-inch pot is placed in the centre. Seven or eight bulbs of the white Roman hyacinth are planted in the soil between the two pots, and they are plunged in a bed of coal-ashes with the other bulbs in the usual way, and the ashes fill the empty pot. When the pots are taken out of the plunge bed, and the hyacinths forced, and nearly in bloom, the centre pot is withdrawn, and a small plant of *Poinsettia pulcherrima* in a pot of corresponding size is inserted in its place. The combination of pure white and brilliant scarlet is very pleasing, and both the poinsettia and hyacinths will, when placed in the dwelling house, last in good condition for a fortnight at least. *Duc Van Thol* tulips potted in the same way, with a nice little plant of *Adiantum cuneatum* or *A. gracillimum* placed in the middle, as in the case of the poinsettia, are also very effective, and invariably attract much attention.

Cheshire.

W. M.

CAMELLIAS IN SMALL POTS.

You would oblige me very much by allowing me to ask in as prominent a manner as possible whether it is usual for small plants in five and six inch pots of *Alba plena* and *Fimbriata* camellias to drop their buds. I am induced to ask the question because small plants of these two varieties lose the greater part of their buds every year, although I have no difficulty with large examples of either of them. *Mathotiana alba* and other white varieties bloom well in small pots, as also do many of those bearing coloured flowers. Any light that can be thrown upon the matter will be much appreciated by

Cheshire.

W. M.

MEGARRHIZA CALIFORNICA.

Although this plant has scanty claims to notice for its beauty, it is not undeserving of a brief reference on other grounds. As its name implies, it produces under favourable conditions an enormous root remarkable for its bitter flavour. From this arise numerous slender stems, not unlike those of the common bryony, which often reach a length of thirty or forty feet, and are clothed with cordate foliage, palmately lobed, and, when young, somewhat silky, with fine white hair. As in other cucurbits, the flowers are unisexual; and in this genus they are monœcious (*i.e.*, both kinds are produced on the same root), the sterile or staminate flowers being produced on slender racemes of five to twenty blossoms, the fertile, or pistillate ones, singly. In both cases the flowers are about one-third of an inch in diameter, whitish, with rotate corolla. The fruit is singularly suggestive of that of the sweet chestnut, being densely covered with spines, which at first are somewhat soft, but become more rigid, and almost pungent, before maturity. The schoolboys of California are said to amuse themselves by pelting one another with these prickly globes, instead of snowballs, as they readily burst when thrown, and lubricate the recipient with their soapy juices. When fully ripe the fruit becomes a mere shell, containing several very large seeds. The manner in which these seeds germinate is very curious. When buried in a pot of soil, the seed in due time protrudes from its smallest end a stout root, which descends to the bottom of the pot, and develops a thick fleshy tuber, immediately above which the true stem emerges; and eventually the seed also emerges about the surface, still carrying its shell, which the cotyledons have rarely the power of throwing off. The stems perish annually, but the root itself is perfectly hardy in average winters. I raised plants as long ago as 1871, which survived till the recent severe winter of 78-9, and both flowered and fruited perfectly. Home-saved seeds have been raised both by myself and M. Naudin.

Tavern Street, Ipswich.

WILLIAM THOMPSON.

SUTTONS' CONQUEROR TOMATO.

It afforded me much gratification to see that Suttons' Conqueror Tomato was recommended in the very interesting and useful gossip about vegetables which appeared in the GARDENERS' MAGAZINE a short time since. I was gratified, because the variety is not only the earliest, but the best for winter supplies that I have yet grown, and there are not many with which I am not acquainted. At the present time I have a grand crop of fruit of it, and am well able to testify to its value for supplying fruit during the winter. The plants occupy a bed of rather poor soil against the wall of a greenhouse, in which bedding plants are kept, and they are of course trained to the wall. Although we have such a fine show now, the quantity of fruit gathered since last autumn has been simply enormous. I would certainly advise your correspondent G. H. Browne to try the Conqueror. The seed should be sown at once and the plants grown on steadily, and shifted as required. To have them strong by the beginning of June, they ought to be then planted in rather poor soil. I believe that many of the failures in fruiting tomatoes out of doors are caused by either planting them too late or in too rich a soil: there is of course a considerable loss of time when examples that have been kept starving in small pots are put out.

A. W. S.

ROMAN HYACINTHS.

My experience with the blue Roman hyacinth is much the same as that of your correspondent "J. C. C.," as described by him at page 43. I have thought that possibly the blue form might require a course of culture differing from that by which the white Roman hyacinth is had in perfection, but I cannot speak with any degree of confidence upon the point. If it could be improved in the size of its flowers, and be made to bloom earlier, it would be of unquestionable value; certainly it would be more valuable than it is at the present time. I should like to ask whether the old bulbs of the white variety ever flower the second year? They never do so with me. The old bulbs of the ordinary hyacinths bloom fairly well the second year after being forced, but of course the spikes are not like those produced the first season. They are very useful for planting in the borders, and when they are potted several together and forced they are very handy for supplying cut flowers.

W. M.

THE LIFE OF A MICROPHYTE.

A DANISH scientific publication contains some interesting observations on certain phases of microscopic plant-life which deserve attention, but which it may be well to preface by a few words respecting the work in which they appear.

About seven years ago Mr. C. Jacobsen, a wealthy Copenhagen brewer, well known for his enlightened support of science and art, handed over a sum of a million crowns, equivalent to £56,000, in trust to the Royal Danish Academy of Sciences, to be applied partly to keeping up the magnificent laboratories attached to the Carlsberg Brewery in the suburbs of Copenhagen, and partly to the furtherance of independent scientific research. The results of the investigations at the Carlsberg laboratories, which are expressly designed to obtain a more scientific basis for the art of brewing, are published at intervals, under the title of *Meddelelser fra Carlsberg Laboratoriet*, or "Contributions from Carlsberg Laboratory," the two last parts of which contain the observations in question.

In 1878 M. Emil Hansen, one of the laboratory staff at Carlsberg, was engaged on a series of microscopic observations on the organisms floating in the atmosphere of that place, and susceptible of development in wort and beer. It had been found that clear hopped wort, in which all traces of organic growth had been destroyed by long boiling, when placed in vessels likewise boiled, and tied down with paper passed through the flame of a spirit lamp, would keep for a year or more without exhibiting the slightest trace of organic life.

Open vessels containing wort thus "sterilized" were exposed to the air for definite periods (five to eighteen hours) in the buildings and cellars of the old and new breweries at Carlsberg, and in the rooms and offices, and likewise in the gardens of private residences near, the floating matter deposited by the atmosphere on the surface of the wort being carefully analyzed with the microscope in each case. Fifteen sets of observations were made, at as many different periods, from May to December, 1878, the open-air temperatures ranging the while from 78 to 89 degs. Fah. in June and July, to 7 degs. of frost in mid-December. The results, confirming the observations of Pasteur and Tyndall, showed that during this time the atmosphere at Carlsberg was filled with clouds of organisms invisible to the naked eye. These clouds float about incessantly, but are separated by intervals devoid of germs or spores. Different species occurred simultaneously, so that two vessels placed side by side were sometimes differently infected. Bacteria and saccharomyces were, as a rule, much less plentiful than spores of moulds. Certain species were only found in the open air; others only indoors or in cellars. Out of doors the species varied with the season, but not much with the locality. In all thirty-two distinct forms of microscopic organisms susceptible of development in wort or beer were found in the atmospheric dust of Carlsberg and its neighbourhood. The most abundant forms of saccharomyces were *Sacch. apiculatus*, which appeared in August and lasted longest; *Sacch. ellipsoideus* and *Sacch. mycoderma*, the first never occurring in the air of the cellars where the beer is fermented, *Sacch. cerevisia*, or beer yeast, being always most abundant there. Among bacteria *Bacillus subtilis* and micro-bacteria were commonest. Among moulds *Penicillium glaucum*, *Mucor stolonifer*, and *Demat. pullulans* were most plentiful, but the two former were likewise never found where *Sacch. cerevisia* abounded. *Botrytis cinerea*, said to be the cause of a peculiar malady in wine, by which it acquires a smoky taste, was found in September in vigorous growth on the surface of wort exposed in the garden of a neighbouring villa. Several new and undetermined forms of bacteria were noted; also a red saccharomyces and certain peculiar red cells were found on the surface of wort exposed under some cherry trees in the gardens at Carlsberg in the month of October. The question whether the air around particular kinds of fruit trees was marked by the presence of particular microscopic organisms it was found impossible to decide without prolonged isolation of the trees by species.

Next year M. Hansen continued his investigations. Pastour had previously noticed the singular fact that saccharomyces (alcoholic ferment organisms) may always be found on certain kinds of fruit when ripe, but never on the same fruit whilst yet unripe. Hansen's experiments were directed to following these organisms during their periods of invisibility.

Sacch. apiculatus, a curious little yeast always present in various fermentations, but heretofore regarded as of little or no industrial importance, was chosen, as its well-defined and persistent type enabled it to be followed with certainty under the microscope. The experiments with this organism extended through 1879-80. They were made for the most part at Copenhagen (Carlsberg), but partly also in a country garden fifty miles away. They consisted partly of microscopic analyses of soils, atmospheric air, and fruits in all stages, on various sites, from month to month through the year, partly of experiments in cultivating the organism in soil in pots, in and out of doors, and on fruit in germ-free vessels. These observations, which altogether exceeded a thousand in number, led to the following conclusions, which are abundantly suggestive of the part played by microscopic vegetation in the economy of nature.

Saccharomyces apiculatus, a mere aggregation of simple cells, a thousand of which will lie on a pin's head, is endowed with great vitality and a marked individuality. Its tiny cells are capable of resisting great differences of temperature and extremes of drought and humidity. Although their fermentative power is small it is distinct in its character. In saccharine fluids *Sacch. apiculatus*, as the weaker organism, has to give place when *Sacch. cerevisia* (ordinary beer yeast) is present; nevertheless, its action impedes the growth of the latter; and wort fermented exclusively with *Sacch. apiculatus* gives a beer with a peculiar and agreeable fruity flavour. The food of *Sacch. apiculatus* is ripe gooseberries, plums, and cherries, and, when these are out of season, ripe grapes. On such food it thrives and multiplies abundantly, and is carried far and wide by atmospheric currents. At such times it abounds in the air, and finds its way into any saccharine fluids to which access is possible, developing, as far as the circumstances allow, its peculiar form of fermentation therein.* But it is never found on the above fruits when unripe, nor at any time on the fruits of *Pyrus*, *Ligustrum*, *Crataegus*, *Berberis*, *Symphoricarpos*, *Ilex aquifolium*, *Taxus baccata*, &c., &c., nor on withered grapes. Where then is it when its appropriate food is absent? The answer afforded by the experiments is that, like higher organisms, *Sacch. apiculatus* has its appointed times and seasons. When the fruit it loves is beginning to ripen it makes its appearance among floating atmospheric matter, and as the supply of ripe fruit increases its numbers likewise increase. If present in the air at any other season it is speedily effaced by lack of nutriment. At these latter times it may however always be found in the soil under the trees on the ripe fruit of which it lives, although never in the soil under trees of other species, or under herbage, however near at hand. It thrives and multiplies on the ripe fruits aforesaid, choosing by preference those having flaws, which lay bare the sweet juice, and developing thereon fresh generations of cells to replace the old and worn-out. By the action of rain, by wind-fallen fruit, and no doubt by insect agency, these are carried down into the soil at the foot of the trees, and there, thanks to their persistent vitality, they remain dormant, but unchanged in appearance and unimpaired in vegetative power, until the season of ripe fruit comes round once more. And so this infinitesimal plant, whose mission is in all probability but imperfectly understood by us, fulfils its place in creation, accomplishing its periods of existence above and below ground, of vegetation and repose, in ever-recurring cycles.

H. M. C.

Replies to Queries.

Primula.—G. C.—The colour of the flowers appears to be somewhat similar to those of the variety mentioned, but as they had lost their freshness when received we cannot speak positively. Your variety is certainly well worth saving.

Stopping Grape Vines.—Inquirer.—The lateral shoots should have their points nipped out as soon as they have made two or three leaves beyond the bunch. The points of the shoots are to be pinched off immediately above the second or third leaf. If the vines are four feet apart three leaves should be left, but if they have a space of only three feet between them two leaves will suffice. The shoots on which there is no fruit should be stopped at the same length as those carrying bunches. The leading shoots of young vines should be stopped at every three or four feet, to promote the formation of stout canes at the lower part.

Names of Plants.—C. W., Ipswich.—No. 1, *Adiantum formosum*; 2, *Doodia caudata*; 4, *Polystichum Standishi*; 5, *Selaginella caulescens*; 6, *Pteris longifolia*. The other specimens are so small and imperfect that they cannot be named. T. W.—1, *Retinospora leptoclados*; 2, cannot be named without the flowers; 3, *Juniperus communis*. J. S.—1, *Epiphyllum truncatum coccineum*; 2, *Fuchsia splendens*; 3, *Thyracanthus rutilans*; 4, *Euonymus japonicus aureus-variegatus*. J. R. W.—1, *Calanthe vestita luteo-oculata*; 2, *Odontoglossum Rossi majus*; 3, O. *Alexandrae*; 4, *Zygopetalum crinitum cæruleum*; 5, *Angraecum citratum*; 6, *Goodyera Dawsoniana*.

Grape Vines.—Alpha.—A rather strong solution of Gishurst Compound or Nicotine Soap would be the most suitable dressing for the vines, and as they are infested with mealy bug you must be careful to well work it into every crevice. You will not be likely to totally eradicate the pest by the winter washing and dressing, and we would advise you to keep a sharp lookout when the vines are commencing to make new growth, and remove each trace of the insect as soon as it becomes visible. Much may be done in eradicating mealy bug by taking the needful precautions early in the season, before it has had time to spread. When once the pest has been allowed to extend over the new growth very little can be done in the same season in keeping it under without the expenditure of an immonso amount of time.

Sparrows, Mice, and Crocuses.—B. M. B.—You may stay the ravage of your crocuses by the sparrows by systematically feeding the little wretches. Our crocuses are never touched, although we abound in sparrows. The reason is that the impudent gluttons find it pay better to potter about the poultry yard, where there is always something to be found, than to nibble such poor diet as crocus flowers. We do not approve of poisoning sparrows, for it may result in serious disaster to shoot them, trap them, and eat them. As for the mice that devour your crocus bulbs, poisoning is the shortest and safest way with them. Mix flour, fine white sugar, and arsenic; put this in clean pans and cover the pans so that none but mice can reach them. Do this yourself, or put it in the hands of someone you can thoroughly trust, and you will clear off thomice at a stroke.

* To the presence of particular organisms of this description is doubtless due the fact, long known to wine growers, that certain vines begin to "work" when the season comes round for the grapes of which they are made to mature.

Literature.

The Book of Oddities. By WILLIAM ANDREWS, F.R.H.S. (Simpkin).—This delightful little fireside book, by a gentleman who occasionally contributes on historical and archaeological subjects to our columns, bears a very appropriate title, its budget of oddities being the oddest imaginable, and for the most part very much too true. Amongst the amusing contents are papers on people who have been hanged and survived the operation; on female jockeys, singular funerals, odd showers, whimsical wills, &c., &c. The celebrated John Metcalf, of Knaresborough, who though blind became famous as a maker of roads in mountainous and difficult places, is the subject of a well-written biography. As a matter of course, eccentric characters and epitaphs have not escaped the attention of the keen searcher for curiosities. In one of Mr. Burnand's "happy thoughts" occurs the suggestion of a handbook for conversations. Here, at all events, is a handbook for the storyteller and the yarn spinner, and the anecdotalist.

Punishments in the Olden Time. By WILLIAM ANDREWS. (Barnwell, 9, Saville Street, Hull).—The author of the "Book of Oddities" has accomplished a work of considerable usefulness in compiling accounts of punishments in the bad times that are gone, for they are likely to be instructive in the good time coming; for, however well knit and highly polished may be the framework of society, the art of punishing is one of its weakest parts, and we must rest on facts for our theories, as well as the details of carrying them out. As a bit of curious history, the book of punishments is eminently diverting, but as affording a series of psychological studies it is invaluable. Mr. Andrews however, though evidently conscious of all this, has taken care to make it amusing, and an honourable place in the library must be accorded it.

Iconography of Indian Azaleas. By AUGUSTE VAN GEERT. (Faubourg d'Anvers, Ghent).—This is a new monthly magazine of azaleas, comprising portraits and descriptions of selected varieties of the Indian azalea. The first number is occupied with three varieties, namely, *Alba speciosa plena*, *Madame Paul de Schryver*, and *Antigone*. As Ghent is the horticultural home of azaleas, we shall expect this to prove a very important work of its class. It is proper to this notice to say that the English edition, which is now before us, is edited by Mr. Thomas Moore, Junior, of Chelsea, and contains a well-written introduction on the history and cultivation of the azalea.

The Ladies' Gazette of Fashion (4, Ave Maria Lane) is quite "gardenesque" in its illustrations this month, an interesting paper on "Ladies' Work" giving occasion for the introduction of some botanical figures, showing the difference between the natural and conventional styles of decoration. We would venture to hint that the rhododendron figured at page 39, though perfect as a transcript from Nature, represents a very rare and peculiar species, the exact name of which might have been given with advantage. Many readers of the "Gazette" will probably exclaim, "This is not a rhododendron," because they have not before seen one with such contracted bell-shaped flowers; but it is the resplendent *R. cinnabarinum*, which is too tender for the climate of London, and attains perfection in only some half-dozen highly-favoured nocks in the extreme west of this island.

Familiar Garden Flowers and Familiar Wild Flowers (Cassell) continue as attractive and various as ever, Mr. Hulme's pictures being particularly well adapted for the mechanical processes to which they are subjected in order to multiply them for these cheap books. The poppy anemones in Part 36 of the "Garden Flowers" and the wall pennywort in Part 59 of the "Wild Flowers" are to our thinking equal in beauty as prints to highly-finished original paintings. It is not surprising that the demand for these works is reported to be continually increasing.

Paxton's Flower Garden.—Of this fine work the first volume is now completed. The second volume will begin with Part 19. With Part 18 are given title-page and index to the first volume.

From Messrs. Ward and Lock we have received continuing parts of the following:—*Family Altar*; *Devotional Exercises for an Entire Year*; *Dr. Adam Clarke's Commentary*; *Hallam's Literature of Europe*; *History of the World*; *Epochs and Episodes of History*; *Popular Scientific Recreations*; *Household Medicine*; *Becton's Book of Poetry*; *D'Israeli's Curiosities of Literature*; *Universal Instructor*; *Becton's Dictionary of Science and Art*; *Thrifty Book*; *Holy Thoughts on Holy Things*; *Rollin's Ancient History*; *Haydn's Dictionary of Dates*; *Sylvia's Home Journal*; *Illustrated Household Journal of Dress, Fashion, and Society*.

The Life and Work of St. Paul.—By CANON FARRAR.—Messrs. Cassell have commenced the publication of a companion work to Canon Farrar's well-known "Life of Christ," which has already acquired a world-wide reputation. The new work appears to be on the plan of its predecessor, combining the doctrinal and devotional features of the subject with an ample treatment of its historical and picturesque relationships. The new work will be completed in about thirty parts, and by reason of its handsome text and wealth of illustrations will form a noble volume, containing not only the life of the great apostle, but a learned and brilliant commentary on the times in which he lived and the great work he accomplished. The scope and tone of the first part suggest to us that the experienced and learned author has prepared himself for this new task with all the care and thought it is entitled to.

European Ferns, by JAMES BRITTEN, is now completed, and justifies all our praise of it as at once comprehensive, lucid, accurate, and highly attractive. It will stand alone amongst books on ferns for its exhaustive treatment of the species that are of greatest importance to the botanists and cultivators of this country.

Amateur Work (Ward and Lock) merits the particular attention of the inventive and ingenious who cultivate fireside recreations. It is peculiarly original in purpose as well as in particulars. As regards the subjects treated, they range from the making of a fiddle or a filter to the construction of a whole suite of furniture, and all the tools and materials requisite are described and illustrated, with many particulars of the modes of handling them. Part 3, now before us, contains papers on electro-plating, violin making, modelling in clay, manufacture of soap, bar-frame beehive, construction of an organ, photography, boots and shoes, filters, furniture, and other things, and all are treated from the "amateur's point of view," and very abundantly illustrated.

The Household.

OYSTERS.

It is like having a new lease of one's life to learn that "Oysters are very plentiful! Oysters are extremely good! and Oysters are very cheap indeed!" Such is the announcement of the proprietors of the Queenborough Oyster Fisheries, who tell us they have "millions upon millions of oysters of the first quality," and as regards prices "the good old time has come again." All this is gratifying to the eye, and it is to be hoped will prove in various ways gratifying to the appetite and health of very many of Her Majesty's dutiful subjects. Oyster eaters all round the world may be advised of the termination of the oyster famine in London, which begun in the year 1868, and ended in the year 1882, a period of fourteen years having passed over a great city famishing for oysters, and actually bribing the professional oyster openers to exhibit occasionally a few of the empty shells. I could tell of a man, who is playfully profane in his ways, offering one of the servants at "Pimm's" half a sovereign to let him see him open an oyster. That was in days when the price was at its highest. The oyster opener smiled at the joke, and there was an end of it. But if he had taken the offer in good faith and seriously, he would have earned the half-sovereign by the simple process of opening one oyster; for the profane man was in earnest, and prepared to pay for his ridiculous cynicism.

I am reminded of these things by the receipt of a pink pamphlet the Editor has forwarded to me. It is entitled, "All about Oysters," and is published by Mr. H. E. Sterling, 9, Botolph Alley, Billingsgate, London. The price of the pamphlet is not stated on the cover, but beyond all doubt a shilling, or perhaps sixpence, would suffice for the purchase of it. To oyster eaters in particular, and to all gourmands and cooks in general, this paper may be recommended for two reasons.

In the first place, there are many dealers in oysters who persist in charging fancy prices for them. Let the true Ostreaophagist fling the pink pamphlet in the faces of all such, to their present dismay and their future confusion.

Confound their politics,
Frustrate their knavish tricks,

and put them "hors de combat," to bawl like hoarse Fitzgerald, and have at last to live on oyster-shells, because their customers have deserted them. But as the world cannot live without oysters, we must pitch the fancy price men into the sea to furnish food for the "millions upon millions of oysters" that are now in bed waiting to be called up to assist in the breakfast and luncheon of the masters of society. On referring to the books, I learned that dead oyster dealers are of no use to oysters, for these amiable bivalves have an honest aversion to "boko." Never mind, the big sharks can eat the little sharks, and the oysters may be allowed to continue on their delicate diet, which sometimes it appears consists of a beautiful seaweed called enteromorpha, which, when they consume much of it, gives them a green colour, and at the same time explains the exquisite taste of our late great king, George the Second, who preferred his oysters green, and was therefore laughed at by donkeys equally ignorant of oysters and enteromorpha.

In the second place, the pink pamphlet merits attention because it contains "fifty receipts for preparing oysters," and these are very good in their way; but in common with all cookery directions (save alone those published in the *G. M.*) they are too complicated, and make an extravagant amount of work. However, here they are, and they are truly valuable, notwithstanding our general objection. A certain number of them are perfect, and therefore beyond simplification or improvement. Let the oyster cook look to it, and use his and her judgement as to the details. In your issue for April 23, 1881, your contributor "X. Y. Z." gave very simple, but very valuable, directions for the preparation of oyster soup, one of the most delicate and delicious preparations the world affords out of its stores of things new and old. I transcribe from the pink pamphlet directions for preparing oyster soup. They may be useful, and they may, by comparison with the plan proposed by "X. Y. Z.," be interesting.

OYSTER SOUPS.

1. Scald, drain, wash, and beard four dozen oysters, reserving their liquor in a pan; put four ounces of butter into a stewpan to barely dissolve over the fire; mix in four ounces of flour, moisten with a pint and a half of good white stock or milk; season with nutmeg and a pint of cayenne, and a teaspoonful of anchovy; add half a pint of cream, stir over the fire for a quarter of an hour's gentle boiling, and then, having cut the oysters each into halves, pour the hot soup over them in the tureen.

2. Get four pounds of skate, boil it down over a slow fire, with abundance of water, till you have the quantity you require to fill a tureen. When you have made this jelly broth, add salt, spice, &c., to your taste, and, twenty minutes before serving throw in three dozen oysters with their liquor, strained through a fine sieve.

3. Take two quarts of fish-stock; beat the yolks of ten hard eggs, and the hard part of two quarts of oysters in a mortar, and add this to the stock; simmer it all for half an hour; then strain it off and put it and the oysters (cleared of the beards and nicely washed) into the soup. Simmer five minutes: have ready the yolks of six raw eggs well beaten, and add them to the soup; stir it all well one way on the side of the fire till it is thick and smooth, but don't let it boil. Serve altogether.

O. P. Q.

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its natural, and consequently healthy, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Household holders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

Law.

SALE OF A MARKET GARDEN.

IN the Chancery Division the case of *Thurgood v. Oakman* was an action to set aside the sale of a market garden, on the ground that the vendor was at the time of the sale in a state of unsound mind. The garden, which was about six acres in extent, was situate in the neighbourhood of Ponder's End, and was entirely set apart for the cultivation of market vegetables. The vendor paid for the ground £120 a year, and there were nine years of the lease outstanding, and it was agreed that either party was at liberty to terminate the tenancy within two years of the sale. The vendor had died since the sale. The sum of £75 was accepted by the deceased for his business and interest in the market garden, and the family now sought to set the sale aside on the ground that it was improvident, and was disposed of at a price much under its value. The deceased suffered from softening of the brain, and was not therefore, in the opinion of his family, in a fit state of mind to transact any business of an important character. The sale of the market garden took place in December, 1880.

Mr. Higgins, Q.C., Mr. Rigby, Q.C., Mr. J. C. Lawrence, Q.C., Mr. Winn, and Mr. Vernon Smith were counsel in the case.

His Lordship gave an elaborate judgment, and went over the whole facts of the case. He said there could be no doubt that at the time the deceased entered into the contract to sell his property he was quite unable to understand the nature of the transaction, as he was suffering from a disease of long standing, which had produced softening of the brain. In these circumstances the sale could not be regarded as a valid one, and must therefore be set aside. The defendant would have to pay the costs of the action.

Order accordingly.

SALE OF VEGETABLES, &c.

In the Queen's Bench Division the case of *Morgan v. Gordon and Co.* was an action brought by the plaintiff, a saleswoman in Covent Garden Market, against the defendants, the proprietors of the Grand Hotel, Charing Cross, to recover £36 6s. 6d., the value of vegetables sold to the defendants, who denied their liability.

The evidence showed that a certain Hunt, who had absconded, had always while in the defendants' employ been supplied with the money necessary for the purchase of all goods required in the establishment.

On the conclusion of the evidence on both sides,

Mr. Justice Field summed up, and the jury found, in answer to questions left to them by his lordship, first, that Hunt was expressly authorized by the defendants to buy in the markets all such vegetables and fruits as the defendants required for their business; second, that dealing on credit was one of the known and usual terms of dealing in the market, and that the defendants authorized Hunt to buy in the market on credit, although originally their intention was to pay in cash; third, that Hunt was not expressly authorized by the defendants to buy on credit, but that the plaintiff had no knowledge of his instructions; fourth, that Hunt had not been sufficiently supplied by the defendants before making the purchases with sufficient cash in order to pay cash for them. The jury further found that similar circumstances had previously occurred—that Hunt had pledged the credit of the defendants to the plaintiff, and that the plaintiff had given credit to the defendants.

On these findings the learned Judge gave judgment for the plaintiff for the amount claimed.

The trial occupied four days.

LIABILITY OF RAILWAY COMPANY IN RESPECT OF DAMAGE TO PROPERTY SENT TO AN EXHIBITION.

In the Nisi Prius Court at Taunton, Mr. Justice Bowen and a common jury tried the case of *Vincent v. the Great Western Railway Company.*

Mr. Charles, Q.C., and Mr. Bullen were for the plaintiff; Mr. Bucknill and Mr. Austin for the defendants.

The plaintiff is a breeder and exhibitor of pigs, living at Compton Valence, Dorsetshire. In May last he purposed to exhibit a sow, valued at £70, at the agricultural show to be held at Crediton. Mr. Hooper, a neighbouring clergyman, being also an exhibitor of pigs, he and the plaintiff agreed that their pigs should go to the show together. Mr. Hooper made arrangements with the railway people that the pigs should be taken by the Great Western Railway from Maiden Newton to Yeovil and then handed over to the London and South-Western Railway for conveyance to Crediton. On May 24 the plaintiff's sow, which was in farrow, was carefully packed in a crate, on which a direction card was placed, "G. F. Vincent, to Yeovil, thence by South-Western Railway to Crediton." The plaintiff's son went down with it to the station and it was put into a truck with Mr. Hooper's pigs, the truck (which was not a cattle-truck) being left half open at the top. The plaintiff's son and the man in charge of the other pigs were not allowed to proceed by the goods train and came on by the next passenger train, reaching Yeovil soon after 3, but no pig was there. Inquiries having been made of both railway companies, it was found that the Great Western Railway had taken upon themselves to carry the pig on to Durston by their own route, instead of handing over the truck and its contents to the London and South-Western Railway at Yeovil, by whose route the pig would have reached Crediton by midday. The plaintiff's son and the other man then went on to Durston, having at Yeovil pointed out to the Great Western station-master that the truck ought to have been sent by the South-Western Railway. At Durston, between 12 and 1, they caught up the goods train; it was just going on to Taunton. They jumped into the guard's van of the moving train, and at Taunton they were informed that the plaintiff's pig had died at Durston. The tarpaulin, which was right on leaving Maiden Newton, had been put all over the truck in which the pig was, and pinned down all round; one corner was untied, but the sheet was not thrown back. The dead body of the pig was sent on by the Great Western Railway to Crediton, *via* St. David's, Exeter, arriving between 7 and 8 p.m. What ultimately became of it is not known. The sow was a very large specimen of the Berkshire breed, weighing between seven and eight hundredweight. The defendants in their statement of defence, admitted that the pig was suffocated and died at Durston while being carried by them from Yeovil to

Crediton. Then came the following plea, which is probably unique in the annals of special pleading, whether before or since the Judicature Act:—

"The defendants say that the suffocation and death of the pig were not in any way occasioned by any unskilfulness, misconduct, or negligence of the defendants or their servants, but were wholly due to the act of God and natural causes, viz., the unusually hot and sultry state of the weather, and the peculiar and inherent tendencies and weakness and unhealthiness of the pig itself, and its excessive fatness, and consequent inability to travel safely, or to some or one of such causes, and could not have been prevented by any amount of foresight or care reasonably to be expected from the defendants." The defendants also contended that their liability was limited to the sum of £2 under the Railway and Canal Traffic Act, 1854 (17 and 18 Vic., cap. 31, sec. 7), they not having been guilty of intentional misfeasance.

Witnesses were called for the defendants with the view of proving that no definite arrangement had been made as to the route by which the pig should be sent from Yeovil, and that the tarpaulin was in the same position when at Durston as it had been in the morning on leaving Maiden Newton.

It should be observed that Mr. Hooper's pigs were found all but suffocated at Taunton, but were revived after being pumped upon for more than an hour.

The learned Judge, having summed up, asked the jury the following questions: What do you think was the cause of the death of the pig? Was it the negligence of the defendants or was it the pig's unfitness to travel?

The jury found it was the negligence of the defendants, and that the value of the pig was £40. This being a verdict for the plaintiff, the question of law as to the effect of the Railway and Canal Traffic Act was reserved for further consideration before his lordship at the end of the circuit.

Markets.

COVENT GARDEN.

FRUIT.		
Apples.....	per ½ seive	1s. 6d. to 6s. 6d.
Cobs	per lb.	0s. 9d. „ 1s. 0d.
Grapes	„	1s. 6d. „ 10s. 6d.
Lemons	per 100	4s. 0d. „ 6s. 0d.
Oranges	„	4s. 0d. „ 8s. 0d.
Pine-apples, Eng. „	per lb.	1s. 6d. „ 2s. 6d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Asparagus, French, bun.	4s. 0d. „ 6s. 0d.
Asparagus, English, bun.	7s. 6d. „ 12s. 0d.
Asparagus, Sprue, per bun.	1s. 3d. „ 1s. 6d.
Barbe de Capucin „	0s. 8d. „ 0s. 9d.
Beans, French „	1s. 6d. „ 2s. 6d.
Beet „	1s. 0d. „ 1s. 6d.
Cabbages „	1s. 0d. „ 2s. 0d.
Carrots „	0s. 4d. „ 0s. 6d.
Cauliflowers, Eng. „	2s. 0d. „ 4s. 0d.
Celery „	1s. 6d. „ 2s. 6d.
Cucumbers „	0s. 9d. „ 1s. 6d.
Endive „	1s. 0d. „ 1s. 6d.
Garlic „	0s. 10d. „ 1s. 0d.
Herbs „	0s. 2d. „ 0s. 4d.
Horse-radish „	3s. 0d. „ 4s. 0d.
Leeks „	0s. 3d. „ 0s. 6d.
Lettuces, Cabbage, per dz.	0s. 9d. „ 1s. 6d.
Lettuces, Cos „	2s. 6d. „ 4s. 6d.
Mint, Green „	1s. 0d. „ 1s. 6d.
Mushrooms „	1s. 6d. „ 2s. 0d.
Onions „	4s. 0d. „ 5s. 0d.
Onions, Spring, per bunch	0s. 4d. „ 0s. 6d.
Parsley „	0s. 4d. „ 0s. 6d.
Parsnips „	1s. 0d. „ 1s. 6d.
Peas „	0s. 9d. „ 1s. 3d.
Potatoes, New „	0s. 4d. „ 0s. 8d.
Radishes „	0s. 2d. „ 0s. 6d.
Rhubarb „	0s. 6d. „ 0s. 9d.
Salsify „	1s. 6d. „ 2s. 0d.
Seakale „	2s. 0d. „ 2s. 6d.
Small Salading „	0s. 3d. „ 0s. 4d.
Spinach „	2s. 0d. „ 3s. 0d.
Tomatoes „	1s. 0d. „ 1s. 6d.
Turnips „	0s. 4d. „ 0s. 8d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Azalea „	1s. 0d. „ 1s. 6d.
Bonvardias „	1s. 0d. „ 1s. 6d.
Camellias „	3s. 0d. „ 0s. 0d.
Carnations „	1s. 0d. „ 2s. 0d.
Cinerarias „	7s. 6d. „ 10s. 6d.
Cyclamens „	7s. 6d. „ 0s. 6d.
Deutzia „	5s. 0d. „ 10s. 0d.
Epiphyllums „	0s. 6d. „ 1s. 0d.
Eucharis „	5s. 0d. „ 7s. 6d.
Gardenias „	10s. 0d. „ 21s. 0d.
Heliotropiums „	0s. 6d. „ 1s. 0d.
Hyacinths „	5s. 0d. „ 8s. 0d.
Lapagerias „	1s. 0d. „ 6s. 0d.
Lilac, French, per bunch	5s. 0d. „ 8s. 0d.
Lily of the Valley, per doz.	1s. 0d. „ 2s. 0d.
Marguerites „	0s. 4d. „ 0s. 6d.
Mignonette „	4s. 0d. „ 8s. 0d.
Pelargoniums, Zonal, per	1s. 0d. „ 1s. 6d.
doz. trusses „	1s. 0d. „ 1s. 6d.
Primulas, double, per bun.	6s. 0d. „ 9s. 0d.
Primulas, Single, dz. bun.	3s. 0d. „ 7s. 6d.
Roses „	2s. 0d. „ 3s. 0d.
Roses, Tea „	1s. 0d. „ 3s. 0d.
Snowdrops „	6s. 0d. „ 10s. 0d.
Stephanotis „	1s. 0d. „ 3s. 0d.
Tropaeolum „	3s. 0d. „ 6s. 0d.
Tuberose „	1s. 0d. „ 2s. 0d.
Violets „	1s. 0d. „ 2s. 0d.
Violets, French, per bun.	2s. 0d. „ 7s. 6d.

POTATO MARKETS

BOROUGH AND SPITALFIELDS		
Scotch Regents „	per ton	70s. to 110s.
Kent „	„	90s. „ 100s.
Scotch Champions „	„	60s. „ 90s.
Essex „	„	60s. „ 70s.
Roscoff Flukes „	„	110s. „ 115s.
Victorias „	„	70s. „ 120s.
German Reds „	per bag	2s. 6d. „ 4s. 6d.

CORN.—MARK LANE.

Wheat, Red, new „	per qr.	35s. to 54s.
Wheat, White, new „	„	35s. „ 57s.
Flour, town-made whites, per	„	„
sack of 230lbs. „	„	41s. „ 47s.
Flour, households „	„	35s. „ 40s.
Flour, country households, best	„	„
makes „	„	37s. „ 41s.
Flour, Norfolk and other seconds	„	32s. „ 36s.
Barley, Malt „	„	36s. „ 53s.
Barley, Grinding „	per qr.	24s. „ 30s.
Malt, English „	„	35s. „ 50s.
Malt, Scotch „	„	40s. „ 48s.
Malt, old „	„	28s. „ 33s.
Malt, brown „	„	30s. „ 34s.
Oats, English „	„	22s. „ 30s.
Oats, Irish „	„	22s. „ 23s.
Oats, Scotch „	„	21s. „ 32s.
Rye „	„	42s. „ 45s.
Tares „	„	50s. „ 64s.
Beans, English, Mazagan „	„	36s. „ 40s.
Beans, Tick „	„	38s. „ 44s.
Beans, Winter „	„	39s. „ 44s.
Peas, Grey „	„	30s. „ 36s.
Peas, Maple „	„	40s. „ 45s.
Peas, White „	„	36s. „ 41s.

SEEDS.

Mustard, brown, per bush „	9s. to 16s. 0d.
Mustard, white „	5s. „ 14s. 0d.
Canary, per quarter „	45s. „ 50s. 0d.
Canary, fine „	52s. „ 56s. 0d.
Cloverseed, red, old, per cwt.	40s. „ 70s. 0d.
Cloverseed, red, new „	60s. „ 90s. 0d.
Cloverseed, white „	50s. „ 95s. 0d.
Coriander, per cwt. „	23s. „ 26s. 0d.
Hempseed, small, per 336 lb.	34s. „ 36s. 0d.
Hempseed, Dutch „	36s. „ 37s. 0d.
Tares, winter, new, per bush.	6s. „ 7s. 6d.
Trefoil, per cwt. „	13s. „ 32s. 0d.
Trefoil, new, per cwt. „	25s. „ 28s. 0d.
Lyragrass, Italian, per qr. „	24s. „ 32s. 0d.
Rinseed, sowing, per quarter	64s. „ 63s. 0d.
Rapeseed, new, per quarter.	54s. „ 62s. 0d.
Canary, Calcutta, per cwt.	27s. „ 30s. 0d.
Alsike, per cwt. „	50s. „ 90s. 0d.

COAL MARKET.

Beeside West Hartley „	per ton	14s. 3d.
East Wylan „	„	17s. 0d.
Ravensworth West Hartley „	„	14s. 3d.
Walsend Easington „	„	16s. 0d.
„	„	16s. 6d.
„	„	16s. 6d.
„	„	16s. 6d.
„	„	16s. 0d.
„	„	16s. 0d.
„	„	16s. 3d.

MONEY MARKET.

Consols, 3 per cent. „	99½ to 100½
Reduced 3 per cent. „	100 „ 100½

LAMPLOUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sea or Bilious Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff-coloured wrapper. 113, Holborn, London.—[ADVT.]

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland's Odonto, the purest, most fragrant, and non-gritty tooth-powder over made. The hair also may be kept beautifully soft, pliable, and glossy, and its liability to fall during, and become dry during the damp and fog of winter may be arrested by the regular application of Rowland's Macassar Oil. Sold everywhere.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of 10 yrs. at Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths after Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
19	S	Quinquagesima. Shrove Sunday.	7 9	14 2	5 19	7 15	7 48	2 33	2 55	11 58	—	39.2	Azaleas, G.	Various.
20	M	Princess Louise Victoria of Wales born, 1837.	7 7	13 56	5 21	7 39	9 11	3 17	3 37	0 20	0 42	39.3	Eucharis amazonica, S.	White.
21	Tu	Shrove Tuesday.	7 5	13 49	5 23	8 5	10 31	4 0	4 20	1 2	1 25	39.4	Galanthus imperati, H.	White.
22	W	Ash Wednesday.	7 3	13 41	5 25	8 33	11 48	4 42	5 3	1 45	2 7	39.6	Hyacinths, G.	Various.
23	Th	Dr. Binney died, 1874.	7 1	13 33	5 27	9 7	Morn.	5 23	5 45	2 28	2 48	39.7	Iris persica, H.	Blue.
24	F	First Quarter, 9th 31m. after.	6 59	13 24	5 29	9 45	0 59	6 6	6 30	3 10	3 30	39.8	Iris reticulata, H.	Purple.
25	S	Sir C. Wren died, 1723.	6 58	13 15	5 30	10 32	2 1	6 52	7 20	3 55	4 17	40.0	Veltheimia viridifolia, G.	Red.

The Gardeners' Magazine.

SATURDAY, FEBRUARY 18, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

Auction Sales for the Ensuing Week.

MONDAY, FEBRUARY 20, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

TUESDAY, FEBRUARY 21, and WEDNESDAY, FEBRUARY 22, at 12 noon.—Messrs. Protheroe and Morris, at Osborn's Nurseries, Fulham; Nursery Stock, &c.

WEDNESDAY, FEBRUARY 22, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

WEDNESDAY, FEBRUARY 22, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Hardy Trees, &c.

THURSDAY, FEBRUARY 23, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, FEBRUARY 25, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THE ANNUAL REPORT OF THE ROYAL HORTICULTURAL SOCIETY was distributed to the Fellows some days in advance of the general meeting, and was found to be in accordance with the foreshadowing attempted in our leader of February 4. Its appearance in time to be useful, and its hopeful tone and satisfactory record of progress, afford proper excuse for the congratulation of the Council and the Fellows on the evident recovery and advancing prospects of the Society. The Auditors report that "the annual subscriptions of last year show an increase of £213 over the previous year, and of £262 over that of 1879. The resignations of Fellows also show a decrease, a proof that there is a greater feeling of stability among them as to the prospects of the Society." These increments are small, but a corporation with an eventful history will but rarely advance "by leaps and bounds." In the case before us public confidence had been shaken by the intrusion of a powerful party altogether wanting in sympathy with horticulture. But the Society being restored to its legitimate functions, is steadily acquiring a new hold upon public regard, its usefulness is appreciated, its aims are respected, and the number of the Fellows is increasing; and if the monetary means are insufficient—as they are—the tide of affairs is flowing in the right direction, and we are every way justified in cherishing hopeful views. Horticulturists of every grade are interested in its welfare, and those whose means permit are doubtless in some degree bound to enrol themselves amongst the Fellows, more especially as the annual subscription of two to four guineas (at discretion) renders the financial conditions easy enough for thousands of persons who have hitherto kept themselves on the outside of the charmed circle. The direct advantages of Fellowship are sufficiently well known, but the indirect advantages are perhaps but little thought of. It must, however, be advantageous in many ways to assist in the enlargement of the sphere of horticulture, in the improvement of its practices, in the diffusion of useful knowledge and the advance of healthy taste; in rendering the garden, whether private or public, more and more subservient to the happiness of the people and the prosperity of the State. In the uncertainty that prevails in respect of the future of many rural industries, there may be found in the teachings of horticulture some sure light of guidance that those who are in perplexity may with safety follow. The growth of cities and towns tends every day to augment the importance of gardens and gardening, and there is indeed a great work to be done in the reconciliation of trade and commerce with the sanitary and moral necessities of human life. Very much of our activity in manufactures tends directly to the

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lowering of the tone of society as well as to the lowering of the vitality of the hundreds of thousands who are engulfed in the turmoil. We do not say that the Royal Horticultural Society carries in its pocket a panacea for the ills that oppress the social state, but we may with safety say that it ranks high amongst the remedial and corrective agencies, and is capable of continually augmenting benefit to society, in proportion as it obtains the support of persons who cherish a true sympathy with horticulture.

The text of the Report will be found in another part of this sheet, and it will be read with interest. It will be seen that the litigation with the Commissioners of 1851 is not yet closed, but that there is no good reason for apprehending in the result any damage to the Society. The work at Chiswick is carried on with sufficient care and not without some degree of spirit. The trials in progress there at the present time comprehend peas, potatoes, tomatoes, lettuces, raspberries, and several important classes of garden flowers, in respect of which reports will be published in due time.

IS IT MERIT OR NOVELTY THAT DETERMINES THE VALUE OF A NEW GARDEN PLANT? The question has some interest, and will be variously answered by such as are competent to deal with it. Many will say offhand that novelty is everything, *because* most of the new garden plants are of no value at all if judged by merit. Others will declare with equal confidence that merit alone can carry a plant in public favour, and that when merit and novelty are combined the popularity of the plant will be likely to correspond with the twofold attraction. It would be scarcely prudent to move the "previous question," and yet the reader may fairly ask us to declare at starting what we mean by "merit" and "novelty." But we must decline the invitation to make any declarations or attempt any definitions. The meaning of terms in common use must be taken according to common use, and at this moment every reader of these lines knows perfectly well what we mean by "merit" and "novelty." Therefore we may again put the question, Is it Merit or Novelty that determines the value of a new Garden Plant?

It will be admitted no doubt that mere novelty is something in respect of the degree of public favour a new plant may obtain. But we think, when the matter is fairly considered, novelty counts for little and merit counts for much: and *mere novelty* is of such small importance that it is not worth while to acknowledge it as of any account whatever. By dint of much puffing a worthless thing presenting some very novel feature, as for example a blue rose or a yellow pelargonium, might be very widely distributed, but mere novelty would not carry it along: if really worthless it would obtain no hold of public favour, but would go out of commerce as other things do that are forced upon the attention of the world and are quickly discovered to be worthless. There was no more remarkable novelty in its day than a dwarf-growing rose named Louis XIV. When "caught" it was exquisitely beautiful, and being "almost" blue was a decided novelty. But it was soon discovered that to grow the shy thing was more trouble than it was worth, and in one season it came and went like a comet or a talking oyster. The yellowest zonal pelargonium ever raised was one named Hibberd's Orange, sent out some fifteen years ago. The colour was remarkable, but the thing lacked quality, and its novelty of colour would not carry it along. If mere novelty would do, what should we have to say about the common sense of the world? As the case stands, we think we may say that the world knows pretty well what it is about, and will always recognize merit, and will not be slow to recognize novelty also. But the test of the world's appreciation is the money test, and if a thing is not good it will not sell, however striking may be its character as a novelty. The flash in the pan we say nothing about, because that is a conjuring trick, and anybody can sell anything *for a time* by making a sufficiently bright and loud flash. A plant combining merit and novelty advances in popularity in proportion as the public have opportunities of becoming acquainted with its characteristics, and in proportion also to its general usefulness.

It may fairly be asked why we should say anything on this subject if we are so confident of the world's appreciation of a good thing, and of the slight hold upon public attention that can be

acquired by mere novelty. Well, the truth must be told, that there is a perpetual tendency on the part of a few horticultural critics—who for the most part know better, and should show a good example—to deery all new things, while they are new, and take to them with fervour when their newness is overpast. We hear them say with absurd confidence that all old plants are better than new plants; that new varieties of flowers, and vegetables, and fruits are not wanted, because certain old favourites cannot be beaten, and that the few so-called new things are but old things with new names. We have no particular desire to discuss matters with these perfunctory depreciators. They are sometimes in the right, of course, for old things are brought out under new names, and mere novelty is often trotted out as the substitute for merit, and in a word, all is not gold that glitters in the classes apportioned for horticultural novelties. But when a number of worthy men take to depreciation as a trade it must be proper to notice the fact, if only for the benefit of the psychologists.

There happens to be at the command of all who are competent to discuss this question a very impartial and impassive court of appeal. Some qualities of plants cannot be defined with precision, but a very considerable proportion of all the novelties that come before us admit of transference to this court of appeal; and this court of appeal is for ever accumulating data for the service of posterity, in order that, as a court, its functions shall never cease. We will take a few cases into court and ask the reader to accompany us.

To begin then, in accordance with the alphabet, let us take the last new Abutilon. Turn to the books, examine the figures, and if you can find an abutilon as good or better than the one before us—that is, in its particular line of colour and so forth—then the new one must be thrown out as worthless. But you cannot find amidst thousands of figures, all as faithful as clever artists could make them, a single example of an abutilon to match, or even to come near, this novelty. Now let us take a Bouvardia. Here we shall have the same fruitless search. In the matter of Carnations, perhaps, the shades of difference between the best that are figured and the newest of the new will be very slight; but, then, in a large proportion of subjects advances are made slowly and in very small degrees, and it is the reality, not the proportion, of the advance that we are contending for. In the matter of Dahlias, Pelargoniums, Rhododendrons, Potatoes, Peas, and innumerable other subjects, the superiority of the newer kinds is so manifest that we find the systematic depreciators growing them because they cannot do without them, and as we should be sorry to make them uncomfortable by reproaches, we will say no more on that part of the subject. The court of appeal is always open; its decisions will often surprise those who appeal to it, but of its fairness and fulness no proper question can be raised, for it has figured all the varieties at their best in their day, and those that now look ridiculously poor owe their poor appearance in our eyes to our familiarity with things that are much better.

At this juncture perhaps someone will ask, "Are we to purchase and grow all the new varieties because you declare them to be good?" To this we reply that you may purchase and grow as many as you please, and we make no general declaration of the goodness of anything. As regards the practical part of the matter, it is our custom to deal with novelties in detail, which of course is impossible now. We are considering the grounds on which new varieties are to be judged, in the first place by the experts who award prizes and certificates, and in the next place by the public, who encourage raisers by purchasing their productions. And we say that although mere novelty will win attention for an hour, real merit is needed for substantial popularity, and if any of our friends feel this as a rebuke we cannot help it, and we are not much concerned. To those who ask about the purchase of novelties it may be sufficient to say, in the first place, that they are under no compulsion and not very much exposed to the influence of persuasion, and therefore they are always free. And to this may be added the remark that in a large proportion of all classes of garden plants the catalogues of established varieties that command only average prices do comprehend many good things, and therefore those who buy wisely of old varieties will do well. But in respect of garden varieties in a general way, we do move forward in a satisfactory manner, and those who would have the best of everything, whether for pleasure or profit, must keep a constant eye upon the new candidates for public favour that from time to time appear. The man who ignores all new things will in due time find his feet galled through overmuch walking in his grandfather's boots.

MR. THOMAS MOORE'S RETIREMENT.—In consequence of the misapprehension which appears to exist on this subject, we are requested by Mr. Moore to state more explicitly that it is from the co-editorship of the *Gardeners' Chronicle* that he has recently "retired."

NATIONAL HORTICULTURAL SOCIETY OF FRANCE will hold its spring show on March 30 and four following days, its great summer exhibition about the end of May, and the autumn show about the end of October.

MESSRS. WILLIAM PAUL AND SON, of Waltham Cross, Herts., will hold an Exhibition of Camellias at the Alexandra Palace on Saturday next, the 25th inst.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Mr. E. R. Cutler writes as follows:—"I have the pleasure to inform you that the Committee of this Institution have received from the Arthur Veitch Memorial Committee the sum of £800 14s. 2d., being the amount collected to perpetuate the memory of that deceased gentleman. The amount will by the express desire of the Memorial Committee be placed to the account of the Pension Augmentation Fund."

MESSRS. VEITCH AND SONS have prepared a full Index to their excellent "Manual of the Conifere." It fills eight pages, and is so printed that it can be inserted in the volume by any one, and then becomes an integral portion of the work. They inform us that any possessors of the Manual who wish to obtain the index will be supplied on making application to them for it. Since the work appeared we have had frequent occasion to refer to it, and have found it quite an indispensable feature of a horticultural library.

LIVERPOOL HORTICULTURAL ASSOCIATION.—The third annual meeting of this society was held in the Free Public Library a few days since, under the presidency of Mr. J. Richardson. From the report and balance sheet presented to the meeting and unanimously adopted, it is evident that the society is in a very flourishing condition. The members and subscribers now number over 700, and the income, including the balance of £234 8s. 10d. from previous years, amounted to £1,206 4s. 10d. The disbursements were £912 19s., leaving a balance of £284 5s. 10d. or a profit of £50 on the year's work.

BEDDING CALCEOLARIAS.

By J. C. CLARKE.

For several years I failed to secure a good display of calceolarias when bedded out. Although we always put out good plants and made the soil for them rich with manure, the plants would die away in a most mysterious manner and to such an extent that the beds presented anything but a respectable appearance. At that time we kept our plants through the winter in frames as we do now, and at the end of March they were planted out on a south border, and lifted at the usual time and planted where they were to flower.

If the experience of the last two years is any guide, it would appear that planting them in a south border was quite a mistake, for in these seasons they have been all that we could desire. Out of several hundred plants that were bedded out last year and the previous one we did not lose three per cent., and they grew well from the first and flowered in the most satisfactory manner. Our practice now is to prepare a bed of fairly good soil on a north border shaded by a high wall, and about the end of March we put out the calceolarias about nine inches apart each way. I believe overcrowding at this time would result in producing a weak growth and make them more tender. We protect them with some spare frames until the end of April. For the first fortnight after they are in the frames they are kept rather close in cold weather; at other times the lights are taken off both night and day. The chief point seems to be to keep the plants exposed as fully as possible when it is not actually freezing, so as to keep them hardy.

In this way we obtain sturdy dwarf examples that lift with good tufts of roots, and when lifted and planted carefully do not suffer much from being moved. I think it is pretty well understood that the earlier they are planted where they are to flower the better they are likely to succeed; but as in our case early planting is not practicable, owing to the beds being occupied, we devote a little extra attention to their preparation in the manner described. I am inclined to believe that no amount of care devoted to preparing them will avail anything if they are planted later than the middle of May in a poor soil. Where it is practicable, I advise that they should be put out where they are to remain by the middle of April, and if there is danger of morning frost occurring, a few green branches placed over them will afford sufficient shelter.

THE COPIOUS-FLOWERING CRAB.—This is one of the most beautiful of all flowering trees, and, although it has been in the country for some years, is so seldom met with in gardens that its existence would not seem to be so well known as it deserves to be. It is a native of China and Japan, the countries which have done so much to embellish our gardens with quantities of flowering trees, shrubs, and other plants, many of which adapt themselves to our climate quite as well as those that are indigenous to the kingdom. Its flowers are alike beautiful in their different stages of development, before opening, the long, pliant, drooping shoots, densely clothed their entire length with the large crimson-red buds, are equally as effective as are the pale pink fully-expanded flowers which it produces in such profusion as to form complete wreaths a foot and a half to two feet long. It grows to the size of a small dwarf tree, the branches of a weak willow-like character, pendent in habit; and it seems to resist our severest winters equally as well as the common English Crab. Several examples of it that we planted just before the severe frost set in at the close of 1880 have stood in exposed situations completely uninjured, and bloomed in the following spring as if they had not been moved. This *Pyrus* seems to be at home in any description of soil that will grow ordinary deciduous trees and shrubs. It looks the best in the form of a standard, or a straight stem some five feet in height, which allows its drooping shoots to be seen to advantage. This, and others of the *Pyrus* family, might with advantage be much more freely used in pleasure grounds than they are, especially in company with evergreens, the somewhat sombre appearance of which they relieve.—From *Paton's Flower Garden* for January.

Royal Horticultural Society.

ANNIVERSARY MEETING, FEBRUARY 14.

The anniversary meeting of the Society was held in the Council Room on the afternoon of Tuesday last, the Right Hon. Lord Aberdare, president, in the chair. His Lordship was supported at the council table by Sir Trevor Lawrence, Bart., M.P., Major Mason, Dr. Hogg, Colonel Clarke, Mr. G. T. Clarke, Rev. Harper Crowe, and Mr. G. F. Wilson. There was a rather small attendance of Fellows, of whom but few were horticulturists.

After the minutes of the last annual meeting had been duly read by the secretary and signed, the election of Fellows—twenty-seven in number—was proceeded with, and Dr. Masters and Mr. J. Lee were appointed scrutineers of the ballot for officers and members of Council.

Lord Aberdare, in proposing the adoption of the report, which was taken as read, said that the affairs of the society were in so satisfactory a condition that it was not necessary that he should occupy the attention of the meeting for any considerable time. That the Fellows generally were satisfied with the present state of affairs was evident by the fewness of the numbers present, for, although it was generally said that when a man was suffering from adversity his friends deserted him, it was not so with the society, and in proof of this it would suffice to refer to the fact that when the affairs of the society were at its lowest ebb they had the room very closely packed. Before proceeding to refer to those points in the report most worthy of their attention, it was his painful duty to supply an omission in it, and allude to the great loss which the society had suffered in the death of Dr. Denny, who throughout the time he was a member of the Council had laboured most assiduously in promoting the welfare of the society. He had great pleasure in congratulating the Fellows on the steady increase in the prosperity of the society, and would mention that, although there had been a slight reduction in the number of life Fellows, there had been an increase of one hundred ordinary Fellows, of whom fourteen paid four guineas, and the remainder two guineas annually. His Lordship also briefly referred to the litigation with her Majesty's Commissioners, the great advantage the society afforded the Fellows in the distribution of plants and seeds, the Sanitary and Smoke Abatement exhibitions which had been held at South Kensington, the receipts and expenditure, and the horticultural work that had been done at Chiswick during the past year.

The resolution for the adoption of the report was seconded by Mr. Guedella, and on being put to the meeting was carried unanimously. As the result of the ballot, the Right Hon. Lord Aberdare was elected president, Mr. William Haughton treasurer, Major F. Mason secretary, Lord Alfred S. Churchill, Major F. Mason, and Mr. William Haughton, expenses committee-men; Mr. R. A. Aspinall, Mr. John Lee, and Mr. J. F. West, auditors; and Mr. Edmund Giles Loder, Mr. J. H. Mangles, and Mr. William Lee, Downside, Leatherhead, members of Council to fill the ordinary vacancies, in each case unanimously.

ANNUAL REPORT, 1881.

The Council have again to congratulate the Fellows on the increase in their numbers, and in their income, which the past year has shown, and the more so as such increase has for several years past been progressive in both respects. The receipts from the Great Show again suffered from unfavourable weather, which marred the effect of the brilliant display made by the exhibitors and seriously affected the attendance of the public. The loss entailed thereby upon the finances of the Society fortunately was small, and the evening fête, which gave great satisfaction to the Fellows, much more than paid its expenses. The promenade shows in the conservatory, which are steadily growing in the public favour, did not in any way interfere with the scientific work of the fortnightly committee meetings, of which they were an extension. They have been a source of enjoyment to the Fellows and their friends who attended them, and have contributed large and attentive audiences at the interesting lectures delivered at them, some of which have been published *in extenso* in the Society's Journal. The other minor shows, including those of the Auricula and Pelargonium Societies, maintained their usual high standard of excellence, and afforded much pleasure to visitors. The Lawn Tennis Courts have been much used and appreciated by the Fellows resident near the South Kensington Gardens.

The International Medical and Sanitary Exhibition, for the purposes of which the Council granted the use of a large part of the arcades of the Society, proved a success financially, and the Council trust has been useful to the nation, by teaching in a visible and practical way the leading principles of sanitation and the best external means of preventing and alleviating disease.

The Council wish to record their sense of the cordial and pleasant nature of their relations with the gentlemen who represented the executive Committee of this exhibition.

The Smoke Abatement exhibition, which is still in progress, will, the Council hope, effect practical good in diminishing waste of fuel, and the injury to the health of the inhabitants and destruction of plants which smoke occasions in and around our great cities, towns, and manufacturing districts.

The Council have no doubt the aid they have given to the laudable objects of these exhibitions will have the approval of the Fellows.

The suit by the Commissioners of the Exhibition of 1881 against the Society and the Debenture Holders, the position of which was fully explained to the Fellows in last year's report, came on before Mr. Justice Fry in June last, and was, after hearing, dismissed with costs, to be paid by the Commissioners to the Society, and to the representative of the Debenture Holders. Against this judgment the Commissioners have appealed, and the Council believe the appeal will very shortly come on for hearing. If the decision of Mr. Justice Fry be affirmed, as the Council have reasonable grounds for hoping will be the case, the Society will be placed in a much more advantageous position than it has occupied for many years.

The scientific work of the Society has been carefully attended to during the year.

The Chiswick Garden has been maintained in a high state of efficiency, and has enabled the Council to have much useful experimental work carried out there. In this work the Fellows appear to take an increasing interest, and the public generally receive as authoritative the results which have been attained.

The Fruit Committee have had under examination 242 different sorts of

potatoes; and from America a number of unnamed seedlings. The season proving favourable for these, the experiments were very successful, and the Committee were enabled to recommend seventeen varieties for the Society's Certificates on account of their improved quality and appearance. Some new peas were also grown, and of these three kinds received certificates. There were also many minor varieties of vegetables which received attention.

The kinds of raspberries in cultivation being numerous, it has been thought desirable to institute a trial to ascertain their respective merits and character. With this view a large collection has been secured, and the result of the investigation will, when completed, be published in the Journal. Experiments will also be instituted in the coming season to ascertain the distinctive characters and uses of new varieties of peas, lettuce, tomato, and shallot.

The Floral Committee has been mainly occupied in examining begonias, of which the Society possesses one of the most complete collections existing; and pelargoniums, of which many striking varieties were presented by M. Lemoine, of Nancy. Pomponé dahlias, nasturtiums, pentstemons, gloxinias, ceanothus, neriums, and other miscellaneous plants have been examined.

The crops of fruit, though below an average, nevertheless furnished good opportunities for pomological investigators to acquire a knowledge of the subject, there being a collection of 268 varieties of apples alone, arranged for examination in the fruit room. The vines in the great conservatory continue to supply abundant crops.

The tea roses, which in accordance with the intention announced in last year's report, have been planted in the orchard house, are making satisfactory progress.

The rockery, which was formed a few years ago, has been a great attraction to the Fellows and visitors. It is planted with the choicest rock and alpine plants, which are now well established, and has during the year been considerably enlarged.

To aid in fostering a taste for hardy border flowers, the Council have largely increased the number of those formerly in the garden.

The applications of 942 Fellows were granted as follows:—13,836 plants, 16,644 packets of seeds, 4,000 gladiolus bulbs, 5,472 strawberry runners and cuttings of fruit trees; total distribution, 45,002.

In addition to the usual choice varieties of vegetable and flower seeds, seed of a selected strain of begonia will be distributed during the present year.

The sales of garden produce during the year appear in the accounts. A large quantity of grapes still remain, which are being disposed of.

A requisition having been made by the Chiswick, Turnham Green, and District Horticultural Society, of which the Duke of Devonshire is president, for the use of the garden in which to hold an exhibition, the Council gave their consent, and a show was held, which was so numerously attended and successful that the Council hope that at some future time they may be encouraged to make a similar use of the garden.

BALANCE SHEET, 31st DECEMBER, 1881.

Dr.	£	s.	d.
To Sundry Creditors—			
1880	25	9	2
1881	1,375	7	7
„ Life Composition Account.. .. .			410 0 9
„ Additional Debenture (C. J. Frake)			5,000 0 0
„ Legacies received			1,887 8 9
„ General Revenue Account—Balance carried forward			1,721 4 1
	£10,419	10	4

Cr.	£	s.	d.
By Capital Expenditure	7,111	0	2
„ Debtors, viz:—			
Annual Subscriptions outstanding 31st Dec., 1880.	351	15	0
Garden Produce	20	2	9
Sundries	6	12	8
	221	3	9

„ Smoke Abatement Exhibition	8	3	11		
	378	10	5	229	7 8
„ Investment—					
3 per Cent. Consols				1,892	11 3
„ Cash at Bankers'				785	0 5
„ Petty Cash in Hand				22	0 5
	£10,419	10	4		

We have examined the above accounts with the books and vouchers, and we find the same correct.

JOHN LEE,
R. A. ASPINALL, } Auditors.
J. S. F. WEST,

28th January, 1882.

ANNUAL REVENUE ACCOUNT FOR THE YEAR ENDING 31st DECEMBER, 1881.

Dr.	£	s.	d.	Debits payable	£	s.	d.	Total.
To Establishment Expenses—				£ s. d.				£ s. d.
Salaries	262	0	4					
Wages.. .. .	253	15	4					
Printing, Stationery, and								
Cards	120	9	6					
Postage	58	4	3					
Gas	26	14	3					
Miscellaneous	277	16	7					
Law Charges.. .. .	50	0	0					
	1,049	0	3	53	13	7		1,102 13 10
„ Special Expenses in Relation to Horticulture—								
Lecturer and Demonstrator								
on Botany	150	0	0					
Plant and Seed Distribution	84	12	2					
Journal	0	0	0					
Fruit and Floral Committees	79	7	8					
Grants in aid.. .. .	55	0	0					
	368	19	10	134	12	0		503 11 10

MESSRS. W. B. ROWE AND CO'S, THE BARBOURNE NURSERIES, WORCESTER.

It is many years since the Barbourne Nurseries at Worcester were first founded, and, like many other establishments of this character, they have grown from small to large dimensions. It was perhaps some eighty years since that Mr. Biggs first started in business; he was succeeded by Mr. Tapp, who, in his turn, gave place to Mr. Archibald Wood, under whose fostering care the business was largely developed. The proprietorship is now known as Messrs. W. B. Rowe and Co.

So much has the business developed during the past eight years that while in 1873 there were but eighteen acres of ground, there are now sixty-five acres under culture. The nurseries are admirably situated. On the right-hand side of the main road from Worcester to Droitwich, and about one mile out of Worcester, is situated the home nursery, with the dwelling house and glass structures. This nursery includes some thirty acres or so of ground running southward. Opposite is another nursery some thirty-five acres in extent, stretching from the Droitwich to the Ombersley road, and most conveniently situated for business purposes. The soil on both nurseries being a good sandy loam, it is particularly suitable for the growth of fruit trees and roses, the trees throwing out a large number of fibrous roots, which fits them so well for removal. The locality, comprising as it does the fertile Vale of Evesham and other fruit-growing districts, there is a large demand for fruit trees for market purposes, and the culture of these on a large scale is one of the specialities of the Barbourne Nurseries. On the lawn in front of the dwelling house are fine specimens of *Alanthus glandulosus*, the weeping Camperdown elm, a very fine pendulous beech, *Juglans nigra*, a splendid copper beech, the large-leaved weeping lime, &c.

Nurseries are now—much more than they were a few years ago—famous for specialities. It is probably this fact which has kept some nurseries afloat during the prolonged depression in trade. Allusion has been made to the culture of fruit trees, and of these could be seen some 30,000 four-year-old standard apples; 30,000 three-year-old do.; 50,000 stocks budded this season, and among this latter 10,000 Echlinville Seedling, which is in great demand for market purposes, and 5,000 Lord Suffield, which is also a very popular market variety; of standard pears, 15,000; standard damsons, 5,000; standard plums to a great extent, including 5,000 Victoria, and 3,000 Early Prolific, with other leading plums in proportion. Of pyramid and dwarf-trained apples, pears, and plums there are great numbers also.

Roses, as standards and dwarfs, and the choicer of the Tea and Noisette varieties in pots, are largely grown; of dwarf roses in the open some 60,000; of this number fully 8,000 are Gloire de Dijon. The production of rose trees has been carried out to a large extent during the summer: of manetti stocks some 80,000 had been budded; the cultivated brier, 10,000; and of standard briers, 40,000. Manetti and cultivated brier stocks are largely grown; of the former 400,000, and of the latter 200,000. Other specialities include Clematis Jackmani, 5,000; various clematis, 3,000; Tea roses in pots, 10,000, chiefly Maréchal Niel and Niphetos; *Ampelopsis Veitchii*, 5,000, &c. Many nurseries are maintained to a large extent by what they grow for the trade, and this is true in some degree of the nurseries under notice; but a large and growing private trade is done also, especially among fruit-tree planters. So great is the growing demand for these specialities, which in the earlier stages of their growth are kept under glass, that six new houses are to be erected, 76 feet by 10 feet each, so that the quantities produced may be largely increased.

Some other useful things grown in large quantities comprise *Ceanothus* as wall plants, *Bignonia radicans grandiflora*, *Passiflora corulea*, *Berberidopsis corallina*, a beautiful climber with bright coral flowers, suitable for training on dwarf walls and very hardy; *Escallonia* of sorts, *Azalea amona*, *A. amona* Caldwelli, and the scarlet Trumpet Honeysuckle.

For propagating purposes there are some substantial glass erections: one house, 80 feet by 10 feet, is devoted solely to clematis; a second, 80 feet by 20 feet, to roses; a third of the same dimensions is used, one half for propagating purposes, and the other half for various purposes. Other houses and heated pits are devoted to the growth of tender plants, &c.

In addition to Niphetos and Maréchal Niel roses, grown on the brier stock in pots, the following are also largely cultivated:—La Marque, Gloire de Dijon, and Climbing Devoniensis. The Banksian roses, yellow and white, are also largely grown, but on their own roots.

Geneva roses in the open air made an imperfect growth during the late summer, drought having prevailed during the periods of the spring and summer growth; yet the general stock had a vigorous and healthy appearance, standards and dwarfs alike. The following in the collection proved to be very fine and free autumnal bloomers:—Noisette Amée Vibert, Old Common China, truly a wonderful sight on the brier stock; Madame Berard, very free and fine, a thoroughly good garden rose; Beauty of Waltham, Gloire de Dijon, Boule de Nègre, Baron Gonella, very fine; Charles Lefebvre, and La France; the latter one of the best of summer roses. Gloire de Dijon appears to flower much more freely on the brier than on the La Griffierae stock, and Maréchal Niel appears also to stand much better on the brier in the open air all the winter than on any other stock.

A broad walk, three-quarters of a mile long, running athwart the two nurseries affords an excellent display of the value of many ornamental and pictorial trees, which are largely grown at the Barbourne Nurseries, as a speciality is made of landscape gardening, and a large practice is the result. Among the specimen ornamental trees particularly deserving of special mention are, *Sambucus nigra aureum*, very fine; the weeping lime; the golden-leaved laburnum, very fine and effective in spring, but it should be planted in the autumn, and not in the shade; the cut-leaved beech, very fine; the American willow; the Chichester elm, with fine leaves and effective foliage, a good stock to work on, especially for the weeping varieties; the Kilmarnock willow, which does well worked on *Salix caprea*; while the American and the common golden does best on the common willow; the golden osier, *S. alba vitellina*, is very effective in winter; Van Geert's golden variety of the poplar, worked on the black Italian, makes a very fine spectacle in autumn; *Cupressus Lawsoniana erecta viridis* is a very handsome form; a good golden *Lawsoniana* worked on the common type is also very fine; *Picea nobilis glaucum* is very handsome, and is increased by working it on the common Scotch fir in August and September, and planting in the open in spring, the point of the leading shoot being cut back at midsummer. The purple-leaved berberis

is always very effective, being of such a good colour; the golden ash, very fine, and when the leaves are green the bark is golden; fern-leaved birch, very fine; standard *Eunonymus europæus*, very good; the variegated Mahaleb cherry, very effective; *Alnus glutinosa imperialis*, a very fine cut-leaved variety; *A. elegantiissima*, weeping, very good; also Webbiana and the old silver-leaved. *Ulmus Kaki*, the fan elm, is very effective, and though not thought to be hardy, stood well here during the past winter, worked on the wych elm. These, and many other subjects of a similar character, were to be seen in fine condition, and affording a good opportunity for selection.

It need scarcely be stated that a Worcester nursery makes a leading speciality of fruit trees. There is a great demand for them by planters in the Evesham and Pershore districts, so famous for market gardening, and in the district round Worcester. The farmers in the western and north-western districts are planting orchards largely, breaking up the pasture land for the purpose. They plant apples, pears, and plums—chiefly apples. The leading apples planted comprise Devonshire Quarrenden, Echlinville Seedling, Hawthornden, Juneating, Keswick Codlin, Lord Suffield, Red Hawthornden, Worcester Pearmain, Blenheim Orange, Cellini, Cox's Orange Pippin, Golden Noble, New Hawthornden, Ribston Pippin, Stirling Castle, Waltham Abbey Seedling, Beauty of Kent, Dumelow's Seedling, and Warner's King; of pears, Clapp's Favourite, Jargonelle, Williams's Bon Chrétien, Beurré de Capiaumont, Beurré Bosc, Forelle, Hesse, Louise Bonne of Jersey, Marie Louise, Pitmaston, Duchesse d'Angoulême, Swan's Egg, Doyenné du Comice, Bergamotte d'Esperen, and Ne Plus Meuris; of plums, Cox's Emperor, Denniston's Superb, Diamond, Early Prolific, Goliath, Pershore, Pond's Seedling, Victoria, and White Magnum Bonum; of damsons, the Prune alone appears to be in great demand—this is largely planted, and it is a favourite because the fruit is so fleshy and the stone is so small, standards only are worked; of currants, the Red Victoria, the Black Naples, and Lee's Prolific Black, and the White Grape are in the greatest demand. There is a white-fruited black currant having the foliage and flavour of the latter.

In the nurseries are large breadths of fruit trees, standards, pyramids, bush, and trained, all in the best condition, and showing a healthy, clean, vigorous growth. One feature of this nursery is the espalier-trained apricots for walls, of which there are finely-developed specimens, with a distance of nine inches between the branches. All standard fruit trees were especially noticeable for their fine development, and maiden peaches on the mussel stock are in the finest form. Of gooseberries, Crown Bob, Warrington, and Whitesmith are in large demand for market purposes, and extensively grown. As it is necessary to stake many of the standard fruit trees, bamboos are used for the purpose, and are found both serviceable and durable.

The great demand for many of the finer varieties of clematis makes the propagation of these quite an industry in this nursery. Such sorts as Alexandra, Jackmanni, of the Jackmanni section; Anderson Henry, Excelsior, Fairy, Queen, Lady Caroline Nevill, Lanuginosa, Louis Van Houtte, Marie Lefebvre, Madame Van Houtte, and *Purpurea elegans*, of the Lanuginosa section; Lucie Lemoine, double, Miss Bateman, and Standishi, of the Florida section; and Lady Bovill and Mrs. James Bateman, of the Viticella section, are grown in quantities to supply the large orders obtained for them.

It is impossible within the necessarily circumscribed space of a single paper to sketch all the most interesting salient points of culture, &c., in a large nursery establishment. To manage in a proper manner, and to provide at the requisite times such large stocks of certain articles, is a labour requiring great forethought and tact, and involving not a little mental anxiety. All that is required is a good system, and that is in operation at the Barbourne Nurseries. We may add that a flourishing seed business is carried on also in one of the leading streets in the city of Worcester.

R. D.

CATASETUMS.

The genus *Catasetum* is to be found in every part of South America, and also in Mexico and Guatemala. *Catasetums* should be potted in pretty large pots, such as a twelve or sixteen size, but never larger; that is, when the plants have got to a good size, they should be grown in the pots recommended; but until the plants are of a good size—that is, till they have made about six or eight pseudo-bulbs—they should be placed in smaller pots. When large enough, they should be potted in the size mentioned. The pots in which the plants are grown should be filled up about one-half with very large potsherds, and over these should be laid some rough peat, to prevent the other portions of the soil from getting amongst the potsherds. The soil in which the plants are grown should be turfy peat and leaf-soil in equal portions; the soil should never be more than one inch above the rim of the pot. The plants, when potted and firm, should be placed in the growing house, and no water should be given to them for some time, as the moisture of the house will be quite sufficient for them till such time as they have made pretty good progress. When water is given, it must be given very carefully, as they are very apt to rot off. But when the plants are strong they may have plenty of water till such time as they have formed their pseudo-bulbs; and as soon as they have perfectly finished their pseudo-bulbs, and the leaves begin to turn yellow, the plants then should be removed out of the growing house into the dry and resting house, till about six weeks or a month before their season of growing commences. They then should be shaken out of their pots, and should be placed on some dry shelf in the resting house till they are potted, or rather, till they show some signs of growing, which they will be sure to do as soon as their season of growth commences. They then should be potted, as before recommended, and then placed in the growing house; and by this mode of treatment they will flower splendidly, much finer than if they were kept in the pots all the season through. Before potting, all the old decayed roots should be cut off, as the old roots are of no use to the plant; and great care should be taken that none of the young roots are destroyed, as every young root destroyed tends to weaken the plant. When the plants are potted they should be made firm by tying them to sticks, so that the plants cannot be moved out of the position in which they are placed till they get firm hold with their new roots, which they will soon do.

ONE LIVE TOOTH is worth a dozen dead teeth, and to secure them from decay, and render them sound and white, daily use should be made of Rowland's Odonto, the purest, most fragrant, and non-gritty tooth-powder ever made. The hair also may be kept beautifully soft, pliable, and glossy, and its liability to fall during, and become dry during the damp and fog of winter may be averted by the regular application of Rowland's Macassar Oil. Sold everywhere.—[ADVT.]

CRAWFURD'S CLIMBING GENTIAN.

The climbing gentians are equally interesting and beautiful, but are rarely met with in cultivation. We have recorded in the formal notice of "New Plants" the appearance of a figure (B. M., 6,539) of the remarkable Himalayan species *Crawfordia luteo-viridis*, which flowered in a cool pit at Kew in the year 1881. The seeds were sent from Darjeeling by Dr. King, of the Royal Botanic Gardens, Calcutta; and Sir Joseph Hooker in his description is evidently moved to enthusiasm by its beauty, although in a scientific record enthusiasm is scarcely allowable. He says, "Though not equalling the *C. fasciculata* (B. M., 4,838) in the colour of the

fleshy capsule. There is little doubt, I think, that *C. luteo-alba* inhabits the whole Himalaya from Kumaon to Sikkim, at elevations of 8,000 to 10,000 feet, and it may prove to be identical with *C. japonica*, of Japan."

This *Crawfordia* is a free climbing plant with a slender stem, ovate-cordate leaves of coriaceous texture, bright green above, changing to purplish red in age. The flowers are clustered in the leaf axils, they are green or yellowish funnel-shaped. The fruit is a brilliant red berry of an elliptic or cylindrical form, remotely resembling the fruit of a fuchsia, but much larger, and very conspicuous by reason of its colour. When these fruits or "drops" are plentiful, and the leaves and stems have become warmly coloured with stains of red and purple, this climbing



CRAWFURDIA LUTEO-VIRIDIS.

flowers, which in that plant are of a beautiful blue-purple hue, the brilliancy of the polished berries of this, which are abundantly produced, and the vinous autumnal colouring of its leaves and stems, render it a very desirable greenhouse plant. Different, however, as these species appear when seen in a living state, it is very difficult to discriminate them when dried, and I am doubtful as to their geographical limits. Wallich, indeed, seems to have confounded the two species in his 'Herbarium,' and Mr. Clarke, who has worked up the Gentianeae for the 'Flora of British India,' informs me that he is uncertain as to their geographical limits. Not only are the characters of the flower difficult to ascertain in a dry state, but the fruit seems to vary in shape, in the length of the stipes, and in being a thick-walled or fleshy berry, or a subdehiscent hardly

gentian presents a most beautiful appearance, and is one of the most distinctive forms of vegetation available for the cool conservatory.

INDIAN PINKS.

By W. KEMP.

Much has been written at various times on the cultivation of the beautiful group of *Dianthus* familiarly known as Indian Pinks; but as a rule the chief point in their culture, the sowing of the seed in February, is missed, and, generally speaking, the directions appear too late in the season to be of much service until the following year, when in all probability they are forgotten.

For many years I have grown them largely, and I have long been convinced that to obtain the best possible results the sowing of the seed must not be deferred until the middle or end of March, when most of the other flower seeds are sown. They are strictly perennials, and require a comparatively long season of growth before flowering, and therefore, when they are required in bloom early in the summer of the same year as that in which the seed is sown, the raising of a stock must be commenced before February is out. Plants raised from seed sown as late as the end of March or the beginning of April will bloom the same year, but it will be so late in the summer that they will contribute but little to the attractions of the garden; and it must be confessed that very little pleasure is to be derived from raising and attending to plants that the frosts and rains will, practically speaking, destroy immediately on the production of their first flowers. At the best our summers are short, and it behoves the cultivator to so shape his course that the display in the flower garden shall be as long as possible. It would be an easy matter to dilate at some length upon the great beauty of the flowers of the Indian pinks, so large and attractively marked are they, but it must suffice to say that under ordinarily favourable conditions, such as will be pointed out in the course of these remarks, they bloom freely and continuously, and, whether in a bed by themselves or in the mixed border, they will contribute their full share to the attractions of the flower garden, and whilst affording a pleasing variety be in effectiveness quite unsurpassed.

From the foregoing remarks it will be seen that those have no time to lose who would have a bed of Indian pinks during the ensuing summer, in which the plants will be in bloom as early as the ordinary bedders. The first step to be taken will be to make a selection and purchase seeds. Cultivators who do not require a large number of plants, and have reasons for being economical, will do well to purchase the seed in mixture, provided they are careful to go to a good firm for it. Otherwise, it is preferable to obtain the seed under separate names as offered by the trade. Of the varieties of *Dianthus Heddwigi*, the two comparatively new forms known respectively as *Crimson Belle* and *Eastern Queen* are particularly noteworthy for the large size and attractive colouring of the flowers. The first-mentioned has flowers of a rich rosy-crimson colour, and those of the latter are beautifully marked with crimson on a rich rose-coloured ground. The older varieties deserving special mention are the single and double forms of *Laciniatus*, the flowers of which have elegantly-fringed petals; *Atropurpureus*, double, deep maroon-purple; *Diadematus*, a superb variety with large double flowers of various colours, and *Nanus atro-sanguineus*, a splendid compact-growing form with bright crimson flowers. The Indian pinks are, it is necessary to observe, so variable in character that as yet the seed growers appear to have found it impracticable to fix the several varieties. Consequently, they cannot be depended upon to come true in colour, and amongst the plants raised from seed saved from double varieties there will be a considerable proportion bearing single flowers.

Immediately the seed is obtained it should be sown and placed under the conditions most favourable to its germinating quickly: there is no better way of sowing it than in pans about twelve inches in diameter, and filled with a light and comparatively rich mixture. Probably, the best mixture for filling the pans is one formed with two parts each of loam and leaf-mould and one part of silver sand. In filling the pans press the soil moderately firm, and make the surface quite level; then sow the seed thinly and evenly over the surface, and cover with a light coat of finely-sifted soil. This done, place the pans in the propagating pit or other structure in which a temperature of about 70 degrees is maintained, and where the seed can have the assistance of a brisk bottom heat. In many structures the bottom heat can be obtained by placing the pans upon

the hot-water pipes, with a slate, tile, or a thin slab of stone underneath, and advantage should be taken of the opportunity where there is no hotbed available. Due attention to the maintenance of the soil in a nice moist state will be requisite, especially if the pans are placed on the pipes, but disastrous results will follow if it is kept in a very wet state. It is not of much consequence what position the pans occupy until the young plants begin to make their appearance, but from the time they begin to push through the soil until they are hardened off they must be within a moderate distance of the glass to ensure a short stocky growth. The importance of preventing their being drawn up weakly during the early stages of growth renders it necessary to prick them off

into other pans or into boxes as soon as they are large enough to handle, and before they have become crowded. The pans should be filled with a mixture somewhat similar to that advised for those in which the seed was sown, but it must not be quite so fine, although not so rough as to render it in any way difficult to separate the plants without injury to the roots when they are potted off singly. It will be well to let them remain in the propagating pit until they have recovered from the slight check received in being pricked off, and then the removal to cooler quarters will be necessary, for too long a stay in a high temperature will result in a weakening of the constitution, from which they will not very quickly recover unless the greatest care is bestowed upon them.

A pit or frame in which a temperature of about 60 deg. can be maintained will be the most suitable. Although they will not long require so high a temperature maintained by fire heat, it is preferable to put them in a heated pit, so that the growth may not experience any check. One of the chief points in the cultivation of the Indian pinks is to put out large and thrifty plants, and these can only be obtained by growing them on steadily from the first with just sufficient warmth to maintain them in a progressive state. In a short time after their removal to the pit they will require more space, and should be potted off separately and put into large sixties. A more substantial compost will now become necessary, and it should be prepared with friable loam four parts and well-rotted manure, leaf-mould, and sand, a part each. For a week or so after the potting the pit should be kept rather close, and then the hardening off should commence by gradually increasing the ventilation until the plants can be fully exposed during fine weather. *Dianthus Heddwigi*, and the allied forms, are hardy; but it is not good practice to expose plants that have been raised in heat to frosts, and they should therefore have much the same protection, and be put out about the same time as the hardier kinds of summer bedders, such for example as the zonal pelargoniums and verbenas.

The selection and preparation of the summer quarters, although a very simple matter, must have due attention paid to it. They require an open

sunny position, and a rather light and comparatively rich soil, and these two conditions will not be difficult to comply with in most gardens. They produce a very excellent effect in beds occupying a more or less isolated position, and when planted in beds they should be put about six inches apart each way. Very effective also are they in small groups along the front of the mixed border, and it is a capital plan to put them in groups of three or four plants each, with a space of three or four feet between the groups. After they are planted a few waterings at first will be of considerable assistance, as in the case of other subjects, and during the summer season the decaying flowers should be removed as becomes necessary to prevent exhaustion from seed bearing. But in all other respects they are well able to take care of themselves.



LASTREA CRINITA. (See page 78.)

A SELECTION OF LASTREAS.

This is one of the largest genera of ferns, the species in Hooker's "Synopsis" numbering 153. These are there classed under *Nephrodium*, to which the generic designation *Lastrea* is rendered subsidiary. The distinguishing characters of the section are sori sub-globose, dorsal or terminal on the veins; involucre cordato-reniform, attached by the sinus.

Lastrea decurrens of Moore and Houlston, Lowe, and J. Smith is the *Nephrodium decursivo-pinnatum* of Baker. It is a neat-growing dwarf fern of spare habit with a very distinctly-winged rachis and pinnae bluntly lobed; the colour pale green. The scales are beautiful microscopic objects. Being distinct and nearly hardy, it is useful in the cool fern house, and probably in the west would be quite hardy in the open fernery.

Lastrea Sieboldi is also known as *Ptychopteris Sieboldi*. It is in the way of *Aspidium* (*Lastrea*) *podophyllum*, with entire pinnae, whereof the terminal one is larger than the rest. A fine stout-textured fern, very showy when in fruit. Being a native of Japan it is well adapted for the cool house, and it answers admirably in a large fern case.

Lastrea gracilescens is a free-growing cheerful little plant in the way of *Lastrea thelypteris*, but smaller. The difference in constitution is greater than the difference of visible character, as this is decidedly tender and requiring warm greenhouse culture, and being susceptible to the slightest touch of frost.

Lastrea patens, probably identical with *L. macrocarum* and *Nephrodium schizotis*, is an old favourite of the fern house, where, when well grown, it soon becomes conspicuous for its light green colour and luxuriant growth. The fronds are broadly lanceolate, the pinnae sessile, and cut into sub-falcate segments, those next the rachis being larger than the others. The rhizoma creeps slowly, throwing up crowns as it advances, and if left alone for a few years the plant forms a large lively mass of brilliant herbage, rising three to four feet. It is a native of various tropical countries in the old and new world, and requires the stove or warm greenhouse.

Lastrea crinita is the *Aspidium sulcatum* of Kaulfuss, and the *Aspidium strigosum* of Lowe (vii., p. 17). It is a handsome leafy fern, prim and precise in form, the fronds deltoid, the pinnae pinnatifid, the segments slightly falcate, the texture herbaceous; the colour rich light green, except when in fruit, when it appears washed with orange. The sori are produced in regular sub-marginal lines with profusion and regularity. Native of Mauritius and Bourbon. A remarkably fine stove fern, suitable for specimen culture.

Lastrea thelypteris, though hardy, cheap, and therefore well known, is one of the best cool-house ferns in cultivation. It is the Female Buckler Fern of the old writers, a native of the British isles, and of all Europe, the Cape, New Zealand, and North America, but always local, or rather never spreading far from any one centre. It is of soft texture, the fronds pinnate, the pinnae cut into blunt oblong lobes, light and elegant, the sori almost covering the under sides of the fronds, but minute and inconspicuous; the general colour a whitish kind of pale green. When planted in a damp and shady part of the cool fern house it spreads rapidly, or rather travels far, and it is always so beautiful that few will care to keep it in check, although it very rarely kills out any other fern by its mild usurpations. When planted in the open-air fernery, a sheltered spot should be selected, as wind and strong sunshine tell severely against its prosperity.

Lastrea oropteris is well known for its brilliant green colour and agreeable balsamic odour. It is the *Lastrea montana* of Baker, Moore, and Newman; the Mountain Buckler Fern of the old writers. The fronds are pinnate, the pinnae opposite on the rachis, cut into blunt oblong lobes; sori of medium size regularly disposed. This is a somewhat common European fern; in this country its home may be said to be the Lake district of Westmoreland and Cumberland, but it is probably widely distributed in bleak and boggy

places in many parts of Britain. We have met with it in a wood at Ockshot, near Leatherhead.

The fragrant mountain fern does not take to cultivation kindly, and is certainly not a desirable plant for culture under glass. When planted out, the soil should be silky loam and the situation damp and shaded. Frequent supplies of water should be given during the summer, but nevertheless stagnant moisture does not agree with it. It does not live long near London, and it is quite unfit for any smoky locality.

Lastrea Filix-mas might appear too common for this list, but how or on what ground is it to be excluded, its commonness being a recommendation? There are but few ferns that have so remarkable a character and history. If we could but get the "commonness" out of our heads, how we should be enraptured with its beauty! for it is a noble and altogether lovely fern, and its accommodativeness of constitution brings it into the front rank of the weeds of the world. Its geographical distribution is in strict accordance with its capacity to endure a diversity of conditions, and, strange to say, it does not vary much, considering the diversity of circumstances under which it lives and thrives. To describe it would be just to repeat what everybody knows, for the man who only knows one fern by name knows this one, and it is well for him to know so much. The common Male Fern will thrive in any soil, and will bear all extremes of temperature common to these islands. It has a peculiar adaptiveness to the climates, and in some degree to the natural soils, of London; for the heavy loam (and clay of the northern and eastern, the gravel of the western, and the sand of the southern suburbs seem to suit it equally well, and while the severest frost does not harm it in winter, neither does the fiercest heat in summer. But there is a best way which the fern grower should be familiar with, because of the splendid varieties of the male fern that are at command for the open rockery and for pot culture. The best way consists in planting on a deep bed of sandy loam, rich in fibre and of the most mellow texture, in a shady situation, and during hot dry weather the plants should have an artificial shower daily, the evening being the best time for it.

The varieties are many, and many of them are fine. The grandest is the well known *Cristata*, which has all the fronds tasselled, the pinnae being constructed as if to display as well as supply the material needed for the tassels that terminate them. This makes a very fine pot plant if allowed plenty of root room and overhead moisture. The following are well worth having, viz., *Prolifera*, *Incisa*, *Polydactyla*, *Abbreviata* (fragrant), *Pumila*.

Lastrea spinulosum and *Lastrea dilatatum* are so nearly alike that it may serve some useful purpose to point out where and how they differ. The first is the richer of the two in general expression, being more leafy and larger in all its parts, and is filled up closely, so that the divisions of the pinnae and their relation to the rachis are in a certain degree obscure. On the other hand, *L. dilatatum* is lighter in expression, the divisions finer, and the anatomy more distinctly defined. In *L. spinulosum* we look for spines, and it will be found that the pinnules terminate in quasi-spines, and thus the name is justified. In *L. dilatatum* we look for expansion, and we find it in the somewhat open structure of the

frond, which displays a delicate lattice-work of stipes and rachides, whereas the other is almost continuous in its leafiness, and therefore relatively opaque. In this form moreover the pinnules do not terminate in spines, but in bristles. As regards specific distinctness there is none, and hence in Hooker's "Synopsis" they are lumped together.

The varieties are innumerable. The best of them are *Tanacetifolium*, *Dumetorum*, *Multifidum* (not constant), *Deltoides*, *Schaffeldi*. To grow these is an easy matter, as the provision of shaded shelter will usually be found sufficient. As regards soil they are not particular, but a mellow sandy loam answers best, although they will grow very well in good peat.

Lastrea aculea, the Hay-scented Fern, is extremely elegant, both in its very regular and elegant anatomy and its clear bright green colour. On the



LASTREA PATENS.

front of a rockery under glass it is very acceptable, and a visitor may be invited to pluck a frond to sweeten a purse or pocket-book, as it is customary (or should be customary) to invite friends to take away with them a few scraps of woodruff in the month of May. It is easily grown in sandy peat in which nodules of soft stone are intermixed. In a fern case it thrives in a delightful manner.

Lastrea noveboracensis is much prized as a cool house and case fern, but is quite hardy, and will hold its own in the open rockery almost anywhere. The fronds rise about a foot high; they are hairy, membranous, light green, pinnate, the pinnae deeply pinnatifid.

Lastrea contermina comes in between *L. thelypteris* and *L. noveboracensis*. It is a tender species, being a native of tropical America.

Lastrea marginalis comes between *L. Filix-mas* and *L. cristatum*. It is a handsome North-American fern, rising one to two feet, bluish green, bipinnate, the rhizome tufted. It is quite hardy.

A SHORT CODE OF GLOXINIA CULTURE.

The gloxinias we have staged at the various local exhibitions in our district have for some years past attracted a considerable degree of attention, and several of my friends have requested me to give a brief outline of the way in which they are grown. I have accordingly prepared a few notes on the subject, and send them on to you, thinking that possibly they may be of service to some of the readers of the GARDENERS' MAGAZINE. The specimens we exhibit however form a small part only of the stock, for we find the gloxinias so useful for contributing to the attractions of the conservatory during June and the two following months that we grow them largely. We have them of all sizes, from plants in sixties to large specimens in eight-inch pots; but the most generally useful are those in pots five and six inches in diameter, as they can be more readily arranged with other subjects. The specimens are certainly very effective, and are the most valuable for exhibition, and a few plants should be grown on from year to year until they show signs of weakness.

Those who so prefer may begin with a stock of named varieties, but owing to the great improvement that has been effected within the last ten years or so, varieties of the most magnificent character can be raised from seed. Therefore it is quite unnecessary to buy varieties with names, and as a packet of seed, costing about as much as one plant, will furnish several dozen seedlings, the majority of which will be equally as good in quality, it will not be necessary to urge at any length the advantage of raising the stock at home. The strains offered by the leading houses are all so good that the cultivator is not likely to go wrong in the purchase of the seed, and of course after he has made a beginning he will save a little at home every year. But, according to my experience, it is not a good practice to depend wholly upon home-saved seed, and those who would make their mark as cultivators of these flowers must raise a few plants annually from seed obtained from the seedsman. By this means a greater diversity of colour and a higher degree of quality are obtained than when the cultivator depends entirely upon himself in this matter. To maintain a good stock of young and vigorous plants a batch of seedlings must be raised every year. We sow a pinch of seed annually in February, or rather two pinches, for we buy a packet from a firm that we know to have a specially good strain, and we sow also a little of our own saving. Shallow pans, about ten inches in diameter, are employed, and these we fill with a mixture consisting of loam, peat, leaf-mould, and silver sand in equal proportions. The mixture is broken up very fine, pressed moderately firm, and made perfectly level on the surface. The best plan, when the pans are filled, is to press the soil with a piece of board. The seed is distributed as evenly as possible and somewhat thinly, and then covered with a little sand. The pans then have squares of glass laid over them, and are placed either in the propagating pit or in a cucumber house. It matters not in which of these structures they are placed, as in either the seed has the assistance of a temperature of 70 deg. and a brisk bottom heat. The plants also, as they make their appearance, have the advantage of a moderate degree of atmospheric humidity. It follows as a matter of course that the soil is maintained in a nice moist state, that the surface is shaded in bright weather, and that the glass is removed when the seedlings are well above the surface. I would however add that if the pans are in a structure occupied chiefly with subjects that do not require shading a piece of paper should be laid over the surface, and that previous to the removal of the squares of glass they should for some days be tilted by having a strip of wood placed underneath on one side.

The seedlings should remain in the pans until they are becoming crowded, and if the seed is sown thinly, as advised, they will be of a nice size before potting off becomes necessary. Put them first into small sixties, then shift into three-inch pots, and from these transfer to others five or six inches in diameter, according to the size of plants required and the progress they are making. It does not follow that all the young plants should be removed from the pans at once; on the contrary, it will generally be better to remove a few at a time, and their removal can be readily effected with the point of a tally. The compost for the first potting and the subsequent shifts should be prepared by the admixture of yellow fibrous loam and turfy peat, two parts each, well-rotted manure and leaf-mould a part each, and a liberal sprinkling of sand, sufficient in fact to give the mixture a gritty appearance. For the small pots the loam and peat must be broken up fine, but afterwards it may be used in a somewhat rough state, but it ought not to be too rough. Stagnant moisture in the soil is most hurtful, and a sufficient drainage must be provided to prevent it.

Until they are nicely established in the pots in which they are put when first potted off they should remain in the propagating pit or cucumber house, as the case may be; but afterwards they must have quarters that are somewhat cooler, and in which the ventilation is more

abundant. Gloxinias require a rather high temperature, but it ought not to be so high as that to which they are usually subjected, and they should not be so heavily shaded as they generally are. It is quite useless to attempt to produce good examples under the shade of vines or cucumbers; for, although they will luxuriate in the heat and moisture required by those subjects, both leaf stalk and flower stem will be so weak that the leaves and flowers will fall about on their removal to the conservatory, and the latter will last in good condition for a very short time only. Protection from brilliant sunshine they must have, but they ought to have a position near the glass, and enjoy full exposure to the light in all but bright weather. They ought also to enjoy from a very early stage a moderately free circulation of air. Judging from many of the examples staged at the exhibitions, it would appear that a considerable number of cultivators labour under the impression that a very high temperature, a close humid atmosphere, and a heavy shade, are the main essentials, whilst as a matter of fact they should be avoided. A temperature ranging from 65 deg. to 75 deg., a moderate degree of atmospheric humidity, a free without being excessive, circulation of air, and a light shading during sunny weather are the conditions most favourable to the production of specimens that will bloom freely and be able to bear uninjured the abundant ventilation of the conservatory. The supply of water to the roots should be moderate, and after they are established in the pots in which they are to bloom weak liquid manure twice a week will have a most beneficial effect. As in the case of many other plants having leaves downy on the surface, they are more or less injured by the use of the syringe. I devote a small span-roof house to their use, and am therefore better able to comply with their requirements than when they have a place in a mixed collection. An ordinary heated brick pit would how-



PINNA OF *LASTREA MARGINALIS*.

ever answer every purpose, and in one with three or four lights a comparatively large collection could be grown.

As they go out of bloom and show signs of exhaustion the water supply is gradually withheld, and when the leaves have died down we place them with the pots on their sides in a structure in which such things as bouvardias are grown. Here they remain until January, when the corms are shaken out of the old soil, repotted, and started for flowering early. These are exceedingly useful for the production of a display before the seedlings are sufficiently advanced to bloom. The corms we require for exhibition specimens in July and August are not started so early; as a rule, not until quite the end of February and March respectively. Corms one and two years old are the best for specimens, as they can be depended upon to grow vigorously and produce flowers of full size and high quality. Older plants will perhaps produce a larger number of flowers, but a good judge will of course prefer one good bloom to half a dozen small ones. It is essential also to mark those likely to be in request for competitive purposes when in bloom, so that it will be easy to select those that will produce flowers of first-class quality and afford a good variety of colour. The corms should be put in five or six-inch pots, and from these be transferred to the pots in which they are to bloom when well rooted. The compost should be the same as that advised for the first year, and be used in a rather rougher state. G. SMITH.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7½d. and 1s. 1½d., labelled, "JAMES EPPS AND CO., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

The House, Garden, and Apiary.

DAYBREAK IN FEBRUARY.

OVER the ground white snow, and in the air
Silence. The stars, like lamps soon to expire,
Gleam tremblingly; serene and heavenly far,
The eastern hanging crescent climbeth higher.
See, purple on the azure softly steals,
And Morning, faintly touched with quivering fire,
Leans on the frosty summits of the hills,
Like a young girl over her hoary sire.
Oh, such a dawning over me has come—
The daybreak of thy purity and love;—
The sadness of the never-satiated tomb
Thy countenance hath power to remove;
And from the sepulchre of Hope thy palm
Can roll the stone, and raise her bright and calm.

WILLIAM CALDWELL ROSCOE.

THE HOUSE.

As ferns occupying indoor cases are now either commencing to grow freely or are showing signs of their having commenced their growing season, cases of all descriptions should at once be carefully examined, and those that appear to require rearranging or replanting have the needful attention very shortly afterwards. First prepare a supply of suitable soil and clean crocks, for when the cases are replanted both drainage and soil should be entirely renewed. To provide for the ready escape of superfluous moisture is essential, and the crocks ought to be quite clean; but if there is any difficulty in providing a fresh supply those removed from a case can be very quickly cleaned by throwing them into a pail of water and then scrubbing them with a birch broom. The majority of ferns suitable for cases can be grown most successfully in good fibrous peat to which a liberal quantity of coarse silver sand has been added, and the strong-growing kinds succeed admirably in a mixture of peat and turfy loam in equal proportions with sand, but as a rule the safest course for cultivators who have not much experience will be to exclusively employ peat and sand. Ferns will root freely in cocoa-nut fibre refuse, but they will not make a satisfactory growth when grown exclusively in it. A small addition of the refuse may with advantage be made to soils deficient in fibrous peat.

THE GARDEN.

ANNUALS for flowering early under glass and bedding out to be sown now include Balsams, Cockscombs, Globe Amaranths, Portulacas, Schizanthuses, Phloxes, Brachycomas, Stocks, Tropæolums, Cobæas, Lophospermums, and Acaecolium. Sow in a moderate heat.

CELERY large enough to be pricked out to be removed forthwith to a sweet hotbed. Sow again for the main crop.

CUCUMBERS.—Raise plants for frame culture to succeed those now bearing. Sow in sixty pots, two seeds in a pot, the strongest plant in each to be kept, and the roots not to be damaged by shifting, so as to have them strong and short-jointed for turning out.

FRUIT TREES in the orchard house to have liberal supplies of water at the roots, whether planted out or in pots. Give air freely, or the fruit will not set well. Peaches in the forcing house to be thinned and disbudded judiciously: do not remove all the superfluous fruit and shoots at once. Trees that have set their fruit to have liberal syringings with soft water of the temperature of the house. Figs setting fruit to be kept in a rather dry air, but with sufficient moisture at the root.

KITCHEN GARDEN crops to be cleared off as fast as possible, and the plots to be manured and dug over before being appropriated to summer crops. Breadths of Cabbage, Kale, &c., may be taken up and planted close in out-of-the-way places, where they will sprout as freely as if not lifted. Sow main crops of Peas and Beans, earth up any that are now out of the ground, and if any fear of vermin sprinkle with wood-ashes.

NEW HOLLAND PLANTS require careful attention now to bring leggy specimens into shape, to encourage the growth of those going out of bloom, and to protect from cold draughts and undue moisture those coming into bloom. Continue to shift such as require it, and any that are looking out of health turn out of their pots, to see if the drainage is right and the stuff sweet and porous.

PROPAGATION should now be going on in earnest, and there must be no more delay in propagating bedders if a good early bloom is wanted. If the cuttings show signs of damping, sprinkle a little powdery peat over the surface of the soil, give more air, and raise the temperature. If the cuttings, as soon as rooted, run away into a spindling growth let them have more light and less heat.

RADISHES may now be sown in quantities for the earlier crops. It will be well to remember for radishes a light rich soil is the most suitable for early and late crops. A half-spent hotbed will answer admirably for small sowings of such sorts as Wood's Frame and French Breakfast, but the seed may now be trusted to a warm sheltered border. Much may be done to forward a crop by means of dry litter and mats to protect from frost, removing the protection in favourable weather, to give the crop the fullest possible benefit of air and sunshine. Old worn-out frames that will scarcely hold together will pay their first cost over again with the aid of a little skill in growing radishes.

STOVE PLANTS need a general revision at this time of year; those that have been blooming all winter require to be cut back, and encouraged to break, then to be shifted to larger pots if needful, or have top dressings. Where very large specimens are objectionable, the plants may be kept in bounds by the knife, and to obviate the use of larger pots turn them out, remove some of the soil from the outside of the balls, and repot them with fresh compost in the same pots. Such shrubs as Ixoras, Rondeletias, Allamandas, and Francisceas intended to be cut back should have attention at once, but they will not require pruning unless they have become leggy or grown out of shape. They will break stronger, and the young growth will be more thoroughly matured than would be possible were the pruning left until they are growing freely.

THE APIARY.

THE bee-keeper must not overlook the fact that the bees will during periods of warm genial weather leave their hives in moderate numbers, and require the removal of all obstructions to their free egress and ingress. As an early brood is of much importance, the hives must be kept warm, and if the supply of food is at all short artificial feeding should be resorted to; for plenty of food in the hive exercises a material influence upon its temperature. Moreover, at this season of the year the bees will not allow the population of the hive to increase out of proportion to the food supply, and in consequence, when this is running short, or a period of bad weather puts a stop to the ingathering of honey, the workers will expel the partly-grown and helpless young, to the serious injury of the colony. The steady supply of food greatly stimulates breeding, and when the bee-keeper affords a moderate and regular supply of food before there is much to be obtained out of doors, the population of the hives rapidly increases in numbers and strength, and the bees are in the best possible condition for leaving the hives on foraging expeditions as soon as the fruit trees and plants afford them hunting-ground. There must be no intermission in the supply of artificial food after feeding has commenced until the bees are able to gather honey in abundance. The very best bee-food is made by boiling the best loaf sugar in pure water, in the proportion of two pounds to a pint. Feeding should not be commenced before it is really necessary.

THE DISEASES OF PLANTS.

THE rather exhaustive article in the GARDENERS' MAGAZINE of the 21st January leaves little to be said on this subject, mainly, as you there remark, because very little is known as to the origin of the diseases which attack vegetable life. "Make them grow" is very good so far, but my experience is that mildew and kindred ailments attack the most vigorous growing plants. I may refer to the fungus on the hollyhock, as you do, as an example. It was not when they would not grow that the fungus played such havoc with them, as they were never stronger or better grown than at that time. Afterwards, "make them grow" was much easier said than done. I believe that disease is engendered in plants much as in animals, through inbreeding and unnatural modes of propagation. Referring still to the hollyhock, I believe its constitution was very much weakened by over-anxiety to retain existing varieties from cuttings, rather than trust to get good varieties from seed. I am not prepared at this distance of time to say if the fungus made its attack in an excessively dry or wet season, but I have no doubt it was either one or the other, as they had become almost hothouse plants, grown in heat to get cuttings, and such cuttings—every scrap of a stem with an eye to it. It is not my intention to go into this matter further at the present time, but will finish these remarks by adding a few extracts from a very old work on Gardening, written some time in the last century, but the exact date I do not know; the quaint way in which it is written, and the good advice given, may amuse and please some of the readers of the GARDENERS' MAGAZINE.

"The Diseases of Trees proceed either from the Natural Bottom of the Earth, or from their own defects and bad constitution, or else from the attacks made upon them by animals, insects, and vermin, which may be truly said to be the professed enemies of a garden."

"The Diseases that arise from the natural bottom of the earth, are very difficult to be cured; as if the ground be full of sandstones, or have a bottom of white clay, it were to no purpose to change the ground for three foot deep throughout, and bring in better in its room; for when the roots of the trees have once reached this bad bottom, you will see them languish, turn yellow, and decay year after year, and at length die away, there is no other remedy in this case than to avoid making choice of a situation where the ground is so ill composed."

How many suffer even now from the fact of a situation having been selected for the garden where the ground was "so ill composed!"

"The Distempers that are caused by the bad constitution of trees, and by their natural defects, are also in a manner incurable; for if the tree be defective in its roots, or in its stem, the best you can do is to throw it away, and plant a better in its place: But if distempers fall upon a tree after planting, and you see it has taken no outward hurt, you may lay it open and examine its roots, to find if any of them are rotten, or gnawn by vermin; if they are you must cut them to the quick wood, to revive them, and make them put out new fibres. Sometimes also this proceeds from carelessness in planting a tree when all its roots are not well filled in with earth, but cavities or stones left about some of them which hinders their uniting with the ground, and makes a tree suffer extremely. You may do this work at any time, except during the two Seasons of the rising of the Sap, and fill the hole again forthwith with new earth, for fear the roots take wind."

"If the distemper proceeds not from the roots, but you find them in good condition, and yet the tree pines, you must then free the head of some part of its branches, or water its head well to revive it, which is a great relief to it."

This is all well understood by good practitioners, yet how often do we find trees stuck into the ground, the roots unpruned, and stones and large lumps of soil thrown in, which should only be put in at the last, if used at all! Many a fine tree has been lost or materially injured by bad planting, and many a one might have been saved had an attempt been made to equalize the head in proportion to the roots: this and the application of water overhead has saved many a plant which otherwise must have died. The next and last extract which I will make has a very important influence upon trees and shrubs of all kinds.

"You should further observe, that in places where trees of the same kind have died two or three times one after another, the species should be changed; the earth being worn out for this kind, and becoming new to another; as if several Elms should die successively in the same place, you should put Lime-trees, Horse-Chestnuts, or other kinds in their room. When you have Hedges to new furnish you should observe the same thing; for it is more difficult to make plants grow in Gaps and dead places, than in a new spot."

If sufficiently interesting, I will have much pleasure in giving this author's notions of the external maladies, such as Cankers, Moes, and Jaundice.

Knap Hill.

GEORGE THOMSON.

TOMATOES ON COLD SOILS.

Owing to the periods of cold and wet weather we have experienced during the last two or three summers, we have of late heard a good deal about failures in tomato culture. In some instances the plants have, practically speaking, been totally destroyed by the disease which occasionally does much mischief, and in many cases they have been so crippled that they have brought a portion only of their fruit to maturity. The failures have indeed been so numerous that some cultivators are beginning to suggest that tomatoes should be grown exclusively under glass in all but the most favoured districts.

There can be no doubt that very excellent crops may be obtained from plants occupying light airy structures, and that they will pay for the accommodation afforded them and the labour necessary in supplying them with water and giving them other needful attention. But before saying anything condemnatory of outdoor culture, it should be remembered that in very many gardens no suitable structure exists, and that in others all the houses of small and medium size are throughout the spring and summer fully occupied with cucumbers and melons, or devoted to plants required for the decoration of the conservatory and indoor apartments. The fact also ought not to be lost sight of that the plants under glass necessarily require more attention than those outside, for in many gardens it is a matter of no small importance. As an old cultivator of tomatoes, I see no good reason why the main crops should be grown under glass, excepting in the northern counties, even on the coldest of soils. The soil with which I have to deal is naturally very heavy and cold, although we had it properly drained many years since, and for fifteen of the twenty years I have had to deal with it we have secured crops of tomatoes that have been more or less satisfactory. The first year or two the practice usually adopted of planting them on the level was followed, and owing to the coldness of the soil, particularly towards the end of the summer, the crops were not good; and the temperature during two or three summers since was so low that the growth was too slow to admit of the plants bringing heavy crops to maturity.

My employers, it must be stated, are particularly partial to tomatoes, and I found that matters would not proceed so pleasantly as could be desired unless the table was liberally supplied with them. I knew that so high an estimate was not set upon the abilities of my predecessor as should have been, because of his want of success with tomatoes; and as I was anxious to retain my position, I began to cast about and see in which way an improvement could be effected. After some consideration, I determined to grow them in beds made up entirely above the surface, and the wisdom of the change has been abundantly exemplified since. As in most other gardens, the tomatoes were exclusively grown against the fruit walls, in the vacant spaces between the trees. As it was not desirable to form raised beds with anything of a permanent character, the soil was kept in its place with turf walls. The turf was obtained, some from the sides of the lanes which intersect the estate, and some from a meadow contiguous to the garden, and the strips were cut eighteen inches in length and six inches in width. With these we formed walls eighteen inches high above the level, and eighteen inches from the wall, inside measurement. The beds varied in length according to the space between the trees, but for a single plant the bed was made two feet long, and this has been found quite sufficient. We now allow about two feet run of border to each plant; but where there is room for three we usually make the bed five feet in length, and put the two outside plants twelve inches from the ends, so as not to have the beds too close to the stems of the fruit trees.

When I found the raised beds to answer so admirably, I had built along the front of a sunny wall, which forms a boundary on one side of the frame ground, a wall two feet in height and four and a half inches in thickness to form a bed of a more permanent character. The walls of two outhouses that had a southern aspect have also been turned to account, and a raised bed formed with a brick facing, as in the case of the wall of the frame ground. These additional walls were pressed into service to enable us to produce large supplies, and at the same time effect some reduction in the labour of preparing the temporary beds in the spring. Moreover, our demands for turf had to be kept within reasonable bounds, for we are not able to peel either the roadside or the meadow *ad lib.*, or indeed otherwise than in the most sparing manner. In preparing the pits formed with brickwork the soil was taken out to a depth of six inches, and a layer about eight inches in thickness of clinkers and rubble put in the bottom to form a drainage, and this in its turn was covered with turf turned bottom upwards. To enable us to take out the soil to this depth the low front wall had a foundation nine inches in depth. The beds with turf sides were not provided with drainage, and we have not found it necessary, as the surplus water soaks freely through the walls, and no stagnation of moisture occurs. We simply mark out the space the bed is to occupy, then fork over the soil and build the walls, which, it may be added, will stand two or three years if care is taken in putting out and pulling up the plants and renovating the soil.

Tomatoes are not very particular as to soil, provided it is somewhat friable in texture. They will grow freely in a rich soil, but as a luxuriant growth is not conducive to an abundant production of first-class fruit, excessive luxuriance must not be encouraged by the addition of a large proportion of manure to the staple. When we form a new bed our usual practice is to make it with ordinary garden soil and refuse soil from the potting shed, two parts each, and old hotbed manure one part. The garden soil is taken from the surface of a quarter that was dug over in the autumn, to have it in as pulverulent a condition as possible, and our hotbeds are made with leaves and stable manure in equal proportions, so that the manure is not so rich as when no leaves are employed. It matters not of what the potting shed refuse consists, and I prefer it if

it contains a good proportion of peat, but as a rule the greater proportion consists of the soil in which the early crops of strawberries and French beans were grown. When once made the beds with brick walls will last for an almost indefinite period, as the addition annually of a little hotbed manure or thoroughly-decayed vegetable refuse will maintain it in the best possible condition.

On soils of all descriptions it is of great importance to put out at the end of May plants that are strong and in a condition to grow vigorously from the first, but on none more so than those naturally heavy and cold. It is, however, a very common practice to begin with plants turned out of large or small sixties, with stems of the thickness of a wheat straw and five or six inches in height. By beginning with these at least a month of most valuable time is lost, and, bearing this in mind, we make every effort to have examples well established in six or eight inch pots, and with stems as thick as the little finger. The seed is sown early in March, the plants are raised in heat, and then shifted on as more root space becomes necessary. We keep them near the glass from the first, and as soon as they have recovered from being potted off separately we remove them to a pit, or one of the fruit houses, in which the temperature is sufficient to maintain a steady growth, and where they will be fully exposed to the light and have a free circulation of air about them. I consider it a point of special importance to begin with strong examples, and if the practice was more general than is now the case we should hear but few complaints of the crops being indifferent, and complete failures would be practically unknown. My favourite varieties are *Earley's Defiance* and *Hathaway's Excelsior*, as they produce good crops and ripen off early. The large-fruited kinds, such as the *Trophy*, are of but little use on heavy soils. G. S.

SEASONABLE WORK IN THE AMATEUR'S VINERY.

By W. BRADBURY.

It is a good rule in grape growing to complete all pruning operations by the end of January, when the grapes are not allowed to hang upon the vines until after that date, and in that case to put the finishing touches to the work immediately on the crop being cut. The pruning in the early houses should be completed before the year is out, for in all cases a sufficient time ought to be allowed for the wounds to become nicely healed before the sap begins to rise. It appears, however, difficult to persuade many of those who have vineries, but are not well versed in their management, that it is important to prune early, and it becomes necessary to state again and again [that when the vines are not pruned until after the sap has begun to rise, or is about to do so, they "bleed" freely, and in consequence suffer materially from the loss of sap. To this statement I would add that when from any cause the pruning is delayed until after the period mentioned every effort should be made to complete it by the middle of the present month. I would further observe that vines in the late houses, and those not to be started until next month, will not suffer materially, if at all, if they have attention at once.

For general purposes the spur system is decidedly the best, and amateurs and others who have not had much experience in grape culture may be safely advised to leave the long-rod and other extension systems to those who are well versed in this important branch of garden practice. Vines trained on the spur system may, it will perhaps be well to state, have one or more canes, and the whole of the laterals—that is to say, the shoots of the previous season—are cut back to immediately above the first or second bud from their base. When the rafter of the house is about twenty feet in length the usual practice is to limit the vine to a single rod, but when the rafter does not exceed fifteen feet it is better to allow two canes to each. Where the growth was skilfully regulated in the first instance the canes will be furnished with spurs about fifteen inches apart along each side. When they are at this distance apart it is a very good plan to leave two shoots to each, and at the annual pruning to cut one back to the first and the other to the second bud. The finest bunches, it must be understood, are usually produced on shoots which push from the second bud, and by having two shoots, and by alternately pruning them as advised, the spurs can be kept close at home, and a supply of strong bearing wood with prominent buds for fruit bearing be maintained. The shoots should be cut clean through in a slanting direction about half an inch above the bud with a sharp knife. Pruning scissors are sometimes recommended and occasionally used for the removal of laterals from vines, but they are not equal to an ordinary pruning knife, for they do not make such a clean cut, and when they are not sharp there is some risk of their bruising the wood.

On the completion of the pruning proceed to thoroughly cleanse and dress the vines. In the first place, remove as much of the bark as is loose and will come away from the canes readily. Some cultivators object to the removal of bark, however loose, from vines that are free from insect pests. But after a long experience I am convinced that not only is there no objection to removing the loose bark, but that it is very much better to take it away; not only because of its being unsightly in appearance, and of its rendering the work of washing and dressing the wood after pruning more difficult, but because of the greater facility with which the lodgment of insect pests can be prevented after its removal. Bark firmly attached must of course be allowed to remain, and it is necessary to take the greatest care in removing that which is loose from about the spurs, because of the risk of injuring the dormant buds. Vines that have been kept perfectly free from red spider and other pests during the summer will not require a very heavy dressing now, but they should have a thorough washing. This cleansing process is best effected with a soft brush, warm water, and a lump of either Gishurst Compound or Nicotine Soap. The water is put in a pail or can and the insecticide in a shallow saucer, and as the work proceeds the brush is occasionally drawn across the contents of the saucer. Soft soap may be used instead of either of the two preparations mentioned, but it is not so efficacious, and ought not to be

employed unless there is any difficulty in obtaining them. The spurs must be thoroughly washed, for it is in the crevices about them that insects find a lodgment, if there are any on the vines. Canes infested with either scale or mealy bug must have special attention, and as far as possible every trace of either of these two pests must be carefully removed with a piece of pointed stick or a small hard brush before the washing is commenced. To thoroughly clear the vines will require some little patience, and occupy, comparatively speaking, considerable time; but there must be no begrudging of labour in dealing with vines that are otherwise than clean.

On completion of the washing, the vines should have a dressing of some suitable insecticide applied to them. This may be the usual mixture of soft soap, tobacco juice, clay, and soot, or a solution of Gishurst Compound or Nicotine Soap. Of the three, the two last preparations are decidedly the best, particularly so for amateurs, as they are remarkably efficacious and can be readily prepared and used. They can also be recommended on the score of economy. A suitable strength at which to use them on vines when at rest is at the rate of from four to six ounces to the gallon of water. Full directions for their use accompany each package, so that the amateur will not be perplexed in preparing them. The best of the home-made mixtures is perhaps one consisting of soot, sulphur, and soft soap, six ounces of each, half a pint of tobacco water, and a gallon of soft water, with sufficient clay to make it of the consistency of paint and ensure thorough amalgamation of the several ingredients. It is cheaper to buy tobacco juice than to make tobacco water; but I would add, for the information of those who prefer to make the latter, that for half a pint two ounces of the best shag will be necessary, and that it should have the quantity of water mentioned poured when boiling hot over it, and then be allowed to stand two or three hours. To mix the soot and sulphur thoroughly and with the least trouble, pour a little tobacco water over the soft soap and work it into a thick paste; then add the soot and sulphur in small portions, and as the mixture becomes too thick to be worked smoothly add more tobacco water so long as it lasts, and then fall back upon the plain water. A little clay may also be added at the same time, but as that mixes freely with water it is not really of importance to add it until the whole of the given quantity of water has been poured into the vessel. An ordinary paint brush of medium size is the handiest for applying dressings of all kinds, and, whichever of the three mentioned is used, due care must be taken to well work it into the crevices about the spurs.

The vines are now ready for starting, and to promote the production of wood of an equal degree of strength throughout their entire length, train them horizontally along the lower part of the rafters, and allow them to so remain until the young shoots are two or three inches in length. They must be dealt with very gently, and not be overstrained; and it will perhaps be useful to state that they cannot be trained perfectly straight, and that the desired end will be attained by bowing them round in such a way that the top of the cane is twelve or eighteen inches above the lower part of the rafter. Should there be any difficulty in bringing the vines down in this manner, a fairly equal distribution of the growth may be secured by simply lowering the top of the vines on a level, or nearly so, with the bottom of the rafter, and then suspending them with cord of sufficient strength to hold them securely. Whether simply lowered or trained along the front of the house, great care is necessary in returning them to their proper position, for when the shoots are only a few inches in length very little indeed will suffice to knock them off.

The foregoing directions apply with equal force to vines in early and late houses, and we will now proceed to consider the conditions most favourable for starting the vines from which the earliest crop is to be obtained. The proper time for starting depends of course upon the date on which ripe grapes are required upon the table, but those who are not well acquainted with the details of grape growing ought not to begin before the middle of February. There are so many difficulties to contend with, and the risk of failure is so great, that it is not prudent to commence earlier; in many cases it will be better to defer starting the vinery until quite the end of the month, or early in March, as when the vines make their growth during the early stages under favourable conditions they can be pushed on freely as the crop approaches maturity. Previous to lighting the fire the house should be shut up for ten days or a fortnight, and when the heating apparatus is set to work a beginning should be made with a temperature of 45 deg. This heat will suffice for a fortnight, when it should be increased to 50 deg., and at the end of the second fortnight a further rise of 5 deg. will be necessary. When the buds begin to swell increase the warmth to 60 deg., and as the growth progresses let it gradually rise to 70 deg. The temperature of the vinery, as of other structures, must be regulated in some degree by the state of the weather outside. For example, in sunny weather a rise of 5 deg. above the several temperatures mentioned may be allowed. After the heat has been increased to 55 deg. the night temperature should be 5 deg. below that advised for the day.

A moderate degree of atmospheric humidity must be maintained to assist the vines to break strongly, and this can be produced by sprinkling two or three times a day the walls and hot-water pipes, and by occasionally pouring water on the paths. The vines should also be syringed twice a day with tepid water until the new shoots are from two to three inches in length. The regulation of the ventilators when the vines are just breaking will require the greatest possible care. The shoots are then very tender and are very quickly injured by an excess of heat during an outburst of brilliant sunshine, or by a cold chill through the ventilators being left open a short period longer than they should be. Without discussing the after management of the vines, I would suggest that the young shoots should in every case be tied down before they touch the glass, because of the injury likely to be done to the points during a sharp frost or a spell of cold weather. This it may be added should be accomplished gradually and carefully, for they are very readily detached from the cane.

Notes of Observation.

HOW NATURE DOES HER ROOT PRUNING.

I was very much interested the other day in the condition of the roots of some vines here. Wishing to enrich the surface of one of the vine borders, I had all the surface soil removed as deep as it was safe to do so without injuring too many roots. In doing this I came upon some strong thong-like roots, two of which had reached nearly outside of the border without producing any fibrils the whole length. Another root in its course had met with an obstruction in the shape of about half of a broken brick when half-way across the border. From the point of contact with the brick that root had made no less than nine others. These were produced almost equally on each side, and then proceeded to find their way to the outside of the border in the same manner as the two others which had not met with any obstruction. But they were, as a matter of course, much smaller than the two that had reached the outside of the border first. The lesson learnt from it is a useful one, as it evidently points out the way that Nature does her own root pruning when the conditions are favourable. The chances are that if I had attempted to prune these particular roots I should not have done it half so well. That the half-brick was the cause of an increase in the number of roots at that particular point I am quite convinced, for I removed the soil with my own hands, and lifted the portion of brick from its bed where it had lain since the vines were planted in 1871. It may be asked, What relation can a circumstance of this nature have towards root pruning? I reply that the fact I have related is the strongest possible evidence that the obstruction of the brick answered the same purpose as if the point of the root at that particular place had been cut off with a knife. I do not mention this case as in any way out of the common occurrence of a gardener's experience, because it is by no means unusual to lift a tree with a stone held firmly in the grip of two or more roots. But such cases demonstrate in the clearest possible manner that a single root was in the first place obstructed in its course, and that the obstruction was conducive to an increase in the number of roots from that particular point. But the circumstance just related has a strong bearing on the merits of root pruning as applied to our everyday practice, as it shows in the most positive manner that Nature is not averse to the practice, but rather that it is beneficial in increasing the number of roots when the operation is judiciously performed. How often Nature root prunes in her own way in the case of large trees we have no means of knowing; but from this and other examples which come under our notice we may conclude that it is practised on a large scale in many soils; and whether we may trace a debilitated tree or a fruitful one to that cause, is a subject that may well occupy the attention of all concerned in fruit-tree culture.

J. C. CLARKE.

THE CRIMEAN SNOWDROP.

This early-flowering bulb is now in great beauty in the garden under my charge, and is a great favourite with the ladies. It is altogether distinct in foliage from the common snowdrop, and the individual flowers are larger. With me it is but a few days later in coming into flower, and as we grow it in alternate clumps with the winter aconite and single blue hepatica, the arrangement is a very pleasing one. Those who are fond of snowdrops may confidently be advised to grow this one.

J. MACDONALD.

LATE-KEEPING GRAPES.

I dare say some will think I am a little partial when I say that this season I find Mrs. Pince's Muscat to keep much better than Lady Downes' Seedling. This is not the first time that it has occurred, although as a rule Lady Downes' Seedling keeps the longest in good condition. No doubt this is accounted for by the degree of ripeness of each variety; but one can hardly account for any difference in this respect, seeing that both varieties were grown in the same house, and in every respect treated the same. Still the facts are as stated, let the explanation be what it may.

J. C. C.

GARDEN DAISIES.

To any one who can devote some time and space to raising daisies from seed it is an interesting occupation, as a packet of seed will yield various shades of colour that any one who has not had experience with daisies would not expect. It is one of my favourite spring flowers. I therefore make it a practice of sowing a bit of seed every year, and as I have only the convenience of my little greenhouse in which to raise the plants I sow it in rather large shallow pans. These are drained in the ordinary way and then filled with fine soil, which is well watered before the seed is sown. This is necessary, as the seed is very small, and is soon washed away if carelessly watered. When the seed has been sown the pans are taken to a shady shelf in the greenhouse, and the soil kept moist by gentle waterings. I ought to say that my seed is sown in the month of February; it may be sown several weeks later, but I prefer early sowing, as then stronger plants are obtained, which flower earlier. I very often have a number of my seedlings in flower in the following June, and all of them will bloom the first year if the seed is sown in February and dealt with as here advised. Any respectable seedsman will supply the seed. The management does not end yet, as the young seedlings will want some attention in the way of watering as often as necessary while they are in the pans, and as soon as they have three or four leaves they should be pricked off into other pans, or they may be pricked off into a six-inch pot, twelve in each. When they are so very young the soil should be finely sifted and have some silver sand mixed with it. During the time they are in the greenhouse it is well to shade them in very bright weather; a piece of newspaper laid over the pans for four or five hours during the hottest part of the day will give all the shade required. I do not suppose that many people will care to follow me in putting a few dozens of the earliest plants into single pots; but this is what is done, as I like to have them close under my eye. The remainder of my stock is planted about the end of May on a piece of ground under the shade of a wall. The surface is made rather fine and the plants put six inches apart each way. Daisies like a rather rich soil, a moderate amount of shade, and plenty of water in dry weather. I have quite a collection of daisies, the colours ranging from dark crimson to pure white, and all the varieties have been raised by myself.

P. S. T.

SEAKALE FROM SEED.

As it is not always convenient to obtain the long thong-like roots of seakale plants with which to increase the stock, it may be of some service to briefly describe the way in which seakale plants may be raised from seed. In the first place, it should be stated that to promote a vigorous growth the ground must be made rich with plenty of well-rotted manure. The ground should now be dug up at least eighteen inches deep, and plenty of manure put in the bottom of the trench, and a liberal quantity mixed with the staple at various depths. Any time during the first fortnight in March is a good time to sow the seed. The surface should be raked down moderately fine, and the drills be two feet apart and one inch in depth. The seed ought to be sown rather thin, as the plants require to be one foot apart, to which distance they should be thinned as soon as they are large enough. The black fly is very partial to the tender leaves of the young seakale; so they must be watched, and as soon as the pest makes an appearance dust the leaves with some wood-ashes when they are damp with dew. The plants must be kept free from weeds throughout the summer, and in the autumn many of them will be large enough to take up for forcing. If it is desired to grow and force the plants on the same spot it may be done. Forcing seakale with pots and manure in the old-fashioned way is by no means to be despised; on the contrary, it has much to recommend it. In the latter case the seed should be sown in patches. In the first place, the position for each clump should be marked with a stick three feet apart. If more than one row is required the clumps in the second and third rows should be midway between the others. In this case the seed should be sown in a ring twelve inches in diameter, and as the plants advance in growth they should be thinned out so as to leave three of the strongest to form a permanent clump. It is not to be expected that strong crowns equal to old-established plantations can be obtained in one season, but if the ground is well prepared the plants obtained from seed in one season are not to be despised. I have many times been glad to resort to this way of growing seakale, and have always secured a fair return for the time and labour bestowed upon it.

J. M.

Replies to Queries.

Cucumber Plants.—F. G.—A temperature of 70 deg. will be sufficient until the plants have made considerable progress, and produced three or four leaves. It may then be raised 5 deg. with fire heat and 10 deg. in bright sunny weather. The spindling growth of which you complain has been caused by too strong a heat combined with insufficient ventilation. A bottom heat of between 75 deg. and 80 deg. will be the most suitable.

Lobelia.—W. W. R.—As the plants are showing signs of damping off, your only course to save the stock is to take off the tops at once and strike them. It is essential to take them off at a point where the stem is perfectly round, and as the smallest scrap can be struck without difficulty, the safest plan will be to take them off at the first or second joint from the top. They ought to have the advantage of a brisk heat and be kept somewhat drier than usual.

Failure of Mushroom Beds.—J. S.—So far as we are able to form an opinion from the information before us, we consider it probable that the cause of your beds failing was an insufficiency of warmth. The temperature of a mushroom house should be from 55 deg. to 65 deg., and it is possible that if you were to raise it slightly above the minimum given the beds would become productive. Much of course will depend upon the condition in which they are now. Mushroom beds are frequently injured by injudicious watering, especially during the winter season, and if they have been kept at all wet the best course will be to break them up and begin again with new beds. The water with which mushroom beds are sprinkled should be of a temperature of about 75 deg.

Interpretation of Schedule.—Mr. Hooson, secretary of the Elland Horticultural Society, submits a case as follows:—"Collection of ten stove or greenhouse plants in bloom, not more than two varieties of any species." The question arises as to the meaning of this, and also as to its propriety. Mr. Hooson asks, "Would it be proper to read not more than two varieties of genera?" To this we reply that the meaning is clear, and the substitution of either genus (singular) or genera (plural) would be a perversion of the meaning, and therefore is not to be thought of. The object of the rule is as simple as its meaning. It is to prevent the swamping of the class by a flood of plants nearly alike. For example, suppose a grower possessed of a large stock of seedling begonias; he might with a more open rule put up ten varieties of these plants, and contend that the rule was complied with; but as the rule stands he cannot do so. Exhibitors who do not understand the term "species" may be equally unable to understand "genus," and so long as a rule is stated in proper terms, as this is, we do not see that its interpretation is a matter of great consequence, for the old saw comes in which declares that we are not bound to find people in brains. However, although the rule clearly expresses what is intended, we venture to think that for working purposes it may be improved as thus:—"Collection of ten Stove or Greenhouse Plants in flower, not more than two species of a genus or varieties of a species. Then you might have, for example, two dipladenias or two allamandas, &c., &c., and they must be distinct either as species or varieties. It may be proper to add that the term species is either singular or plural, and in reference to a plant or animal it is not proper to speak of it as a specie. The term specie is only used for coined moneys.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any other earthy matter calculated to produce gall-stones or gout deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its natural, and consequently healthy, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Household holders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

Obituary.

On the 11th inst., at 16, Kensington Gore, Mr. WILLIAM HURST, of the firm of Hurst and Son, seed merchants. The deceased gentleman was for many years a trustee of the Gardeners' Royal Benevolent Institution.

Recently, in Paris, M. J. DECAISNE, the eminent botanist and pomologist, and editor of "Le Jardin Fruitier du Muséum."

Markets.

COVENT GARDEN.

FRUIT.	
Apples..... per ½ sieve	2s. 0d. to 7s. 6d.
Grapes..... per 100	2s. 6d. „ 10s. 6d.
Lemons..... per 100	4s. 0d. „ 6s. 0d.
Oranges..... per 100	4s. 0d. „ 8s. 0d.
Pine-apples, Eng. .. per lb.	1s. 6d. „ 2s. 6d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Asparagus, French, bun.	4s. 0d. „ 6s. 0d.
Asparagus, English, bun.	7s. 6d. „ 10s. 6d.
Asparagus, Sprue, per bun.	1s. 3d. „ 1s. 6d.
Barbe de Capucin ..	0s. 6d. „ 0s. 8d.
Beans, French .. per lb.	1s. 6d. „ 2s. 6d.
Beet..... per dozen	1s. 0d. „ 1s. 6d.
Cabbages..... per doz.	1s. 0d. „ 2s. 0d.
Carrots..... per bunch	0s. 4d. „ 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. „ 4s. 0d.
Celery..... per bundle	1s. 6d. „ 2s. 6d.
Cucumbers..... each	0s. 9d. „ 1s. 0d.
Endive..... per doz.	1s. 0d. „ 1s. 6d.
Garlic..... per lb.	0s. 10d. „ 1s. 0d.
Herbs..... per bunch	0s. 2d. „ 0s. 4d.
Horse-radish, per bundle	3s. 0d. „ 4s. 0d.
Leeks..... per bunch	0s. 3d. „ 0s. 6d.
Lettuces, Cabbage, per dz.	0s. 9d. „ 1s. 6d.
Lettuces, Cos.....	2s. 6d. „ 4s. 6d.
Mint, Green .. per bunch	0s. 9d. „ 1s. 0d.
Mushrooms..... per basket	1s. 6d. „ 2s. 0d.
Onions..... per bushel	4s. 0d. „ 5s. 0d.
Onions, Spring, per bunch	0s. 4d. „ 0s. 6d.
Parsley.....	0s. 4d. „ 0s. 6d.
Parsnips..... per doz.	1s. 0d. „ 1s. 6d.
Peas..... per lb.	0s. 9d. „ 1s. 3d.
Potatoes, New .. per lb.	0s. 4d. „ 0s. 8d.
Radishes..... per bunch	0s. 2d. „ 0s. 6d.
Rhubarb..... per bun.	0s. 6d. „ 0s. 9d.
Salsify..... per bundle	1s. 6d. „ 2s. 0d.
Seakale..... per pun.	2s. 0d. „ 2s. 6d.
Small Salading ..	0s. 3d. „ 0s. 4d.
Spinach..... per bushel	2s. 0d. „ 2s. 6d.
Tomatoes..... per lb.	1s. 0d. „ 1s. 6d.
Turnips..... per bunch	0s. 4d. „ 0s. 8d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Azalea..... per doz. sprays	1s. 0d. „ 1s. 6d.
Bouvardias..... per bunch	1s. 0d. „ 1s. 6d.
Camellias..... per doz.	3s. 0d. „ 6s. 0d.
Carnations..... per doz. blms.	1s. 0d. „ 2s. 0d.
Cinerarias, per doz. bun.	7s. 6d. „ 10s. 6d.
Cyclamens, per doz. blms.	0s. 3d. „ 0s. 6d.
Deutzia..... per doz. bun.	5s. 0d. „ 10s. 0d.
Eucharis..... per doz.	5s. 0d. „ 7s. 6d.
Gardenias, per doz. blooms	10s. 0d. „ 21s. 0d.
Heliotropiums .. sprays	0s. 6d. „ 1s. 0d.
Hyacinths..... spikes	5s. 0d. „ 8s. 0d.
Lapagerias, per doz. blooms	1s. 0d. „ 6s. 0d.
Lilac, French, per bunch	5s. 0d. „ 8s. 0d.
Lily of the Valley, per doz. spikes	1s. 0d. „ 2s. 0d.
Marguerites, per doz. bun.	4s. 0d. „ 6s. 0d.
Mignonette.....	4s. 0d. „ 8s. 0d.
Pelargonium, Zonal, per doz. trusses	1s. 0d. „ 1s. 6d.
Primroses..... per doz. bun.	1s. 0d. „ 1s. 6d.
Primulas, double, per bun.	1s. 0d. „ 1s. 6d.
Primulas, Single, dz. bun.	6s. 0d. „ 9s. 0d.
Roses..... per doz.	3s. 0d. „ 7s. 6d.

FLOWERS—Continued.

Roses, Tea.....	2s. 0d. „ 3s. 0d.
Snowdrops, per doz. bun.	1s. 0d. „ 3s. 0d.
Tropeolium, per doz. bun.	1s. 0d. „ 3s. 0d.
Violets..... per doz. bun.	1s. 0d. „ 2s. 0d.
Violets, French, per bun.	2s. 0d. „ 7s. 6d.

CORN.—MARK LANE.

Wheat, Red, new..... per qr.	35s. to 53s.
Wheat, White, new.....	33s. „ 56s.
Flour, town-made whites, per sack of 280lbs.....	40s. „ 47s.
Flour, households.....	33s. „ 39s.
Flour, country households, best makes.....	36s. „ 41s.
Flour, Norfolk and other seconds	32s. „ 35s.
Barley, Malt, per qr.....	30s. „ 53s.
Barley, Grinding.....	24s. „ 30s.
Malt, English.....	35s. „ 50s.
Malt, Scotch.....	40s. „ 48s.
Malt, old.....	28s. „ 38s.
Malt, brown.....	30s. „ 34s.
Oats, English.....	22s. „ 30s.
Oats, Irish.....	22s. „ 28s.
Oats, Scotch.....	24s. „ 32s.
Rye.....	42s. „ 48s.
Tares.....	50s. „ 70s.
Beans, English, Mazagan	36s. „ 40s.
Beans, Tick.....	38s. „ 44s.
Beans, Winter.....	39s. „ 44s.
Peas, Grey.....	30s. „ 36s.
Peas, Maple.....	40s. „ 45s.
Peas, White.....	30s. „ 44s.

SEEDS.

Mustard, brown, per bush.....	9s. to 16s. 0d.
Mustard, white.....	5s. „ 14s. 0d.
Canary, per quarter.....	45s. „ 60s. 0d.
Canary, fine.....	52s. „ 56s. 0d.
Cloverseed, red, old, per cwt.	40s. „ 70s. 0d.
Cloverseed, red, new.....	60s. „ 90s. 0d.
Cloverseed, white.....	50s. „ 95s. 0d.
Coriander, per cwt.....	23s. „ 25s. 0d.
Hempseed, small, per 336 lb.	34s. „ 35s. 0d.
Hempseed, Dutch.....	36s. „ 37s. 0d.
Tares, winter, new, per bush.	6s. „ 7s. 6d.
Trefoil, per cwt.....	18s. „ 33s. 0d.
Ryegrass, Italian, per qr.....	24s. „ 34s. 0d.
Linseed, sowing, per quarter	64s. „ 68s. 0d.
Rapeseed, new, per quarter..	64s. „ 62s. 0d.
Caraway, Calcutta, per cwt.	27s. „ 30s. 0d.
Alsike, per cwt.....	50s. „ 90s. 0d.

COAL MARKET.

Bebside West Hartley..... per ton	14s. 3d.
Wallsend Hetton.....	16s. 0d.
„ Hetton Lyons.....	14s. 6d.
„ Lambton.....	15s. 6d.
„ Original Hartlepool.....	16s. 0d.
„ Wear.....	14s. 6d.
„ Tunstall.....	14s. 6d.
„ Tees.....	15s. 6d.

MONEY MARKET.

Consols, 3 per cent.....	99½ to 100½
Reduced 3 per cent.....	99½ „ 100½

Law.

COMPENSATION TO OUTGOING TENANT.

IN the South-Eastern Circuit the case of Lawrence v. Rowley was of considerable interest. It was an action by a farmer, who had been tenant of a farm in the counties of Huntingdon and Bedford, against the widow of his late landlord, to recover a sum of nearly £200, which he claimed to have been entitled to receive as outgoing tenant. He had in 1875 taken a farm at St. Neots of about 110 acres, from year to year, at a rent of £300 a year (paying the outgoing tenant £950), upon terms that he should during the tenancy till and cultivate the land in a husbandlike manner, according to the custom of the country in the counties of Huntingdonshire and Bedfordshire, and that the landlord should at the expiration of the tenancy pay to him all such reasonable allowances as he as offgoing tenant should, according to the custom, be entitled to receive in respect of any benefit which the tenant should then give up to the landlord of any tillages, sowing, manures, browse, farm buildings, fixtures, improvements in cultivation of the lands and farm premises, according to the custom, and he alleged that during the tenancy (in the course of which the rent was reduced by £50, yet as 30 acres were afterwards added to the holding the rent was restored to £300), and which ended at Michaelmas Day last, by notice from the tenant, given at Lady Day, he tilled and cultivated the lands in a husbandlike manner, according to the custom of the counties, and at the end of the tenancy he gave up to the landlord the benefit of certain tillages, sowing, manures, browse, farm buildings, improvements, fixtures, and cultivation, according to the custom, and that thereupon he became entitled, according to the custom, to receive from the landlord the sum of £191 17s. 6d., by way of reasonable allowances in respect thereof, and that this was the amount agreed upon by two skilled valuers, one appointed on each side, and the plaintiff put his case also, as an alternative, on the ground of an agreement that if he gave up possession he should receive such allowance. This, however, and the other of the plaintiff's allegations (except as to the tenancy and its terms) were denied by the defendant, who

also alleged that if any such tillages, &c., were left by the plaintiff as alleged on the farm they were of no value, and were not such improvements as the defendant would be bound to take over or be liable for according to the alleged custom, and that some of the alleged improvements were wholly useless and of no value; and there was a counter-claim against the plaintiff for not cultivating the farm in a husbandlike manner, he having injuriously and improperly cross-cropped the farm, and left upwards of 100 acres in white straw corn, and left the farm exhausted, foul, and uncultivated, and without any fallow, by reason of which the farm was injured.

The plaintiff being called in support of his case, stated that when he took the farm Mr. Rowley told him that what buildings he took to and paid the outgoing tenant for he would pay him for when he went out, and for the fixtures he paid for, and also the improvements he made, and he paid the outgoing tenant £950 for all the things on the farm. Asked in cross-examination whether he had not got the benefit of it all, he said, "Benefit! I had to pay for it all; it was no benefit to me; I wish I had not taken the farm." (Laughter.) The whole of the produce of the farm, he said, for that year came only to £450, and he had to pay £300 for the year's rent. He paid the £950 for the growing crops and the whole of the live and dead stock on the farm. It was by agreement between him and Mr. Rowley, without any valuers. He now claimed in respect of farm buildings he had himself put up—a range of sheds, "hovels," outhouses, &c.—which had cost him about £100, and he produced bills of the timber he had paid for. He swore that this was in the first year of his tenancy, and that Mr. Rowley told him that what he did he would pay for if a tenant did not. Asked if he knew what cross-cropping meant, he said, after a little hesitation, that he did, and admitted that he had taken two white straw crops in successive years, but he denied that he knew of a custom in the country not to "cross-crop;" on the contrary, he said, he knew it was done, and he believed it to be good husbandry, and denied any knowledge of an agreement not to do it. He admitted that there were no "fallows" on the farm when he left it, and said he did not know whether that was good farming or not, but he considered the farm was in a good condition, considering the state of the weather, &c. He had kept the farm well stocked, sometimes 100 pigs, often as many as 40 or 50 breeding sows.

The plaintiff's case being substantiated by his valuer, the jury awarded him £108.

FLUDER FLOWER GARDENS.

GIANT BERLIN LILIES OF THE VALLEY, fine flowering crowns, 1s. 3d. per dozen, 7s. 6d. per 100.
DOUBLE AMERICAN TUBEROSES, "Pearl," three for 1s. 2d., 4s. per dozen.
HYACINTHUS CANDIDANS, three 2s., 7s. 6d. per dozen.
CHRYSAANTHEMUMS, Twelve choice named rooted plants, 2s. 3d.
PHLOXES, Herbaceous, six named, 2s.
PENTSTEMONS, six named, 2s.
SWEET VIOLETS, New York, De Parme, and Double Red Russian, the three best doubles, 3s. 6d. per dozen; Lee's New Argenteaflora, 5s. per dozen; Victoria Regina and White Czar, 2s. 3d. per dozen.
PANSIES, twelve splendid Show and Fancy, 3s. 6d.
VIOLAS, twelve beautiful Large-flowered sorts, 2s.
PELARGONIUMS, French and Regal, six named, 2s. 6d.
ZONAL GERANIUMS, finest sorts, 5s. per dozen.

MR. R. W. BEACHEY, Fluder, Kingskerswell, Devon.

PLANTS.—PLANTS.—Post Free.—Twenty-five Splendid Zonal Geraniums for Pot Culture, 6s., 12 for 3s. 6d.; 12 Fuchsias, very fine varieties, 2s.; 12 Gloxinia Bulbs, just starting, the Erfurt Strain, 2s. 6d. Catalogue of Plants and Cuttings now ready, Post Free. JOHN FOX, Florist, Banbury.

MUMMY PEAS.—This Pea grows about 5 ft. in height; the stalk is very thin at the bottom, but at the top is as thick as a broad bean-stalk, and bears the flowers and pods in a bunch at the top. The original is said to have been 2,000 years old when planted, having been found in the tombs of Egypt. Price 3d. per doz.; five doz., post free, for 1s.—Address
SCHOOLMASTER, Pytchley, Kettering.

New Potato.

F AND C. MYATT are now sending out their **NEW POTATO, ALBERT EDWARD**, which was awarded a First-class Certificate at the International Potato Exhibition. It is a First Early White Round Potato, raised from the Fluke, very prolific, and described by the judges as "soft, mealy, and of the finest flavour." Price 5s. per peck, 18s. per bushel, free on rail.
F. and C. MYATT, Offenham, Evesham.

Striped and Flaked Petunia.

HENRY SURMAN, FLORIST, WITNEY, OXON, again offers his well-known strain, the best that money can buy.
1s. per packet.

Special Cheap Offer.

GERANIUMS, all autumn-struck good sorts, named, 6s. to 9s. per 100; choice Single and Double Zonals, 1s. 6d. and 2s. per doz.; Silver-leaf, 8s. per 100. Ageratum, Iresine, Sedum variegata, and Calceolaria Golden Gem, all 4s. per 100. Double Daisies, Red and Pink, strong blooming roots, 2s. per 100; 17s. per 1,000. Lobelia, best dark blue, true from cuttings, 2s. 6d. per 100. Coleus, good sorts, 9d. per doz. Fuchsias, good sorts, 5s. per 100. Wallflowers, Blood and Yellow, very strong, 4s. per 100. Blue Russian Violets, strong blooming sorts, 5s. per 100. Perennial Border Plants, in variety, 1s. per doz. All package free. List for stamp.
JOHN NORFOLK, Wilburton, Ely, Cambs.

ZONAL GERANIUMS, strong autumn-struck, from single pots (3-inch).—Vesuvius and Jean Sisley, 8s. per 100; Fire King, White Vesuvius, Master Christine, Jennie Dodds, and President Garfield, 10s. per 100. Must be cleared by middle of March. Cash before sending. Orders now booked.
HENDER and SONS, Plymouth.

CHANGE YOUR SEED.—Cheap Irish-grown Potatoes: Snowflake, 10s.; Early Rose, 8s.; Schoolmaster, 10s.; Magnum Bonum, 6s.; Golden Shaw, 10s.; Champion, 6s. per cwt.
P. J. KANE, Seed Grower, Kells, Meath.

TWENTY THOUSAND Mrs. Sinkin's Pink, the best white known, from 2 to 3 inches over, very sweet scented; 10,000 Cloves, Picotees, and Carnations; White Irises, White and other Phloxes, Auriculas; Chrysanthemums, all sorts; Tigrids, Pansies; Scarlet Carnation, the Coroner. Special price for 14 dozen.
W. WEALE, Taplow, Bucks.

Now Ready, price Sixpence.
HANDBOOK ON COMPOSTS, for the use of Gardeners and Amateurs in preparing Soils for the Potting of Stove and Greenhouse Plants, Ferns, Orchids, &c.—D. HALL, Shifnal, Salop, and all Booksellers. London Agents: Terry, Stoneman, and Co., 6, Hatton Garden, E.C.

TRADE CATALOGUES.

SUTTON AND SONS, READING.—*Farmer's Year Book, and Grazier's Manual, 1882.*

CHARLES H. CLISSOLD, MARKET HILL, WARWICK.—*Descriptive Catalogue of Kitchen Garden, Flower, and Farm Seeds.*

R. W. BEDELL, WALLINGTON, SURREY.—*Midget Catalogue of Plants and Flower Seeds.*

FREDERICK GEE, BIGGLESWADE, BEDS.—*Select Catalogue for 1882.*

W. CLIBRAN AND SON, ALTHINCHAM, CHESHIRE.—*Catalogue of New and Choice Plants.*

G. C. JARRAM, 25, BRIDGE STREET, LOUGHBOROUGH.—*Catalogue of Vegetable and Flower Seeds.*

JOHN FRASER, LEA BRIDGE ROAD, LEYTON.—*General Descriptive Seed Catalogue.*

THE CONVEYANCE OF STEAM.—The conveyance to long distances of steam for power or heating purposes has long been a problem with engineers, and its use has in many instances been discarded for compressed air. In fact, the measure of the distance to which steam may be carried with economy is not yet determined. A suggestion is now made by which owners of establishments in which steam is largely used might effect a large saving by concentrating their boilers in one place adjacent to a railway station or to the shore, or even constructing a large central boiler, where their coal may all be landed and used without cartage, and thence distributing the steam to their several works. The difficulty has always been to find a coating for steam-pipes absolutely preventing the radiation of heat, and, according to the *Boston Journal of Commerce*, such a covering may now be prepared. It is made of four parts of coal-ashes sifted through a riddle of four meshes to the inch, one part calcined plaster, one part flour, and one part fireclay. Mix the ashes and fireclay together to the thickness of thin mortar in a mortar trough; mix the calcined plaster and flour together, dry, and add it to the ashes and clay as you want to use it; put it on the pipes in two coats, according to the size of the pipes. For a 6-in. pipe put on the first coat about 1½ in. thick; the second coat wants to be about ½ in. thick. Afterwards finish the outside with hard finish, the same as is applied to plastering on a wall.—*Iron.*

NEW COLEUS OF 1882.—New Seedling COLEUS, 12 splendid varieties, now offered for the first time. They are unrivalled for their fine marked leaves, density, and richness of colours. All are fine, dwarf, and free-branching in habit. The finest collection ever offered. The 12 kinds sent, post free, for 12s.

12 NEW COLEUS OF 1881.—These are a magnificent lot that were partially let out in October, 1881. The set of 12 varieties, post free, for 6s.

12 SELECTED NEW COLEUS.—These are the pick of the English and Continental kinds. The set of 12 varieties, post free, for 3s.

12 MOST APPROVED COLEUS of previous seasons for 2s., post free.

The above 48 varieties of Coleus will be sent, post free, for 20s.

COLEUS VERSCHAFFELTI, the best for bedding, 1s. per doz., post free, from

B. W. KNIGHT, Florist, Battle, Sussex.

Cabbage Plants.

ENFIELD MARKET and EARLY RAIN.—HAM and SUGARLOAF, all at 2s. 6d. per 1,000; we always give 200 over in the 1,000, that is the correct count in Cabbage Plants. Red Dutch Plants for pickling, 6s. per 1,000. Sage Roots, Lemon Thyme, and Pennyroyal, Red and Dark Wallflowers, all at 5s. per hundred. Best Sovereign Rhubarb Roots in cultivation and earliest for planting out, 2s. per doz. Onion Seed, Bedfordshire Champion and White Globe, very fine, 4s. per lb.; White Spanish, 2s. 9d. per lb. All new and genuine, and all my own growing. Cash with orders.
RICHARD WALKER, Market Gardens, Biggleswade, Beds.

FINE well-shaped SHRUBS.—Abies Douglassii, 2 to 3 ft., 10s. per doz.; Pyramidal Yews, 3 ft., 8s. per doz.; Cupressus erecta viridis, 5 to 6 ft., 9s. per doz.; Juniperus chinensis, 2 to 3 ft., 9s. per doz.; Horse Chestnuts and Plaues, fine trees, for avenues, 12 to 15 ft., 12s. per doz.

W. JACKSON, Blakedown, near Kidderminster.

TEN THOUSAND GERANIUMS, Surplus stock from single (3-inch) pots, rooted out of doors in Autumn, very fine. Vesuvius and Jean Sisley, 8s. per 100; White Vesuvius, Fire King, Jennie Dodds, Master Christine, and President Garfield, 10s. per 100; M. de Lesseps splendid, 15s. per 100.
HENDER and SONS, Nursery, Plymouth.

POTATOES.

THE GARDENERS' MAGAZINE of FEBRUARY 25

WILL CONTAIN A GREAT MASS OF USEFUL INFORMATION:—

SELECTION of SORTS of POTATOES for various Soils and Purposes.

MANAGEMENT of the CROP of POTATOES from First to Last.

RELATIVE VALUE of POTATOES for Exhibition, Home Use, and Market Trade.

LIST of ALL POTATOES that have acquired Historical Importance, with Proper Names, Characters, and Uses.

DIRECTIONS for GROWING POTATOES calculated to be of great service to all who are interested in securing Heavy Crops of the Finest Quality.

THE GARDENERS' MAGAZINE.

Edited by Shirley Hibberd, F.R.H.S. Every Saturday, Price Twopence.

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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avrg. of 10 yrs. Chas- wick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sunths after Noon.	Sets.	Rises. Morn.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
26	S	Quadragesima. 1st Sunday in Lent.	6 54	13 5	5 32	11 24	2 56	7 50	8 25	4 45	5 15	40.1	Azalea Princess Beatrice, G....	Mauve.
27	M	Barcelona taken by the French, 1808.	6 52	12 54	5 34	After.	3 42	9 5	9 53	5 50	6 30	40.2	Azalea Primo Minister, G....	Pink.
28	Tu	Shirley Brooks died, 1874. MARCH.	6 50	12 43	5 36	1 22	4 18	10 38	11 20	7 18	8 3	40.4	Francisca eximia, S.	Violet.
1	W	St. David.	6 48	12 31	5 37	2 26	4 49	11 57	—	8 45	9 22	40.6	Lachenalia qdrocol. maculata, G.	Orange & Red.
2	Th	Chad, Archbishop.	6 46	12 19	5 39	3 31	5 13	0 27	0 53	9 52	10 18	40.7	Odontoglossum roseum, S. ..	Roso.
3	F	W. C. Macready born, 1793.	6 44	12 6	5 41	4 36	5 36	1 15	1 35	10 40	11 0	40.8	Odontoglossum Roezli, alb. S.	White.
4	S	Lord Somers born, 1652.	6 42	11 53	5 43	5 40	5 56	1 53	2 10	11 18	11 35	41.0	Rhododendron praecox, H....	Lilac.

The Gardeners' Magazine.

SATURDAY, FEBRUARY 25, 1882.

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ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (25 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2½d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

Exhibitions and Meetings for the Ensuing Week.

THURSDAY, MARCH 2.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

THE CATALOGUE OF VARIETIES OF POTATOES we publish this week is necessarily founded on that contained in our issue for February 19, 1881. It is so far corrected and enlarged that we venture to believe it has somewhat of a final character. In respect of all such matters, finality is necessarily unattainable, but we must always endeavour to attain to it, whatever the result may be. The idea of finality is suggested by the consideration that, in all probability, it will not be needful for us to attempt any further revision of the list, and therefore there will be no necessity for its reproduction in these pages. New varieties, as they appear, will have to be dealt with according to their merits, but there remains very little to be done in respect of the formal tabulation of the varieties that at this moment may be fairly regarded as entitled to recognition.

It will be seen that the varieties tabulated number 400, and the synonyms number 140. It follows that 540 names have been scrutinized, both with regard to current descriptions and our own accumulated notes of comparative culture, and of observations made at exhibitions and elsewhere. From the list of last year we have removed 36 names as of doubtful value. On the other hand, we have added 61 names that we regarded as clamouring for admission. Thus the alterations made number 97 in all, and as in many instances half a dozen references were made for the clearing up of a single question, those of our friends who expected the new list at an earlier date will probably absolve us of every possible charge of indifference or dilatoriness.

As regards the value of such lists, this may be said with safety, that it is not instantly apparent. A dictionary is comparatively useless until the moment when it is wanted, and then the case is altered. We have endeavoured to comply with the requests of friends who tell us they need a list that may be conveniently pasted into the garden book, or appropriated separately for purposes of ready reference. An outlay of fourpence for two copies of this sheet will suffice to provide the material for a pocket catalogue that may prove of incalculable service to all who are interested in the subject. And we venture to advise that the list be mounted in a suitable book containing blank pages for the addition of notes and memoranda. The present impression will be quickly disposed of, and will not be reprinted.

THE LORD MAYOR AND SHERIFFS of London have generously consented to follow in the footsteps of their predecessors in respect of the International Potato Exhibition. They will therefore open the exhibition with some suitable ceremony at the Crystal Palace, on Wednesday, September 20. The exhibition will continue open throughout Thursday, September 21. The schedule is on the old lines, but contains a new proviso for the especial benefit of people blessed with the gift of inventing new names for old sorts.

No. 878, NEW SERIES.—VOL. XXV.

INTERNATIONAL POTATO EXHIBITION will be held in the Crystal Palace, Sydenham, on Wednesday and Thursday, September 20 and 21.

SCOTTISH PANSY SOCIETY.—The exhibition for the present year will be held in the Society of Arts Hall, Edinburgh, June 23.

A DOUBLE ROSE COLOURED BOUVARDIA is announced as on the way to form a companion plant to the beautiful Alfred Neuner.

DUNDEE HORTICULTURAL SOCIETY.—A Grand Floral Fête will be held in the High School Grounds on August 31 and September 1 and 2. The schedule may be obtained from Mr. D. P. Scott, 9, Renny Place, Broughton Ferry.

THE PLANTS OF FLORIDA, U.S.A., comprise many that are valued by cultivators here and throughout Europe. The herbaceous and climbing plants are more especially important. Mr. A. H. Curtiss, of Jacksonville, Florida, has published a list of such as may be conveniently despatched by rail and ship, with a statement of terms and general arrangements.

THE SOCIÉTÉ ROYALE DE ELORE of Brussels will hold its usual exhibition in the Palais des Beaux-Arts, Rue de la Régence, April 30, and May 1 and 2. The subjects scheduled comprise new plants, orchids, palms, ferns, fruits, and all the flowers of the season. The programme is published by Baertsoen, 5, Grand Place, Brussels.

PADDINGTON PARK is once more within the domain of possibility. The Metropolitan Board has risen to a reasonable view of the subject, or at all events to a view less unreasonable than the one that for a moment seemed likely to crush the project. We shall hope to see the Board advance yet another step, and we do not doubt that public spirit will be equal to the burden that will be cast on voluntary effort.

HAPPINESS IS EASY OF ATTAINMENT, for it may be found in a market garden. Hark to the *Daily News*:—"If people only knew it, which they don't, nor will they believe it when told, the ideal life is that of the market gardener. Farmers are not happy. Their interests are too large and serious. But the man who reverts to first principles, and cultivates his garden for his livelihood, has solved the secret of content."

THE SEASON.—In a garden near London the crocuses were in full bloom on the 14th of March, 1880, the 13th of March, 1881, and the 19th of February, 1882. Judged by this standard, the present season is three weeks earlier than the two preceding. Whether its earliness is an advantage remains to be seen. On each of the dates named the weather was brilliantly sunny, but this year the temperature was higher than in the two years preceding.

THE CLIMATE AND RESOURCES OF NEWFOUNDLAND were recently discussed upon at a meeting of the Society of Arts by Mr. E. Hepple Hall, and the paper is printed at length in the Society's *Journal* for February 10. The subject merits the attention of restless spirits, for it appears Newfoundland is much more of a paradise than it has been represented, and might prove a fine field for enterprising farmers, foresters, and others skilled in rural industries. The geographers and botanists might also perhaps take note afresh of Newfoundland as worthy of exploration.

SOLIDIFIED OIL is a new material for lubricating machinery and for general use wherever tallow or suet is applicable as a lubricant. Its melting point is that of boiling water, but it is comparatively unaffected by cold. It leaves no deposit, and it protects rubber valves and boiler plates, and it does not gum or clog on exposure to air or heat. In places where machinery demands the constant employment of lubricants solidified oil has claims to consideration. Samples for trial may be obtained of A. B. Fleming and Co., Caroline Park, Edinburgh.

THE PORTRAIT OF MR. SHIRLEY HIBBERD published by Mr. Allen, 4, Ave Maria Lane, is represented as more costly than suits the convenience of many who wish to possess it. The price charged (10s. 6d.) is in accordance with the trade rule in respect of a first-class etching of a certain size, this, in the black, measuring 10 in. by 7 in., and mounted on stout paper 25 in. by 19 in. However, as a cheap edition is demanded, a limited impression has been taken, and the copies are now on sale at 5s. each. A few of the first impressions, with autograph, may still be obtained at the original price, 10s. 6d. There will be no further printing from the plate under any circumstances.

PLANT LABELS.—The Council of the Society of Arts renew the offer of a Society's silver medal, together with a prize of £5, placed at their disposal for the purpose by Mr. G. F. Wilson, F.R.S., for the best label for plants. The object of the offer is to obtain a label which may be cheap and durable, and may show legibly whatever is written or printed thereon; the label must be suitable for plants in open border. These considerations will principally govern the award. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the secretary of the society not later than May 1, 1882. The council reserve to themselves the right of withholding the medal and prize offered if, in the opinion of the judges, none of the specimens sent in are deserving.

EXOTIC FERNS FOR AMATEURS.

AMONG the large number of interesting plants that are now in cultivation, the exotic ferns deserve special attention, for with a very little trouble a choice collection may be grown in a house of small dimensions, and afford a considerable amount of enjoyment to the owner throughout the year.

The house may be a lean-to or a small span-roofed structure, the latter form of house being preferable. The size must depend upon the number of plants desired to be cultivated: for the majority of villa gardens a house twenty-five feet long and nine feet wide, inside measure, will be sufficiently large; the height from the floor to the apex about seven feet, a pathway down the centre three feet wide. Ventilation must be provided by means of a few small sashes about eighteen inches by twelve, on each side of the roof near the apex, and also some apertures in the side walls, these latter so arranged that the cold air passes over the hot-water pipes before distributing among the plants: this will admit giving air to the house in dull weather without endangering the plants with a chill. A sufficient quantity of piping should be provided to maintain a temperature not lower than 50 deg. during the winter months without hard firing, which is so detrimental to the welfare of all classes of plants, especially ferns. Two four-inch pipes each side of a house twenty-five by nine feet would be quite sufficient in the south and west of England, but in the northern districts it will be far better to have an extra pipe. One or two evaporating troughs fixed on a flow-pipe will greatly assist in maintaining the moist atmosphere so conducive to the luxuriant growth and verdure of ferns.

The benches on each side of the pathway will be most durable constructed of slate, and covered with shingle about an inch thick, thereon to stand the pots. A commodious tank underneath made of slate, cement, or galvanized iron, will be found very serviceable to receive the rain-water from the roof of the structure.

Shading during the spring and summer months may be managed either by painting the glass with a composition, or by canvas blinds run on rollers: these latter are far preferable, as on occasional dark days it would be impossible to give the plants the benefit of the light with a permanent shading. Many amateurs are under the impression that ferns do not require light; from practical experience I find their growth and general appearance are more vigorous, and the fronds when cut last for a much longer period, when they have been allowed a fair amount of light and air; though it is not prudent to expose them to the full glare of the sun.

A climber or two trained over the pathway will greatly aid in giving a full, finished appearance to the house. Three very desirable subjects for this purpose are *Stephanotis floribunda*, pure white, deliciously scented flowers; *Ipomæa Horsfalliæ*, rich crimson; *Passiflora kermesina*, a crimson passion-flower of smaller and neater habit than most varieties of the genus.

In the selection of ferns for a small house care should be taken to avoid all kinds that are of large growth, which in a few months' time would become useless to the owner.

West Drayton.

R. B. MAKOWSKI

YOUNG CARROTS ALL THE YEAR ROUND.

By JOSEPH MACDONALD.

To secure young carrots as early in the season as it is possible to have them, it will be necessary to provide an ordinary garden frame and a hot-bed. Early in February a commencement must be made by making the hotbed ready. A two-light frame will be large enough in most gardens, and in making up the bed it should be at least one foot larger than the frame every way. To retain the heat a sufficient length of time, the bed should be four feet high at the back and three feet six inches in the front, and be formed of well-prepared stable manure and leaves. The frame and lights should be put on immediately the bed is made, and a week afterwards cover the surface an inch thick with some light earth that has been sifted through a fine sieve. As soon as the soil is in the frame the seed may be sown in drills half an inch deep and six inches apart.

I prefer the ordinary Short Horn variety for this purpose. The French Short Horn is a small but delicate kind. As soon as the plants are through the soil the frame must be ventilated on all but very cold days, and it must be covered at night to protect the plants from frost. About the end of March they should be large enough to be thinned where they are too thick, but they do not require to stand singly, as in the open bed. This crop should be ready for use by the beginning of May.

When a regular supply of small and tender young carrots not more than an inch long and the size of a man's little finger is required, it will be necessary to make frequent sowings to maintain a succession. To meet such cases a sowing should be made at the end of March in a cold frame where the plants can have the shelter of glass lights for five or six weeks. A warm spot on a south border should be selected for this crop, and a bed four feet wide and six long will suffice, and an ordinary light placed over the bed with a brick at each corner will give sufficient protection where there is no frame accommodation. The light may be removed altogether by the end of April.

The requirements of most families however will be met by making a sowing on a warm south border about the middle of March, and the crop will come on fast enough without any protection in ordinary seasons. Another sowing must be made again in April, but this crop may be grown in any convenient part of the garden. Successional sowing must be made every month following up to the second week in August, which should be the last sowing in the open. Many cultivators make a rather large sowing in August to supply young carrots through the winter, but the roots become too large to make a dainty dish. In their way they are

valuable, as a medium-sized young carrot fresh drawn from the ground is certainly superior in flavour to the large overgrown examples that are commonly stored for winter use. When the seed is sown early in August the plants make nice-sized roots, and afford an acceptable supply through the winter if they are protected from frost by having some long dry litter thrown over them, which must be removed when the frost breaks up.

To secure young and small carrots of a suitable size in the winter months pits or frames, and considerable attention, are essential. The first week in September is a good time to make a sowing in a brick pit. No bottom heat will be necessary for this crop, but there must be a thickness of ten inches of good soil, and the surface of the bed ought not to be more than nine inches from the glass. Sow the seed in drills six inches apart, and let the lights remain closed until the young plants are coming up. Afterwards they may be removed altogether until the first week in October, except during very heavy rain. For the first week the lights should be put on at night only, and after that air should be admitted freely on all favourable occasions. A free circulation of air they must have, or the plants will form more leaves than roots. The pit will require to be covered in frosty weather to keep out the frost, and the plants will want thinning out. As often as the soil becomes dry it should have a gentle watering. This crop should supply the table from November until the end of the year.

Those who have the convenience of a heated brick pit may be advised to make a sowing at the end of October, but without such a convenience it is hardly worth the trouble, because even with the best appliances and care this crop must necessarily be a risky one. But if the young plants can be kept alive without the aid of artificial heat until the turn of the year it is possible, by giving them artificial heat up to about 55 deg. and a moderate amount of air at the same time, from the 1st of January onwards, to obtain some return in the shape of a few young roots through the months of March and April, but the crop at this season of the year is generally a light one.

THE EFFECTS OF FOG ON THE HEALTH OF MAN.

A VERY interesting lecture on the effects of coal smoke on the human organism was given in the lecture room of the Smoke Abatement Exhibition by Dr. J. M. Pothergill. He said that coal smoke and tar smoke contained a certain amount of creosote, and might be said in some measure to be a deodorizer. Centuries ago cattle were driven through fire and smoke. Even so lately as 1826, a Scotch farmer, when disease was prevalent in the country, drove his oxen through a wood fire to prevent contagion, and in the plains or isolated parts of Europe fire lighted by friction was said to be an infallible remedy for disease. Soot even at the present day was used to make a medicinal tonic, and we were told that chimney-sweepers did not suffer from inhaling sooty particles. The latter statement was not true, for chimney-sweepers very frequently suffered from a peculiar kind of cancer, which was generated by inhaling sooty matter. In the present day we were not quite so fond of smoke as our ancestors, who, perhaps, on account of a lesser population and fewer furnaces, did not suffer from heavy fogs. Cattle suffered materially from town fog or smoky atmosphere. A short time ago the London fog fell upon the respiratory organs of the beasts in the Cattle Show at the Agricultural Hall, and many of them died. The fog at that period lasted nearly three weeks, off and on, and the Registrar-General reported 2,400 more deaths than the ordinary returns. Smuts that floated in the air and other little particles of a similar nature got down the windpipe and passed into air tubes that divide and subdivide into lesser air tubes all through the system. It reminded him of a small plug thrown into a large pipe through which water passed; this piece of wood or plug would pass readily through the larger pipes, but as the water passed into smaller ones with which it was connected, this plug would at last drop into one where it would wholly obstruct the passage. There was nothing more irritating than the unburnt carbon floating in the air; it fell on the air tubes of the human system, and formed that dark expectoration which was so injurious to the constitution; it gathered on the lungs and there accumulated. Numerous cases of this kind were reported at Guy's Hospital when fogs were prevalent. It had been sarcastically called "soup in the stomach." He had never heard of a person who resided long in London after whose death a *post mortem* examination had been held that there had not been found a certain amount of black matter on the respiratory organs. The effect of the products of combustion on the nervous system were oftentimes serious. It frequently made people cross when they were naturally good-tempered, and sometimes induced suicide. Indeed, on the Continent persons having a suicidal tendency, knowing that the carbolic acid produced from charcoal would cause death, resorted to this as a final remedy to their woes. Only last year there was an account of a girl poisoned by gas: she had blown the gas out and went to sleep, fell into a state of coma, and died; and gas was only one of the deleterious products of combustion. Indeed, coal during combustion has oftentimes a similar effect. A man slept in a room without a flue which produced carbonic oxide sufficient to destroy life, and in the morning he was a corpse. Human beings should never sleep in a room heated by a stove. A crew of a ship went into the fore-castle, one of them threw a cloth accidentally over the flue, and the next morning one man was dead and two others were dying from inflammation in the air tubes. Confusion of the intellect was another effect of inhaling impure air.

HIGH BAROMETER READINGS.—The statement that went the round of the Press to the effect that the barometric readings on the 18th of last month were the highest ever known in Britain appears to require qualification. The highest reading recorded on the weather charts was 30.970 inches at Oxford, at 8 a.m. on January 18, 1882. At least two other higher readings of an authentic character are known, which occurred when such records were less frequently kept than at present. The barometer at Gordon Castle, Banffshire, reached 31.037 inches at 9 p.m. on February 24, 1808, and 31.046 inches at 11 p.m. on January 8, 1820. It is considered probable by *Nature* that the latter is really the highest authentic reading ever recorded in the British Islands. It would be interesting to look up the accounts of the weather that succeeded in each case.

A DESCRIPTIVE CATALOGUE OF FOUR HUNDRED VARIETIES OF POTATOES.

ABBREVIATIONS.—CLASS: *K*, Kidney, *R*, Round. COLOUR: *M*, Mottled, *P*, Purple, *R*, Red, *W*, White. SIZE: *L*, Large, *M*, Medium, *S*, Small. QUALITY: 1, Excellent, 2, Second rate, 3, Inferior. PRODUCTIVENESS: 1, First class, 2, Second rate, 3, Third rate. HEIGHT: *T*, Tall, *M*, Medium, *D*, Dwarf. SEASON: *E*, Early, *M*, Medium, *L*, Late

NAME.	CLASS.	COLOUR.	SIZE.	QUALITY.	PRODUCTIVENESS.	RELATIVE GROWTH.	HEIGHT.	SEASON.	NAME.	CLASS.	COLOUR.	SIZE.	QUALITY.	PRODUCTIVENESS.	RELATIVE GROWTH.	HEIGHT.	SEASON.
ACME	K	W	L	3	2	Moderate	M	M	EARLY MARKET	R	W	M	1	2	Slender	D	E
ADIRONDACK	R	W	L	1	1	Strong	T	M	EARLY NONSUCH	K	R	L	2	2	Moderate	M	M
ADVANCER (Bell and Thorpe)	K	W	M	2	2	Slender	D	E	EARLY PARAGON	K	W	M	2	2	Strong	D	M
ADVANCER (Cattell)	K	M	M	2	2	Robust	T	L	EARLY PERFECTION	R	W	S	2	3	Slender	M	E
ADVANCER (Daniels)	R	W	M	2	2	Spreading	M	M	EARLY PINK EYE	R	M	L	2	1	Robust	T	M
ALPHA	R	W	M	1	3	Compact	D	E	EARLY PRINCE	R	W	M	2	2	Robust	T	M
ALICE FENN	K	W	M	1	2	Moderate	M	E	EARLY PURPLE	K	P	L	2	2	Strong	T	M
ALEXANDRA KIDNEY	K	W	M	1	2	Moderate	M	M	EARLY RACEHORSE	R	W	M	2	3	Moderate	M	E
ALBION ASHLEAF	K	W	M	1	1	Moderate	M	E	EARLY RED KIDNEY	K	R	S	3	2	Slender	M	E
ALSTON KIDNEY	K	W	M	1	2	Bush-like	M	L	EARLY ROSE	K	R	L	2	2	Robust	T	M
AMAZON	K	W	M	2	2	Strong	M	L	EARLY SHAW	R	W	M	2	2	Slender	M	E
AMERICAN EARLY	K	W	M	2	2	Robust	M	E	EARLY SEBEC	R	W	L	2	1	Robust	M	L
AMERICAN LADIES	R	W	M	2	2	Compact	M	M	EARLY SOVEREIGN	K	R	M	2	2	Compact	D	E
AMERICAN PURPLE	K	P	M	2	2	Moderate	M	M	EARLY STOCKTON	K	W	M	2	2	Bushy	M	M
AMERICAN WONDER	K	W	L	2	1	Strong	T	L	EARLY TEN WEEKS	R	W	M	1	2	Bushy	D	E
ARMSTRONG'S PROLIFIC	R	W	M	1	3	Strong	T	M	EARLY VERMONT	K	R	L	2	1	Compact	M	E
ASHLEAF	K	W	M	1	2	Spreading	D	E	EAST SOMERSET CHAMPION	R	W	L	2	1	Robust	M	L
ATKINS'S SEEDLING	K	W	M	2	3	Moderate	M	M	EDGECOTT SEEDLING	K	W	L	1	2	Robust	M	L
AVALANCHE	K	W	M	1	2	Moderate	M	M	ELIZA FENN	R	W	M	1	2	Moderate	M	E
BALGAWLEY PINK	R	R	L	2	1	Spreading	M	M	EMERTON'S ADVANCE	K	W	L	1	2	Robust	M	M
BARON'S PERFECTION	K	M	M	1	2	Erect	M	M	ENGLAND'S FAIR BEAUTY	K	W	L	2	1	Branching	M	M
BEACONSFIELD KIDNEY	K	W	L	1	2	Strong	M	M	ENGLAND'S GLORY	K	W	L	2	1	Strong	T	M
BEAUTY OF HEBRON	K	R	L	2	1	Robust	M	M	ENGLISH ROSE	R	R	S	3	3	Compact	D	E
BEAUTY OF KENT	R	R	M	1	2	Moderate	M	M	ERIN'S QUEEN	K	W	M	2	2	Moderate	M	L
BEAUTY OF NORFOLK	K	W	L	2	1	Robust	T	L	EUREKA	K	W	L	2	2	Compact	T	M
BECKENHAM BEAUTY	K	W	M	1	2	Moderate	M	L	EXCELSIOR KIDNEY	K	W	L	1	1	Strong	T	M
BEDFORD PROLIFIC	R	W	M	1	2	Moderate	M	M	EXHIBITION KIDNEY	K	R	M	2	2	Robust	M	L
BELGIAN KIDNEY	K	W	L	2	2	Strong	M	M	EXTRA EARLY PEACHBLOW	R	R	L	2	1	Moderate	D	M
BELVOIR KIDNEY	K	R	M	2	2	Straggling	T	M	FAIRBAIN'S PINK	R	R	L	2	1	Compact	M	M
BETA	K	W	M	2	2	Slender	M	E	FARMER	R	R	L	3	2	Strong	T	L
BERKSHIRE KIDNEY	K	W	M	2	3	Robust	M	M	FAHREN'S KIDNEY	K	W	M	1	1	Strong	M	M
BERWICK BEAUTY	R	R	L	1	1	Strong	T	L	FELTHAM WHITE	R	W	L	1	1	Moderate	M	M
BLANCHARD	R	M	M	2	2	Slender	M	M	FENN'S EARLY REGENT	R	W	L	1	1	Erect	M	E
BLACK JACK	R	P	M	3	3	Straggling	T	L	FENN'S LATE MAIN CROP	R	W	M	1	2	Moderate	M	L
BLACK PRINCE	K	P	M	3	3	Straggling	M	L	FENN'S SECOND EARLY	R	P	M	2	2	Moderate	M	E
BLUE FERTS	R	M	L	1	1	Robust	T	M	FENN'S 2ND EARLY MAIN CROP	R	W	M	1	1	Moderate	M	M
BONNE WILHELMINE	R	W	S	2	3	Slender	T	M	FENN'S WHITE KIDNEY	K	W	M	1	2	Moderate	D	M
BOUNTIFUL	K	R	M	1	2	Spreading	M	M	FIELDER'S SURPRISE	R	R	M	2	2	Robust	M	L
BRESEE'S CLIMAX	R	W	L	2	1	Strong	M	M	FLOUNDERS	R	W	L	3	1	Robust	T	M
BRESEE'S PEERLESS	R	W	L	2	1	Vigorous	T	M	FLOURBALL	R	W	L	2	1	Wiry	T	M
BRESEE'S PROLIFIC	K	W	L	2	1	Vigorous	M	M	FLUKE	K	W	L	1	2	Robust	M	L
BRITISH QUEEN	R	W	M	2	3	Robust	T	M	FORTYFOLD	R	M	M	1	2	Slender	M	M
BROWNELL'S SEEDLING	R	W	L	1	1	Robust	T	M	FORTYFOLD WHITE	R	W	M	1	1	Strong	M	L
BROWNELL'S SUCCESS	K	W	L	2	1	Robust	M	M	FOSTER'S SEEDLING	R	W	L	1	1	Robust	T	L
BROWNELL'S SUPERIOR	K	R	L	2	1	Robust	M	M	FOX'S IMPROVED	R	W	M	2	3	Compact	D	E
BURBANK'S SEEDLING	K	W	M	2	2	Slender	M	M	FREEBARGER	R	M	L	2	1	Robust	T	L
BURFITT'S BOUNTIFUL	K	W	M	1	2	Slender	M	M	FRENCH KIDNEY	K	W	M	1	3	Spreading	M	M
BUTLER'S KIDNEY	K	W	M	2	2	Strong	T	M	FRENCH RED	K	R	M	3	2	Vigorous	T	L
CARPENTER	K	R	L	2	2	Robust	M	M	GARIBALDI	K	R	M	2	2	Robust	M	L
CALLAO	K	R	M	2	1	Robust	T	L	GARNET CHILI	K	R	L	3	2	Strong	T	M
CARTER'S EIGHT WEEKS	R	W	M	2	2	Moderate	D	E	GARNETT'S SEEDLING	K	W	L	1	1	Robust	M	M
CATTELL'S INTERMEDIATE	K	W	M	2	2	Strong	T	M	GIANT KING	K	W	L	2	2	Slender	M	E
CATTELL'S ECLIPSE	K	W	M	1	2	Spreading	T	M	GIPSEY QUEEN	K	W	L	2	2	Neat	M	L
CATTELL'S RELIANCE	K	W	M	2	2	Robust	T	M	GOLDEN DROP	K	W	S	3	3	Weak	M	M
CALIFORNIA KIDNEY	K	R	L	3	2	Slender	M	E	GOLDEN EAGLE	R	M	M	2	2	Robust	T	L
CAUNCE'S MOTTLED KIDNEY	K	P	L	3	2	Robust	T	M	GOLDEN GEM	R	W	M	2	2	Slender	T	M
CAUNCE'S MOTTLED ROUND	R	P	M	2	2	Robust	T	M	GOSFORTH'S SEEDLING	R	R	L	2	1	Robust	T	L
CENTENNIAL	R	R	L	2	1	Robust	T	M	GRAMPIAN	R	M	M	2	1	Strong	T	E
CHAMPION (Bell and Thorpe)	K	W	S	2	2	Moderate	M	E	GRIMSDALE'S EARLY	K	W	M	1	2	Compact	D	E
CHAMPION OF ENGLAND	K	W	M	2	2	Slender	D	M	HAMSTEAD ROUND	R	W	M	2	2	Strong	M	M
CHARDON	K	W	L	3	1	Tree-like	T	M	HANDSOME ROUND	R	W	L	2	1	Robust	T	L
CHESHIRE CLUSTER	R	W	M	2	2	Wiry	M	M	HANWORTH SUPERIOR	R	W	L	2	1	Robust	M	L
CLEOPATRA	K	W	L	1	1	Moderate	M	M	HARBINGER	K	W	L	2	3	Erect	D	E
CLIPPER	K	W	L	3	3	Vigorous	M	M	HARD CASH	K	W	M	2	2	Medium	M	L
COBBLE	K	W	L	2	2	Slender	M	M	HEATHER BELLE	K	P	L	2	2	Strong	T	M
COMPTON'S SURPRISE	K	P	L	2	2	Gross	T	M	HENDERSON'S PROLIFIC	R	W	M	2	1	Spreading	T	E
CONFEDERATE	K	W	L	2	1	Robust	T	M	HEN'S NEST	R	W	L	2	2	Spreading	M	L
COOMBE HAYS	R	R	M	2	2	Spreading	M	M	HINCKLEY TRIUMPH	K	W	L	2	1	Robust	M	L
COOLING'S EARLY FAVOURITE	K	W	M	3	1	Robust	M	M	HOOPER'S ROUND WHITE	R	W	L	1	1	Strong	M	L
COLDSTREAM	R	W	S	2	2	Moderate	M	E	HUNDREDFOLD FLUKE	K	M	L	3	2	Robust	T	L
CORSWALL KIDNEY	K	R	L	2	1	Robust	M	L	ICE CREAM	K	W	M	2	2	Moderate	M	M
COSMOPOLITAN	K	W	L	1	1	Moderate	T	M	IMPROVED PEACHBLOW	R	M	L	2	1	Strong	T	L
COTTAGER'S RED	K	R	M	2	2	Vigorous	T	L	IMPROVED SHAW	R	W	S	2	3	Moderate	M	E
COURTENHALL'S SEEDLING	R	W	M	3	2	Robust	M	M	INTERNATIONAL KIDNEY	K	W	L	2	1	Strong	T	L
COVENT GARDEN PERFECTION	K	W	L	1	1	Strong	T	L	IRISH APPLE	R	R	L	3	2	Rank	T	M
CRIMSON ASHLEAF	K	R	M	1	3	Compact	D	E	IRISH BLACK	R	P	L	2	1	Robust	T	L
CRITERION	K	W	L	2	1	Strong	M	M	IRISH CUPS	R	R	L	2	1	Strong	T	L
CRITERION (Ross)	R	W	L	1	1	Robust	T	M	IRISH WHITE	R	W	M	2	2	Strong	T	M
CUMBERLAND BANGOR	K	W	L	2	2	Strong	T	L	JACKSON'S KIDNEY	K	W	M	1	1	Slender	M	E
DAINTREE'S EARLY	R	W	M	1	2	Moderate	M	E	JAUNE DE BRIE	K	W	L	2	2	Erect	T	M
DALMAHOY	R	W	M	1	1	Robust	T	M	JERSEY BLUE	R	P	L	2	1	Strong	T	L
DAWE'S MATCHLESS	K	W	L	1	1	Strong	T	M	JOHNSTON'S DOWNSHIRE	R	R	L	1	1	Erect	T	L
DEFIANCE	K	P	L	1	1	Strong	M	L	KENTISH ASHLEAF	K	W	M	1	1	Slender	M	E
DEVONSHIRE KIDNEY	K	W	L	1	2	Robust	T	M	KENTISH INVICTA	K	W	L	1	1	Robust	T	L
DOURIE HALL FAVOURITE	R	W	M	2	2	Compact	T	M	KILSPINDIE	R	P	L	1	2	Tree-like	T	L
DUKE OF EDINBURGH	K	W	L	2	2	Robust	M	M	KING OF EARLIES	R	R	M	2	2	Compact	M	E
EARLY CALICO	K	P	L	2	2	Robust	M	E	KING OF FLUKES	K	W	L	3	2	Robust	M	M
EARLY CLUSTER	R	W	M	1	2	Compact	D	E	KING NOBLE	R	W	M	1	2	Compact	D	E
EARLY COCKNEY	R	W	M	2	2	Compact	M	E	KING OF POTATOES	K	W	L	2	1	Strong	T	M
EARLY DIMMISK	R	W	L	3	1	Gross	T	M	LADY GORDON	R	W	L	1	2	Robust	T	L
EARLY DWARF ROUND	R	W	M	2	2	Dwarf	D	E	LADY OF THE LAKE	K	R	L	3	2	Robust	T	L
EARLY FRAME	R	W	S	2	3	Straggling	D	E	LADY PAGET	K	P	L	1	2	Moderate	M	M
EARLY GIANT KING	K	W	M	2	2	Medium	M	E	LADY WEBSTER	R	W	L	2	2	Moderate	M	E
EARLY GOODRICH	R	W	M	2	3	Moderate	M	M	LADY TRUSCOTT	R	W	M	1	2	Moderate	M	M
EARLY HANDSWORTH	R	W	M	2	3	Compact	D	E	LANCASHIRE HERO	K	W	S	2	3	Weak	D	E
EARLY KEMP	R	W	M	3	2	Moderate	M	E	LAPSTONE	K	W	L	1	1	Robust	M	M
EARLY KING	K	W	M	1	2	Moderate	M	E	LATE BEAUTY OF HEBRON	K	R	L	2	1	Robust	M	L

DESCRIPTIVE CATALOGUE OF POTATOES—Continued.

NAME.	CLASS.	COLOUR.	SIZE.	QUALITY.	PRODUCTIVENESS.	RELATIVE GROWTH.	HEIGHT.	SEASON.	NAME.	CLASS.	COLOUR.	SIZE.	QUALITY.	PRODUCTIVENESS.	RELATIVE GROWTH.	HEIGHT.	SEASON.
LATE ROSE	K	R	L	2	1	Robust	T	L	REV. W. F. RADCLIFFE.....	R	W	M	1	1	Robust	M	M
LATE SHAW.....	R	W	L	2	2	Spreading	M	M	RICE'S SEEDLING.....	K	R	L	3	2	Gross	T	L
LAWSON'S EARLY WHITE.....	K	W	L	2	1	Robust	M	L	ROBSON'S CHALLENGE.....	R	W	M	2	2	Robust	T	E
LEMON KIDNEY.....	K	W	S	2	3	Wiry	D	E	ROCK.....	R	W	L	2	3	Robust	T	L
LITTLE GEM.....	K	W	S	2	3	Medium	M	M	ROSÉE DE CONFLANS.....	K	R	M	3	1	Vigorous	T	M
LOCKLEY'S PERFECTION.....	R	W	L	2	2	Robust	T	M	ROUGE DE STRASBOURG.....	R	R	M	3	1	Robust	T	L
LORD MAYOR.....	R	W	L	1	1	Strong	M	M	ROUND ROBIN.....	R	W	M	1	2	Moderate	D	M
LYE'S FAVOURITE.....	R	M	M	2	2	Strong	M	M	ROYAL ALBERT.....	R	W	M	2	3	Wiry	M	M
McKINLAY'S PRIDE.....	K	W	L	1	1	Strong	T	M	ROYAL ASHLEAF.....	K	W	M	1	2	Compact	D	E
MAGNET.....	K	W	L	1	1	Strong	M	M	ROYAL DANISH.....	R	W	S	3	3	Erect	M	M
MAGNUM BONUM.....	K	W	L	2	1	Strong	T	L	RUBY.....	K	R	L	2	1	Robust	M	L
MAMMOTH PEARL.....	R	W	L	2	1	Robust	T	M	RUFUS.....	R	R	M	3	1	Gross	T	L
MANHATTAN.....	K	P	L	2	2	Slender	M	M	ST. HILÈNE.....	K	W	S	2	3	Slender	D	E
MAIDEN'S BLUSH.....	R	M	M	1	2	Robust	M	M	ST. PATRICK.....	K	W	L	2	2	Strong	M	M
MARTIN'S EARLY GLOBE.....	R	W	M	3	2	Compact	D	E	SALMON KIDNEY.....	K	R	L	2	2	Robust	M	L
MASTERPIECE.....	R	W	M	2	2	Moderate	M	M	SAUCISSE.....	K	R	M	3	1	Slender	T	L
MATCHLESS.....	R	R	L	2	1	Robust	M	L	SCAMEL'S GLORY.....	R	M	M	2	2	Moderate	M	L
MEAL BALL.....	R	W	M	2	2	Strong	M	M	SCHOOLMASTER.....	R	W	M	2	1	Strong	M	L
MILKY WHITE.....	R	W	S	2	3	Slender	M	M	SCOTCH BLACK.....	R	P	L	2	2	Tree-like	T	L
MITCHELL'S SEEDLING.....	K	W	M	3	2	Wiry	M	M	SCOTCH BLUE.....	R	P	M	2	2	Vigorous	M	M
MODEL.....	K	W	L	2	2	Robust	M	L	SCOTCH CHAMPION.....	R	W	L	3	1	Robust	T	L
MOFFATT'S PROLIFIC.....	R	W	L	1	1	Spreading	M	L	SCOTCH REGENT.....	R	W	L	1	1	Robust	T	L
MR. BRESEE.....	K	R	L	2	1	Strong	M	M	SEDILLA.....	K	W	M	2	1	Robust	M	M
MULTUM IN PARVO.....	K	W	S	2	3	Slender	D	E	SEEDLING ROCK.....	R	W	L	3	2	Strong	T	L
MYATT'S PROLIFIC ASHLEAF.....	K	W	M	1	1	Compact	M	E	SEXTUS.....	K	W	M	2	2	Moderate	M	L
MYATT'S SEEDLING ASHLEAF.....	K	W	M	1	1	Moderate	M	E	SHARPE'S DUKE OF ALBANY.....	K	W	L	1	1	Strong	T	E
MYATT'S ALBERT EDWARD.....	R	W	M	1	2	Moderate	M	M	SHARPE'S VICTOR.....	R	W	M	1	1	Compact	D	E
NAPOLEON.....	R	R	L	1	1	Robust	T	L	SHINER.....	K	W	L	2	1	Robust	T	L
NETTLE-LEAVED.....	K	W	M	2	1	Spreading	M	E	SILVERSKIN KIDNEY.....	K	W	M	2	2	Spreading	T	M
NEW EARLY RACEHORSE.....	K	W	M	2	2	Robust	M	M	SIR Wm. RALEIGH (Winfield).....	K	W	M	2	1	Strong	M	L
NEW ENGLAND.....	K	W	L	2	2	Erect	T	M	SIR WALTER RALEIGH (Ross).....	R	W	L	1	1	Robust	M	M
NORFOLK GIANT.....	R	W	L	1	1	Robust	T	L	SKERRY BLUE.....	R	B	L	3	1	Robust	T	L
NORFOLK WONDER.....	R	W	L	2	1	Bushy	T	L	SNOWBALL.....	R	W	L	2	2	Strong	M	L
OHIO BEAUTY.....	K	R	L	2	2	Strong	M	M	SNOWFLAKE.....	K	W	L	2	1	Compact	M	M
ONEIDA.....	R	M	M	2	2	Robust	M	M	SPRINGFIELD WHITE.....	R	W	L	2	1	Robust	T	L
ONWARDS.....	R	W	S	2	3	Compact	M	E	STANDARD.....	R	W	M	1	2	Moderate	M	E
ORKNEY RED.....	R	R	L	2	1	Rampant	T	L	STRIPED DON.....	R	M	L	2	1	Robust	T	M
OXFORDSHIRE KIDNEY.....	K	W	M	1	1	Erect	T	L	SUNRISE.....	R	W	M	2	2	Moderate	M	M
OYSTER KIDNEY.....	R	W	L	2	1	Robust	M	M	SURREY GATEPOST.....	K	W	M	2	2	Moderate	M	M
PAINTED LADY.....	K	M	S	3	3	Strong	T	L	SUTTONS' EARLY BORDER.....	R	W	M	1	1	Moderate	D	E
PARAGON.....	K	R	L	2	1	Strong	M	M	SUTTONS' FILLBASKET.....	R	W	M	2	2	Compact	M	E
PATERSON'S ALEXANDRA.....	R	R	L	2	2	Spreading	T	L	SUTTONS' FIFTYFOLD.....	R	W	M	1	1	Vigorous	M	M
PATERSON'S BLUE.....	R	P	L	2	2	Robust	T	L	SUTTONS' FIRST AND BEST.....	R	W	M	1	2	Moderate	D	E
PATERSON'S EARLY.....	R	W	L	2	1	Strong	T	M	SUTTONS' PRIZETAKER.....	K	R	L	1	1	Strong	M	M
PATERSON'S ECONOMIST.....	R	W	L	2	2	Spreading	M	L	SUTTONS' READING RUSET.....	R	R	L	1	1	Strong	M	L
PATERSON'S RED.....	R	R	L	3	2	Rampant	T	L	THE BLOOMER.....	R	W	S	2	3	Spreading	D	E
PAXTON'S WONDER.....	R	W	S	2	3	Vigorous	M	E	THE QUEEN.....	R	W	L	1	2	Strong	T	L
PEACHELOW.....	R	M	M	2	2	Robust	M	L	THOMPSON'S RAMSHORN.....	K	W	S	2	2	Weak	D	E
PEAKE'S FIRST EARLY.....	R	W	M	2	2	Slender	D	E	THORPE'S LEICESTER BEAUTY.....	R	W	L	2	1	Moderate	M	M
PEERLESS ROSE.....	K	R	S	2	3	Moderate	M	M	TODDINGTON KIDNEY.....	K	W	M	1	2	Compact	D	E
PERTSHIRE RED.....	R	R	L	2	2	Spreading	T	L	TRIUMPH.....	R	R	L	1	1	Strong	M	E
PHEASANT'S EYE.....	R	W	M	2	2	Moderate	M	E	TROPHY.....	K	R	L	2	1	Robust	M	M
PINK DOMINO.....	K	W	M	1	2	Moderate	D	M	TRUE BLUE.....	K	P	M	2	2	Slender	M	M
PINK-EYED DON.....	R	M	L	2	1	Robust	T	L	TRUFFE D'AOUT.....	K	R	S	3	2	Compact	M	L
PINK FLOUNDER.....	K	R	L	2	1	Strong	T	L	TULLINAMOUNT.....	R	W	S	2	2	Robust	M	M
PINK-EYED FLUKE.....	K	W	L	1	2	Spreading	M	L	UDWIN.....	K	W	M	2	3	Moderate	D	E
PINK-EYED KEMP.....	R	R	L	2	2	Strong	T	L	UNION.....	R	W	S	2	3	Slender	M	E
PINK-EYED RUSTY-COAT.....	R	M	L	3	1	Straggling	T	M	UTILIS.....	K	W	L	2	3	Stout	T	L
PINK POINTER.....	K	R	M	2	3	Moderate	M	M	VANDERMEER'S SEEDLING.....	K	W	L	3	2	Robust	T	L
PINK PYRAMID.....	K	R	M	2	2	Strong	M	M	VANGUARD.....	K	W	M	2	3	Slender	M	E
PIONEER.....	K	W	M	2	2	Slender	D	E	VERMONT BEAUTY.....	R	R	L	2	1	Compact	M	M
PORTER'S EXCELSIOR.....	R	W	M	2	2	Moderate	M	M	VERMONT CHAMPION.....	R	W	L	1	1	Strong	T	M
POUSSE DEBOUT.....	K	R	S	2	2	Compact	T	M	VICAR OF LALEHAM.....	R	P	M	2	2	Robust	M	M
PRAIRIE SEEDLING.....	R	R	L	3	1	Strong	T	L	VICTORIA.....	R	W	L	1	2	Erect	T	L
PRÉCOCE DE RÉMY.....	K	P	S	3	3	Straggling	M	M	VICTORIA ALBA.....	R	W	L	1	1	Robust	T	L
PREMIER.....	K	W	M	2	2	Robust	M	L	VICTORIA KIDNEY.....	K	W	M	1	2	Moderate	M	M
PREMIER EARLY WHITE.....	R	W	M	2	2	Moderate	M	M	VICTORIA REGENT.....	R	W	S	2	3	Robust	M	M
PRESIDENT.....	R	W	M	1	2	Slender	M	M	VITELLOTTE.....	K	R	S	3	3	Gross	T	L
PRIDE OF AMERICA.....	K	W	L	2	1	Strong	M	M	WALNUT-LEAVED KIDNEY.....	K	W	M	1	3	Compact	D	E
PRIDE OF THE MARKET.....	R	W	L	1	1	Robust	T	L	WALTON'S LATE KIDNEY.....	K	W	M	2	2	Moderate	M	L
PRIDE OF ONTARIO.....	K	W	L	2	1	Strong	M	L	WASHINGTON.....	K	R	L	2	1	Vigorous	M	M
PRIDE OF WILTS.....	K	W	M	2	2	Moderate	M	E	WATERLOO KIDNEY.....	K	W	M	1	2	Slender	M	M
PRINCE ARTHUR.....	K	W	M	1	2	Slender	M	M	WEBBER'S KIDNEY.....	K	W	M	2	2	Bush-like	M	M
PRINCE IMPERIAL.....	K	R	M	3	2	Spreading	T	M	WEBB'S PRESIDENT.....	R	W	M	2	3	Neat	M	M
PRINCE OF WALES.....	K	W	L	2	2	Robust	T	M	WEBB'S RED BLOSSOM.....	K	R	L	3	2	Erect	T	L
PRINCESS OF LORNE.....	R	P	L	2	2	Slender	M	L	WEBB'S RED CHAMPION.....	R	R	L	3	2	Moderate	M	L
PRINCESS.....	K	W	M	3	3	Spreading	M	M	WEBB'S SURPRISE.....	K	W	L	1	1	Strong	T	L
PRINCE'S FAVOURITE.....	R	W	S	2	3	Slender	M	M	WEBB'S TELEGRAPH.....	K	W	L	2	3	Robust	M	M
PRITCHARD'S SEEDLING.....	R	W	M	2	3	Erect	D	M	WELBECK RED.....	R	R	M	3	1	Robust	T	L
PRIZE OF HOLLAND.....	R	W	S	3	3	Robust	T	M	WELLINGTON.....	R	W	L	2	2	Moderate	M	M
PURPLE ASHLEAF.....	K	P	L	2	2	Moderate	M	E	WHEELER'S BLACK.....	K	M	M	2	3	Moderate	M	M
PURPLE KING.....	K	P	L	2	1	Spreading	T	L	WHEELER'S SAFEGUARD.....	R	W	M	1	2	Moderate	M	L
PURPLE REGENT.....	R	P	M	2	3	Vigorous	T	M	WHITE ELEPHANT.....	K	W	L	2	1	Robust	T	L
PURITY.....	K	W	M	1	2	Moderate	M	M	WHITE EMPEROR.....	R	W	L	1	2	Strong	M	L
QUEEN OF FLUKES.....	K	W	L	1	2	Robust	M	L	WHITE LATE ROSE.....	K	W	L	2	1	Robust	M	M
QUEEN OF THE VALLEY.....	K	R	L	1	1	Strong	T	L	WHITE PEACHELOW.....	R	W	L	3	1	Strong	T	L
RACEHORSE.....	R	W	M	2	3	Moderate	M	E	WHITE RADICAL.....	R	W	L	2	2	Moderate	M	L
RADSTOCK BEAUTY.....	R	M	M	2	2	Strong	M	M	WHITE ROCK.....	R	W	L	3	1	Robust	T	L
RAND'S NO. 12.....	K	W	L	1	2	Robust	M	M	WHITE SEEDLING.....	R	W	L	2	1	Compact	T	L
RAND'S NO. 20.....	K	W	L	1	1	Strong	M	M	WHITE STAR.....	K	W	L	1	1	Robust	T	L
READING ABBEY.....	R	W	L	2	1	Robust	T	L	WHITE'S SURPRISE.....	R	P	L	2	1	Strong	T	L
READING HERO.....	R	W	L	1	1	Strong	T	L	WHITE WONDER.....	R	W	L	2	2	Straggling	T	L
RECTOR OF WOODSTOCK.....	R	W	M	1	2	Spreading	T	M	WILLARD.....	K	M	L	3	2	Erect	M	M
RED BOGS.....	R	R	L	2	2	Robust	T	L	WILTSHIRE SNOWFLAKE.....	R	W	L	1	1	Robust	M	L
RED BREADFRUIT.....	R	M	M	2	2	Slender	T	M	WINDSOR EARLY.....	R	W	M	2	3	Wiry	M	M
RED EMPEROR.....	R	R	M	2	2	Straggling	T	M	WINTER ROSE.....	R	W	M	3	3	Stout	D	M
RED FLUKE.....	K	R	L	2	2	Robust	M	L	WONDERFUL RED KIDNEY.....	K	R	S	2	3	Slender	M	E
RED REGENT.....	R	R	M	2	1	Robust	T	L	WOOD'S SCARLET PROLIFIC.....	R	R	L	2	1	Erect	T	L
RED ROCK.....	R	R	L	2	1	Strong	T	L	WOODSTOCK KIDNEY.....	K	W	M	1	2	Robust	T	M
RED ROUGH.....	R	P	L	3	2	Robust	T	L	WOODSTOCK ROUND.....	R	W	M	1	2	Moderate	M	M
REDSKIN FLOURBALL.....	R	R	L	3	1	Robust	T	L	WORTHINGTON G. SMITH.....	R	W	M	1	2	Neat	M	E
REGENT.....	R	W	L	1	1	Robust	T	L	YORKSHIRE HYBRID.....	K	W	M	1	1	Medium	M	M
REINE DE MAI.....	K	W	M	2	1	Slender	M	E	ZENRA.....	R	M	L	2	1	Robust	T	L

SYNONYMS OF POTATOES.

For all commercial and exhibition purposes this list may be relied upon as strictly accurate. But in no case should it convey an imputation in respect of the *bond fides* of persons who have introduced the new names. Many of these names represent original seedlings, which are simply so wanting in distinctness that they cannot be allowed to stand alone.

<i>A Feuille d'Ortie</i>	the same as	NETTLE-LEAVED.
<i>Alma Kidney</i>	"	KENTISH ASHLEAF.
<i>Almond's Yorkshire Hero</i>	"	LAPSTONE.
<i>American Breadfruit</i>	"	BRESEE'S PROLIFIC.
<i>American Palo Roso</i>	"	LATE ROSE.
<i>American Red</i>	"	RED-SKINNED FLOURBALL.
<i>Ashtop Fluke</i>	"	LAPSTONE.
<i>Barkshire's Red-skinned Flourball</i>	"	RED-SKINNED FLOURBALL.
<i>Belgian Warball</i>	"	WILLARD.
<i>Benson's Round</i>	"	FREEBEARER.
<i>Benson's Seedling</i>	"	KENTISH ASHLEAF.
<i>Birmingham Prizetaker</i>	"	KING OF FLUKES.
<i>Black Bob</i>	"	BLACK JACK.
<i>Black Nigger</i>	"	BLACK JACK.
<i>Blue Ashleaf</i>	"	PURPLE ASHLEAF.
<i>Blue Six Weeks</i>	"	FORTYFOLD.
<i>Boston Red</i>	"	RED-SKINNED FLOURBALL.
<i>Breadfruit</i>	"	BRESEE'S PROLIFIC.
<i>Brownell's Beauty</i>	"	VERMONT BEAUTY.
<i>Brown's Prolific Kidney</i>	"	BRESEE'S PROLIFIC.
<i>Bryantstone Kidney</i>	"	DAWES'S MATCHLESS.
<i>Bushnell's Seedling</i>	"	EARLY GOODRICH.
<i>Cambridgeshire Kidney</i>	"	KENTISH ASHLEAF.
<i>Caunce's Seedling</i>	"	CAUNCE'S MOTTLED KIDNEY.
<i>Cave's Seedling</i>	"	KENTISH ASHLEAF.
<i>Champion (Thorpe's)</i>	"	KENTISH ASHLEAF.
<i>Champion</i>	"	SCOTCH CHAMPION.
<i>Champion of the World</i>	"	SCOTCH CHAMPION.
<i>Climax</i>	"	BRESEE'S CLIMAX.
<i>Cobbler's Lapstone</i>	"	LAPSTONE.
<i>Conqueror</i>	"	KENTISH ASHLEAF.
<i>Cooling's Improved Ashleaf</i>	"	ASHLEAF.
<i>Coppermine</i>	"	BRESEE'S CLIMAX.
<i>De Zelande</i>	"	RED REGENT.
<i>Derbyshire Prize</i>	"	KING OF FLUKES.
<i>Derbyshire Prizetaker</i>	"	MYATT'S PROLIFIC ASHLEAF.
<i>Ducker's Table King</i>	"	REGENT.
<i>Duckstone</i>	"	ASHLEAF.
<i>Dunbar Regent</i>	"	REGENT.
<i>Duncan's Seedling</i>	"	SCOTCH BLUE.
<i>Dux</i>	"	SCHOOLMASTER.
<i>Dwarf White</i>	"	ALPHA.
<i>Early Ashleaf</i>	"	ASHLEAF.
<i>Early Bedford Kidney</i>	"	NETTLE-LEAVED.
<i>Early Bird</i>	"	ASHLEAF.
<i>Early Border</i>	"	SUTTONS' EARLY BORDER.
<i>Early Chinese</i>	"	REGENT.
<i>Early Coldstream</i>	"	COLDSTREAM.
<i>Early Don</i>	"	REGENT.
<i>Early Dwarf-top Ashleaf</i>	"	ASHLEAF.
<i>Early Gem</i>	"	LITTLE GEM.
<i>Early Kidney</i>	"	LAPSTONE.
<i>Early May</i>	"	KENTISH ASHLEAF.
<i>Early Oxford</i>	"	REGENT.
<i>Early Ranelagh</i>	"	KENTISH ASHLEAF.
<i>Early Whites Long Kidney</i>	"	ASHLEAF.
<i>Early White Round Erfurt</i>	"	REGENT.
<i>Fill-peek</i>	"	BLANCHARD.
<i>Flower's Early Wide Awake</i>	"	COOLING'S EARLY FAVOURITE.
<i>Gillman's Early Pebble</i>	"	KENTISH ASHLEAF.
<i>Gleason's Late</i>	"	HUNDREDFOLD FLUKE.
<i>Gloucestershire Kidney</i>	"	MYATT'S PROLIFIC ASHLEAF.
<i>Goldfinder</i>	"	DALMAHOY.
<i>Gravenstein</i>	"	BRESEE'S CLIMAX.
<i>Gryffe Castle</i>	"	REGENT.
<i>Haigh's Seedling</i>	"	LAPSTONE.
<i>Hammersmith Kidney</i>	"	MYATT'S PROLIFIC ASHLEAF.
<i>Hardy's Improved Albert</i>	"	NETTLE-LEAVED.
<i>Harrison's Kidney</i>	"	SPRINGFIELD WHITE.
<i>Headley's Nonpareil</i>	"	LAPSTONE.
<i>Holborn Favourite</i>	"	MATCHLESS.
<i>Huntingdon Kidney</i>	"	LAPSTONE.
<i>Improved Red-skinned Flourball</i>	"	RED-SKINNED FLOURBALL.
<i>Improved Royal Albert</i>	"	NETTLE-LEAVED.
<i>Jaune Ronde Hâtive</i>	"	GOLDEN GEM.
<i>Lady Abbess</i>	"	SILVER-SKIN KIDNEY.
<i>Laird's First Crop</i>	"	KENTISH ASHLEAF.
<i>Lee's Hammersmith Kidney</i>	"	MYATT'S PROLIFIC ASHLEAF.
<i>Main Crop</i>	"	RED EMPEROR.
<i>Manning's Kidney</i>	"	DAWES'S MATCHLESS.
<i>Maystin</i>	"	ASHLEAF.
<i>Market Champion</i>	"	SCOTCH CHAMPION.
<i>Minchin's Eclipse</i>	"	OXFORDSHIRE KIDNEY.
<i>Mitchell's Prolific</i>	"	REGENT.
<i>Monc's Pride</i>	"	KENTISH ASHLEAF.
<i>Morayshire Blue</i>	"	PATERSON'S BLUE.
<i>Ne Plus Ultra</i>	"	LAPSTONE.
<i>Nonesuch</i>	"	KENTISH ASHLEAF.
<i>Nutbrown</i>	"	KENTISH ASHLEAF.
<i>Oakleaf</i>	"	ASHLEAF.
<i>Old Scarlet Keeper</i>	"	RED BREADFRUIT.
<i>Pale Rose</i>	"	LATE ROSE.
<i>Peachblow</i>	"	WHITE PEACH BLOSSOM.
<i>Pebble White</i>	"	LAPSTONE.
<i>Peerless</i>	"	BRESEE'S PEERLESS.
<i>Pink-eyed Regent</i>	"	REGENT.

<i>Perfection Kidney</i>	is the same as	LAPSTONE.
<i>Quarantine de la Halle</i>	"	YORKSHIRE HYBRID.
<i>Queen of Flukes</i>	"	KING OF FLUKES.
<i>Red Reach Blossom</i>	"	RED SKINNED FLOURBALL.
<i>Reynard</i>	"	KENTISH ASHLEAF.
<i>Rinton's White Don</i>	"	REGENT.
<i>Rivers's Royal Ashleaf</i>	"	MYATT'S PROLIFIC ASHLEAF.
<i>Rixton Pippin</i>	"	LAPSTONE.
<i>Rognon Rose</i>	"	BEVOIR KIDNEY.
<i>Rough Jacket</i>	"	REGENT.
<i>Royal Albert</i>	"	NETTLE-LEAVED.
<i>Rusby Coat</i>	"	REGENT.
<i>Sandringham Kidney</i>	"	MYATT'S PROLIFIC ASHLEAF.
<i>Scarlet Keeper</i>	"	RED BREADFRUIT.
<i>Scotch Don</i>	"	REGENT.
<i>Scotch Down</i>	"	WHITE ROCK.
<i>Sear's Seedling</i>	"	SILVERSKIN KIDNEY.
<i>Second Early</i>	"	LAPSTONE.
<i>Shelburn</i>	"	MATCHLESS.
<i>Shepherd's Kidney</i>	"	KENTISH ASHLEAF.
<i>Stapleford Hero</i>	"	LAPSTONE.
<i>Stillyans Kidney</i>	"	KENTISH ASHLEAF.
<i>Summer Hill Seedling</i>	"	SCOTCH BLUE.
<i>Table King</i>	"	REGENT.
<i>Taylor's Kidney</i>	"	BEVOIR KIDNEY.
<i>The Barber</i>	"	PRINCE OF WALES.
<i>The Shiner</i>	"	COOLING'S EARLY FAVOURITE.
<i>Tory</i>	"	KENTISH ASHLEAF.
<i>Veitch's Improved Ashleaf</i>	"	KENTISH ASHLEAF.
<i>Walker's Regent</i>	"	REGENT.
<i>Webb's Imperial</i>	"	DAWES'S MATCHLESS.
<i>Welbeck Seedling</i>	"	KENTISH ASHLEAF.
<i>Welbeck White</i>	"	LAPSTONE.
<i>White Don</i>	"	REGENT.
<i>Wormleighton's Seedling</i>	"	MAGNUM BONUM.
<i>Wormsley Kidney</i>	"	DAWES'S MATCHLESS.
<i>York Regent</i>	"	REGENT.
<i>Yorkshire Hero</i>	"	LAPSTONE.

THE DIETETIC PROPERTIES OF THE POTATO.

It may be well for the prosperous citizen to be occasionally reminded of his indebtedness to the explorers, inventors, and speculators whose labours have contributed to the accumulation of the material comforts that surround citizen life in this nineteenth century. We seem to have done with famines and the plagues that follow in their wake. Unconsciously, at least in part, men have learned to provide for their households prudently, and for their daily dieting scientifically. Good middle-class living is probably the best of living for health, strength, and longevity: in any case, it evidently favours the development of vigour and beauty, and tends always to the improvement of the race. We are frequently told of new diseases, and our habits doubtless favour them; but of how many diseases have we been delivered by the continual augmentation, both in quantity and quality, of our common food supplies? In this advance of our material welfare many agencies have been concerned, and the Potato must rank as one the most important amongst them. As an improving agriculture increased the supplies of fresh animal food at all seasons of the year, and progressive prosperity brought those supplies within easy reach of the masses of the people, there was really wanting an article of food to serve as a proper dietetic complement to the beef and mutton, the plentifulness of which is really of quite recent date. The potato stood ready as the needed complementary article, and thriving communities have pretty well settled down to a dietary the basis of which may be described in the concrete as consisting of beef, bread, and potatoes. The association is by no means accidental: it is necessary, and the prevailing customs recognize the necessity, and are quite philosophical, although making no pretence to any philosophy whatever, but simply endeavouring always to gratify the appetite of the human devourer. If from beef, as a central idea, we range into the world of mutton, pork, or fish; so from the potato, as another central idea, we may range into the world of cauliflowers, onions, parsnips, and tomatoes; but we need not indulge in any such vagaries; it is sufficient to observe that in the business of feeding the human biped we endeavour to secure nitrogenous food to sustain his activities; and starch, sugary, and otherwise carbonaceous food to sustain his warmth, and perhaps lay a coat of fat around his vital organs. The man who cannot comfortably eat a chop or a steak without a potato may be considered so far as in a healthy state, for his taste is in accordance with the requirements of nature. Everywhere now the potato is regarded as the proper accompaniment of flesh food: at the grand table potatoes are served with the most delicate meats, and the poorest cottager is the happier for a "floury [murphy]" with his simple dish of herrings or tripe. The whole thing is outside the realms of fashion, and scarcely less so of convenience. Improved living includes, as an item, a free use of potatoes, not indeed as the substitute of flesh foods, but as their corollary, supplying the carbonaceous matter of which they are deficient, but not superseding these flesh foods, because too poor in nitrogen, in which they are rich. And there is, at this point, something to be said in the interest of that quiet but ever active door-keeper of the committee of nutrition, the Palate. With the delicate outlets, with the homely steak, with the humble bloater, the potato is not only a scientific corollary; it is a necessity for the satisfaction of the palate. If you could arrest a lot of the busy men who flit about the City in midday hours, and could shut them up in a cage and listen to their confidential talk, you would be instructed on the subject of potatoes. One imaginary speech shall suffice here, and then we will proceed to another part of the subject. Hark! then, to the first speaker: he says, "I won't go to the Blank any more, for although the chops are well cooked, the potatoes are execrable. Now at Prize's you not only get a nice chop, but with it a nice hot floury potato, and without that a chop is scarcely worth eating." You may, if you please, imagine a groan of approval following such a speech, and it will tell how surely the potato speaks for the needs of man; so that we need not ask the doctors and the chemists to prescribe for us our food, but we may in reason ask them to explain why we all relish potatoes with our mutton chops.

Thus we approach the chemistry of the subject. The potato contains exactly what the flesh-eating man requires. Bread is a complete food; it is, in a sense, meat and potatoes combined; but no one thrives on a diet of bread only. For present purposes bread is out of our consideration, and the uses of the potato are all-important. We will therefore illustrate the subject by reference to its relation to certain forms of disease.

The most striking examples of the peculiar dietetic properties of the potato are seen in cases of scurvy. This disease is variously ascribed to defective nutrition, exposure to cold and damp, and the breathing of vitiated air. But the ruling and most constant cause is defective nutrition. Arctic voyagers suffer through deprivation of vegetable food; West Indian Negroes suffer through living almost exclusively on bananas; and cases are recorded of persons becoming afflicted with the disease while taking daily doses of lemon-juice as a preventive. The exceptional cases are, in this connexion, altogether unimportant. It is established by many authorities, and innumerable instances, that deprivation of vegetable food is the main cause of scurvy, whether of the inhabitants of a town besieged; or of their enemies in the camp; or mariners locked up in the ice; or of people subjected to the straits of famine. In all such cases, the loss of vegetable food is the first loss felt; for grain and flesh remain when fruits and herbs are gone, and the more substantial articles of food may be stored in quantity, but the light and not the less necessary must be gathered from day to day, or at all events are more liable to be obtained intermittently than bread-stuffs and animal food. The troops quartered at Adelaide, Cape of Good Hope, in the year 1836, suffered severely from scurvy. Nevertheless their duties were light and their rations were liberal. But the need for vegetable food had not been thought of, and an outbreak of scurvy was the price paid for the unpardonable neglect. In Dr. Ray Lancaster's "Dictionary of Popular Medicine" will be found, in the article on Scurvy, a little batch of facts directly illustrative of the subject before us.

"In 1846 an outbreak of scurvy occurred amongst some labourers employed on the Scotch railways. Their food consisted of bread, salt pork, butter, cheese, coffee, tea, and sugar. Potatoes were out of the question, as they were far too dear, because the crop in that year had totally failed. Fresh vegetables were never thought of, and were indeed in most places unprocureable. In Carlisle, the same year, the persons chiefly afflicted were weavers and their wives and daughters working in the factories, shoemakers, and comparatively few of any other kind of artisans. Bread, oatmeal, treacle in very small quantities, tea and coffee, with an occasional herring, formed their entire food. None had tasted potatoes after the harvest of 1846 [? 1845], or for a period of seven or more months. In the Crimean War the allied armies suffered very severely in the winter of 1854 and 1855. As soon as the supply of fresh vegetables and lime-juice became more plentiful the disease gradually disappeared. The French suffered worse than the English troops, as they had no lime-juice served out to them, and all the vegetables in the Crimea were soon eaten when the troops landed. The disease first showed itself in the winter of 1854-5, but as the spring advanced and vegetation came on the disease diminished. But as the summer approached the rays of the sun dried up the ground around the camps. No herbs, and especially no dandelion, could be procured, and the disease again made great ravages." To this, in another part of the essay, Dr. Ray Lancaster adds: "It is wonderful how, in a very bad case, an immense improvement will take place in a few hours by giving lime-juice; amongst the vegetables which may be given are oranges, lemons, limes, cabbage, lettuce, potatoes, onions, mustard and cress, dandelion, sorrel, scurvy-grass, and grapes."

In the records of long voyages, as also of tedious marches and campaigns, scurvy, ophthalmia, and other diseases resulting from imperfect nutrition, make dark and often blameful blots on the page. None of our great navigators has, in respect of maintaining the health of all concerned, achieved such complete success—the circumstances being considered—as the great Captain Cook, who never ceased to give attention to the proper victualling of his ships and to the refreshment of his men when effecting a landing anywhere. During the past few years the records of adventure in the arctic regions have directed attention in a very pointed and sometimes painful manner to this serious subject. The most noticeable, perhaps, of recent instances occurred in the Alert and Discovery, when wintering on the north of Greenland, when there was much said about lime-juice and nothing on the subject of potatoes. The difference between the two was well understood however by Professor Nordenskiöld, who, in his narrative of the "Voyage of the Vega," gives prominence to the fact that the potato is the best safeguard against scurvy available for ships destined for a prolonged stay in the arctic regions. In preparing for the voyage a store of potatoes was secured from the Mediterranean, in order to have them perfectly ripe, and delivered at Gothenburg on the 1st of July, and these were in use as part of the daily diet during a period of fifteen months. The learned explorer says, "In order to keep, they had to be newly taken up and yet ripe. They were therefore procured from the south through Mr. Carl W. Boman, of Stockholm. Of those, certainly one of the best of all anti-scorbutics, we had some still remaining on our arrival at Japan."

The home-staying citizen is interested in this matter by only a few degrees less than the adventurous mariner. Defective nutrition, even in the midst of plenty, is no uncommon occurrence. The records of many public institutions, and more especially of schools, are disfigured by evidences of the incapacity of generous governors to feed their people properly. The customary dependence of navigators on lime-juice, and their frequent lamentation over the difficulty of obtaining fresh vegetables, illustrate how, on a question of the most vital importance, the most fatal mistakes may be made as the result of narrowness of view. It is granted that lime-juice and lemon-juice, and many other prophylactics are at command, but between a corrective medicine and a nourishing food there is all the difference between starving the frame and feeding it. As an anti-scorbutic food, the potato not only tends to the preservation of health by its own chemical properties, but it gives a peculiar and most welcome relish to the daily meal, rendering the meats more wholesome and life more bearable when the circumstances are trying to the spirits as well as the health. Nor is it necessary to take such special care as the wise Nordenskiöld adopted. Fresh potatoes in any case are to be preferred to preserved potatoes of any kind certainly, even as fresh meat, even of middling quality, is to be preferred to the very best tinned samples. Nevertheless the preserved potatoes that are obtainable in commerce are of excellent quality and the price is so moderate that wherever the fresh root is not readily accessible this preparation may most advantageously

take its place. The best of the several preparations known to the writer is "Edwards's."

The effect of certain acid juices and savoury vegetables in the prevention and cure of scrofulous disease will suggest the inquiry, In what particular principle does their prophylactic power reside? Dr. Garrod was the first to suggest that the predominance of potash in the mineral constituents of these articles explained their efficiency. It is a fact full of importance that the pure acid separated from lime or lemon juice does not operate advantageously in cases of scurvy. But when the entire juice is administered there is an immediate beneficial effect. It happens that in the entire juice of these fruits there is a notable proportion of potash, as there is also in the potato, and in the various vegetables that are found serviceable as anti-scorbutics. Here, then, is the key to the mystery. All the vegetables customarily eaten are in some degree anti-scorbutic, but the potato is pre-eminently so, and its use therefore is a necessary corollary of the use of animal food, in which, generally speaking there is a deficiency of potash.

The following table, compiled from analyses by the most eminent chemists, shows the relative proportions per cent. of potash, soda, and phosphoric acid in the ash of the roots and vegetables named, and as, in regard to potash, the potato stands highest its pre-eminence is declared and explained:—

	Potash.	Soda.	Phosphoric Acid.
Potato	55.0	2.0	10.0
Parsnip	36.0	3.10	18.0
Jerusalem Artichoke ...	54.0	0.05	13.0
Bean	42.0	0.90	31.0
Pea	36.0	7.50	33.0
Turnip	34.0	8.0	10.0
Kohl-rabi	36.25	3.0	13.50
Cabbage	38.0	2.0	5.50
Carrot	32.50	11.0	8.50
Beet	25.0	10.0	5.0

FIELD CULTURE OF THE POTATO.

NOTWITHSTANDING the immense importations of German potatoes annually, and the ravages of disease, the commercial culture of the potato is by no means one of the least profitable of the undertakings in which the farmer can properly engage. But to make money in potato growing on the farm, as in the production in the garden of samples that will bring credit to the cultivator when upon the exhibition table, there must be a good soil as a basis and culture of the highest class. No slipshod or rough-and-ready methods will suffice, as so many growers find to their cost every year; for if the soil is not well prepared by liberal manurings and deep cultivation the crops will not be such as to afford satisfaction at the end of the season. Above all, the soil must be suitable to the crop, or of a character that a reasonable amount of preparation will render it so; for although we know that very stubborn soils on the one hand, and light sands on the other, have by a liberal outlay in fertilizing agents and labour been again and again brought into so excellent a condition as to produce the finest crops, the question of its being work in which one can profitably engage is extremely doubtful. In the garden or on the home farm, where it is a question of the table being supplied with good, bad, or indifferent potatoes, rather than one of pounds, shillings, and pence, almost any effort would be amply justified. But when the cost of production has to be balanced against the market returns it is necessary to consider whether in the ordinary course of things the crop will pay for the cost of production.

There is a golden rule in farming which all clear-headed practical men are not slow to observe, and that is to grow on the land those crops to which it is best adapted. In due observance of this rule, potato culture should not be attempted unless the circumstances are of an exceptional character on soils that are very stubborn or of a close and tenacious character. Potato growing cannot be made to pay on them, because, to state the case briefly, they are very expensive to work, there is a great risk of very heavy losses from disease, and under the most favourable conditions the samples present an appearance of roughness which materially affects their value when in the market. On the other hand, very light soils require heavy dressings of manure to ensure a moderate crop, and if the summer should happen to be hot and dry the crop will be hardly sufficient in bulk to be worth lifting, and before the next crop can be on the ground, or sufficiently advanced to take advantage of it, the manurial matter applied in the spring for the potatoes will be washed out of the soil. The condition in which the land is left for the succeeding crops is an important factor in estimating the profitableness of potato growing, and unless a few pounds per acre is, so to speak, carried forward to the credit of the crop following the potatoes have to bear a heavier cost than that which properly belongs to them. A mellow fertile loam is unquestionably the best for potatoes, and the more closely the soils approximate to it the greater are the chances of success. In some districts light soils may be turned to profitable account in the production of crops of early sorts, such as Myatt's Prolific Ashleaf, and it is well worthy of the consideration of holders of land in the southern and western counties whether it would not be better to devote more attention to the choice early varieties, and grow the later kinds less extensively. I am quite sure that on thin warm soils it will pay very much better to grow Ashleafs than Champions, and I am equally certain that where the early sorts are grown much more satisfactory returns can be obtained from the Kentish or Myatt's Ashleaf than from the Early Shaw and other inferior sorts so generally grown for supplying the markets.

In proceeding to speak of and explain some of the leading details of the field culture of the potato, it must be said that no general improvement has taken place in it of late years, although the International Exhibition has exercised a material and most beneficial influence upon the culture of the "noble tuber" in the garden. In districts where potato growing is understood and made to pay, advantage is taken of

any improvements in the modes of procedure that may be introduced, and promising varieties have due attention; whilst in others, and these are by far the most numerous, we see but little, if any, improvement upon the old and, comparatively speaking, profitless system, in which good tillage, careful selection of the sets, and the preservation of the first crop of sprouts are not considered of much importance. There is no better system of potato growing for market than that which has long been adopted by the most successful cultivators in the North Riding of Yorkshire, and it is not likely that we shall see any tangible improvement made in it for many years hence. A system by which crops of Flukes from twelve to fourteen tons per acre are obtainable has certainly something to recommend it, and those were the crops that we used to lift in the ordinary course when I was practically engaged in growing potatoes for market, some few years previous to that fine old variety going out of cultivation. Of Regents and Dalmahoy's we of course lifted heavier crops, and when I consider that on fairly good soils from eight to ten tons per acre can be obtained by a very ordinary course of culture, I must confess that I have not much respect for the opinions of those who recommend certain varieties as unsurpassed in productiveness because, as they state, they have been able to lift between five and six tons per acre. Soils and climate of course materially influence the results, but with such wretched crops as five or six tons either the soil must be unsuitable or the practice indifferent. The fact that they are spoken of with satisfaction shows that there are not wanting those who have very vague ideas as to what constitutes a paying crop.

The soil with which we had to deal, it may be well to state, was deep and rather strong, and required well cultivating to secure a good tilth. Our practice was to select early in the autumn from forty to fifty acres of the stubble of white crops, preferably wheat, and break them up with a digger to a depth of eight or nine inches. The digger is somewhat similar to a plough, but it is of great strength in the beam, and the mould board is so formed that instead of laying the soil in smooth and regular furrows it drags it forward and throws it up in large irregular clods, and thus leaves a very large surface exposed to the weather. Four horses were required for working the digger, and it must be confessed that the appearance of a field after it had left was not particularly pleasing to those who delighted in straight lines and mathematical precision; but this did not trouble us. What we were most concerned about was the condition of the soil at planting time, and this was invariably satisfactory. If any portion of the ground wanted more working than the other we would run the cultivator through it when moderately frozen, to more fully expose it to the action of the frost. But the other was left until the end of February or early in March before we commenced to knock it about. We were of course guided by the condition of the soil, and as far as possible did but little to it excepting when it was in a nice dry state.

At this period the cultivator was set to work, and three horses attached to it to enable us to stir the ground nearly as deep as it was moved by the digger in the autumn, and in a day or two afterwards heavy harrows were passed over it. By this course of procedure we obtained a grand tilth, and nearly as great a depth as can be had with the spade and fork. In some seasons it was found necessary to run the harrows over the surface, but not often; for there is no occasion to have the surface when the furrows are to be struck out as fine as a bed on which small seeds are to be sown.

The application of fertilizers was deferred until the potatoes were planted, and then they were put in the drills, a practice which has much to recommend it. This is a point upon which some difference of opinion exists amongst cultivators, and some go so far as to assert that potatoes planted in trenches in which farmyard and other manures have been placed are more liable to injury from disease than others growing on land dressed in the autumn. But they are mere assertions, and nothing more, and, so far from putting the manure in the trenches being detrimental to the crop, it is decidedly beneficial to it. We had in the course of the winter, as opportunities offered, the manure drawn from the farmyard and put in large heaps in convenient positions in the fields. The heaps were covered with a good layer of soil, to prevent the goodness being washed out by the rains, and the manure was invariably in a nicely half-rotted state, and in the best possible condition for putting in the trenches. The farmyard manure was applied at the rate of twenty tons to the acre, and supplemented by five cwt. of artificials. These consisted of two cwt. of Peruvian guano, two and a half cwt. of superphosphate, and half a cwt. of muriate of potash, and they evidently answered the desired purpose, for we obtained a good balance between the root and top. On soils that are at all sour a liberal dressing of newly-slaked lime applied immediately before the harrowing is most beneficial.

The middle of March was considered a good time for commencing to plant, and, with a slight modification according to the district, there is now no better time at which to begin. First of all, furrows were cut thirty inches apart for all the sorts grown, but for such strong growers as Magnum Bonum and the Scotch Champion a space of three feet would be necessary. For this purpose we employed a light plough fitted with a double mould board, which formed a series of ridges in opening out the trenches. As the furrows were being struck out the carts followed with the manure, which was evenly spread along them, and over this were scattered the artificials. When this had been done the sets were carefully laid in the trenches from twelve to fifteen inches apart, and covered with the plough. The sets were not taken from the clamps a short time before they were wanted, as is even now so frequently done where large breadths have to be planted. They were prepared with hardly less care than when they are wanted for the production of exhibition samples. We selected them very soon after the crops had been lifted, and a preference was given to tubers, which may be described as "small ware." They were at once placed in large sheds, and spread out thinly on the floor and on the shelves, with a good layer of straw underneath them and at the sides, and plenty of straw was kept at hand for covering them as soon as frost set in. Early in February, if the weather was not severe, we

spread them out in a layer two or three tubers in thickness, and to enable us to do this a portion was removed to other outhouses. It would be better to spread them as thinly as this at first, but when such large quantities are required it is practically impossible, and no good would result from recommending cultivators to attempt it. For conveying the sets from the store to the field there is nothing better than the flat baskets, with a handle on each side, such as are used in nurseries for packing plants.

In a few days after the planting was completed the harrows were run over the land to make the surface somewhat level, and break down any clods that may have been left after the sets were covered. Nothing further than this was done or found necessary until the shaws were sufficiently advanced to show where the lines were, and then the horse-hoe was brought into requisition. The usual practice was to horse-hoe the space twice, and the first time to set it as deep as we could work it with two horses attached, the second time it was set just low enough for one horse to work it without being distressed. The spaces between the sets in the row was at the same time chopped over with the hand-hoe, and a sharp look out kept that the men did not draw the soil away from the shaws. At the first hoeing, which took place as soon as the lines could be seen, the horse-hoe was set to go very near the shaws, but at the second, which was considered necessary about a fortnight or three weeks afterwards, eighteen inches only in the centre of the spaces was hoed. Earthing up was done with a light plough when the shaws were from six to eight inches high, and on the completion of this important operation no further attention was given the crop until lifting, beyond the drawing out of any large weeds that made their appearance, to prevent their seeding and making the land foul.

Early crops of Ashleafs and Dalmahoy's were lifted as soon as marketable and despatched to the large manufacturing towns; but the later sorts remained until the skins were well set, for when the skins of those coming to market in the winter are rubbed their value is considerably reduced, and in dealing with vast bulks which have to be lifted with the plough it is impossible to have them handled with the same degree of care as when a few cwt. are lifted in the garden. There was one important particular in which my practice differed from very many of the growers who send supplies to the metropolitan and other markets, and that was, I had as far as possible all the diseased tubers removed. This cost money for labour and reduced the bulk, but it paid nevertheless, for the large speculative buyers were always ready to take our stocks when we thought the time had arrived for disposing of them, and to pay also the top price. The objectionable practice of sending diseased potatoes to market has now reached such a pitch that at the end of last autumn and the early part of the current winter Regents and Champions became a drug in the market, because of buyers being afraid to touch them. In some cases, owing in a large measure to this fact, many tons of Champions must have been sold in Spitalfields this season at prices that did little more than pay for the cost of lifting, carriage, and market dues; and when we consider how objectionable is the practice it is impossible to express much sympathy with those immediately concerned.

NORTHERN FARMER.

THE RAISER OF MAGNUM BONUM POTATO.

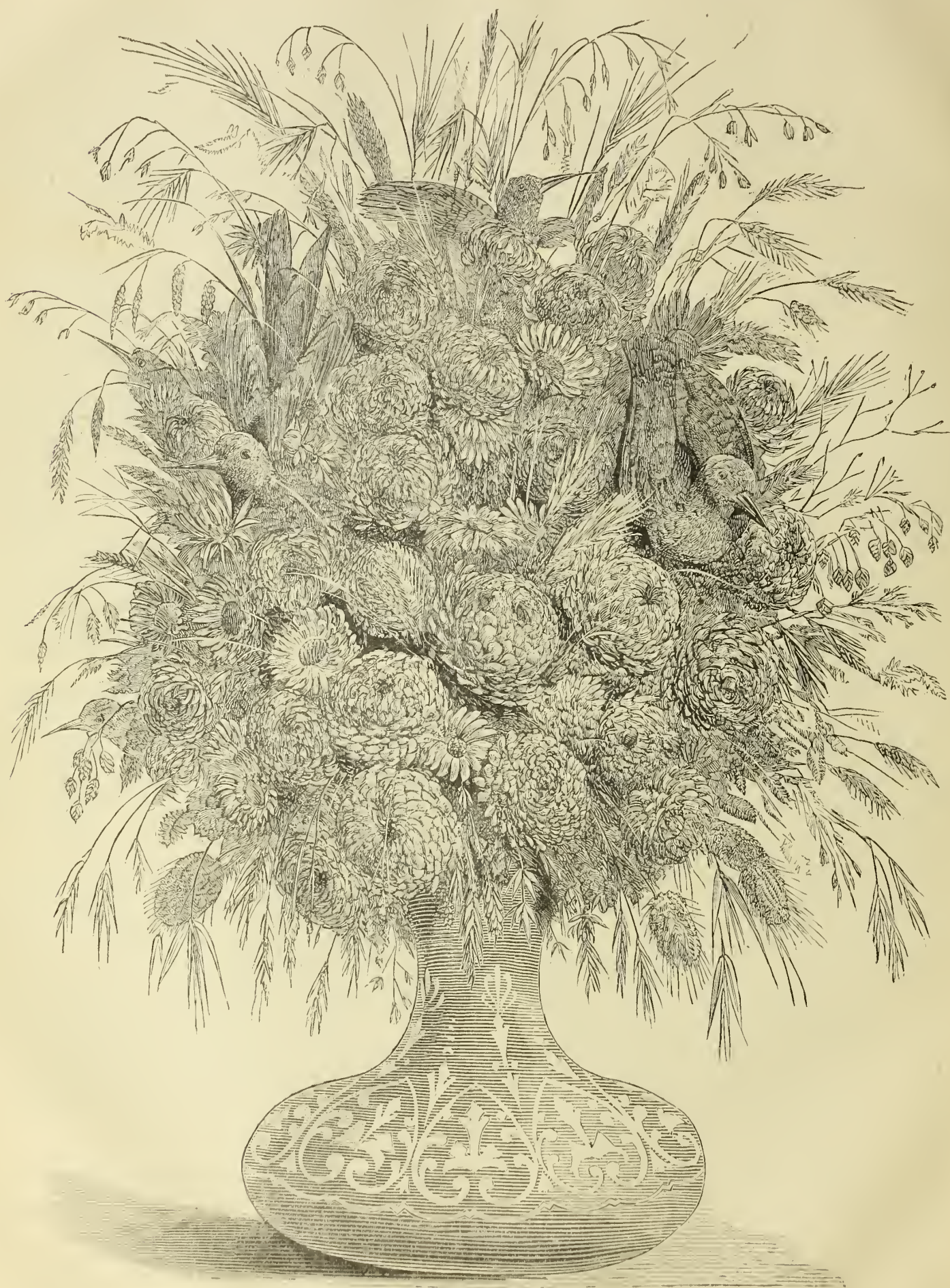
THE following has been forwarded to us for publication:—From the year 1846, when the potato disease appeared with such fatal results, no variety has been raised, nor obtained a more widespread celebrity or a more well-deserved popularity, than that which has become a household word as an article of food, viz., the "Magnum Bonum." This name was very happily given to it by Messrs. Sutton and Sons, of Reading, who purchased in 1874 the entire stock from the raiser, Mr. James Clark, a native of Christchurch, Hants, in the neighbourhood of which he is still a resident. The excellent qualities of this potato are admitted on all sides: as a disease-resister it has no equal, as a heavy cropper it cannot be surpassed, and (as was well observed in the GARDENERS' MAGAZINE of January in the present year) having escaped the trying ordeal of the rainy autumn of 1881, is unquestionably the best home-grown potato in the market. A very interesting account of this potato and its raiser was published in the *Journal of Horticulture*, November 3, 1880, and is worthy of reproduction. The results of Mr. Clark's indefatigable and thoughtful plodding justly entitle him to be regarded as a public benefactor, and several of his friends fully appreciating both his private as well as his public merits, are anxious to see him presented with a testimonial in the form of a purse of money, as a suitable recognition of the great benefit he has instrumentally conferred on both rich and poor wherever the "Magnum Bonum"—the fruit of his assiduous labours—has been introduced. The promoters of this proposed testimonial have reason to know that it would be especially acceptable at the present time, in consequence of the peculiar circumstances of last season, which have told against all growers of potatoes in a very serious manner, and have thus considerably lessened Mr. Clark's properly-anticipated returns, and thereby cramped his resources. They hope, however, that the contemplated presentation will assume such proportions as will completely remove his temporary difficulties and enable him by his persevering endeavours to yet further benefit the public at large.

Donations will be thankfully received by Messrs. Frampton and Son, Highcliffe, Christchurch, Hants, or they may be sent to the office of this paper, addressed to the Editor, and will be duly acknowledged.

Donations already received.

Messrs. Sutton and Sons, Reading	...	...	£25	0	0
Louisa, Marchioness of Waterford, Highcliffe...	...	...	5	0	0
John Kemp Welch, Esq., Sopley Park, Ringwood, Hants	5	0	0		

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its natural, and consequently healthy, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Householders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—ADVT.]



BOUQUET OF EVERLASTING FLOWERS

A BOUQUET OF EVERLASTING FLOWERS.

THE figure accompanying this note represents a bouquet of everlastings that has adorned a sideboard in my house through a period of nearly twenty years, and is now but a few shades less bright and prim than when it was first mounted. It has been during that period protected by a glass shade, and that in part accounts for its present perfection both of form and colour. And, as regards colour, there is this much to be said, that none of the flowers or grasses have been dyed, and therefore they appear in their natural tints, save the subduing effects of continued light upon them, which of course is of some account in the estimate of their relative brightness. But it is truly surprising how well the yellow and red everlastings have kept, even until now, a certain pleasant remnant of their original colour; so that, although Time has tamed them, there are some compensations, and one of the most important is the fact that a natural bouquet may be so long preserved, and still be not only presentable as a "modern antique," but as a really beautiful object. We can imagine some readers entertaining the idea that the picture is better than the reality. Ah, my sweet sceptic, just try your hand at the representation in black and white of a bit of the truth of nature. If a born artist, and an artist bred, and blessed with the eyes of a prophet and the fingers of an angel, it is quite a question whether your best picture will prove to be even a respectable shadow of the actual fact. But of that some other time. Look at this bouquet as a model, and, if you can, improve upon it, and go on unto perfection. The birds that appear in it are mostly humming birds, trapped and mounted by somebody whose name shall be nameless. But there happens to be in this bouquet the ghostly reminder of a Jenny Wren. On a summer night at Hermitage the pretty thing came into the house by an open door, and found its way to the dining room, and made a dash at the window, and then fell dead. I mounted it on the selfsame day, and thrust it in amongst the dried flowers of this bouquet, where, as often as it was noticed, the story was told; and sometimes the little people who listened applauded with a tear, and said, "poor Jenny Wren!" She was poor indeed, but she is poorer now.

S. H.

CULTIVATION AND SELECTION OF POTATOES FOR EXHIBITION.

By P. MCKINLAY, Esq., Penge.

IN the letters received from amateurs and practical gardeners who, like myself, take a special interest in potato culture, I have been so frequently assured that my contributions on the subject to the GARDENERS' MAGAZINE have been of assistance in clearing up knotty points, that I cannot well refuse a request made to me that I should give such further advice on cultural details and selecting varieties as is likely to prove useful at the present moment. My time is too much occupied in various ways to admit of my preparing anything approaching an exhaustive treatise on potato culture, were it necessary; but it does not appear to be wanted, and I shall confine the few suggestions I have now time for making to matters of special importance. With these and the list of selected varieties I hope to be able to afford considerable assistance to those who are in need of advice, and place them well abreast of the times so far as relates to this important root. Although these notes are written with special reference to the wants of those who are anxious to occupy a high position at the exhibition, it must not be thought that they are wanting in usefulness to those who require potatoes simply for their own or their employer's table as the case may be. The secret, if it may be so called, of producing tubers suitable for competitive purposes is nothing more or less than good culture, by which alone profitable crops for consumption can be obtained. The cultivator who would make his mark as an exhibitor must so prepare his ground in the autumn and early in the winter that he will obtain a good tilth: he must apply sufficient manure of a suitable kind to ensure a vigorous growth of top and root, and he must assist the crop by forking up the ground between the rows several times previous to the shaws extending over the intervening space. Much less than this will not suffice for the ordinary crops, if they are to be really profitable. With reference to quality, it may be safely assumed that high-class culture does not deteriorate it, and whatever may be said about the unsuitability of exhibition specimens of other vegetables for the table does not bear in the slightest degree upon the potato. My experience is all the other way, and if some of the varieties grown for exhibition purposes do not possess high-class table qualities, it is quite certain that the handsome tubers of the respective kinds which are seen on the exhibition stage would be fully equal in quality to those less shapely, and produced under conditions not so favourable to a heavy crop and the development of even well-finished tubers. I say nothing about coarseness, because coarse potatoes are now acknowledged by those who know anything about the matter to be not fit for any purpose other than the pig trough.

PREPARING THE SOIL.

It is practically impossible to obtain good exhibition tubers or first-class crops for the table from soil so crude and hard as not to admit of the free extension of the roots, and to present any obstacle to the equable swelling of the tubers. In a word, it must be fairly deep and mellow, and to secure this there is no great difficulty, provided the requisite labour is available for carrying out the necessary work at the proper time. An important point is to begin the preparation of the soil in the course of the autumn, or very early in the winter, so that the surface may be fully exposed to the disintegrating influences of the rains and frosts. The first step will be to dig the ground over deeply, or to bastard trench it, and throw the soil up into ridges, to expose as large a surface as practicable: in some cases stable manure may be applied at the same time.

In the course of February or early in March the soil will be all the better for a second working, to promote pulverization by more full

exposure to the weather; and in commencing the cultivator must be guided by the state of the weather and the condition of the soil. There will be no gain in going upon the soil when in a wet state, but there will be a risk of working it into a paste; a condition so unfavourable for planting operations, and to a free growth during the early stages, that the risk ought certainly not to be incurred. Advantage may be taken of the forking over of the soil for applying fertilizers, particularly of stable manure, of which liberal dressings are in any case of immense advantage. Amies' Patent Manure and Hill's Special Potato Manure may also be applied at the same time; but it is better to defer the application of these two fertilizers until the planting, when they can be distributed along the trenches in suitable proportions previous to putting the sets in them. In most cases I put a layer of stable manure along the trenches also on the top of the sets, and invariably with satisfactory results. By the time the trenches are formed for the reception of the seed the soil should have been so worked that it is free from lumps and in the most mellow condition, to promote the equable swelling of the tubers, and it must as far as possible be freed from wire-worm and other kinds of ground vermin that prey upon the crop and disfigure the samples. In the preparation of light soils the chief point will perhaps be to enrich it sufficiently to promote a growth strong enough to ensure a heavy crop. On no soils must the manuring be carried to an excess, because of the waste, practically speaking, of money, and the injury done to the crop by the promotion of too luxuriant a growth.

SELECTING AND PREPARING POTATOES FOR PLANTING.

The selection of tubers for planting should be made with care. Both large and medium-sized potatoes are suitable for sets, the former when cut being the best. But small and misshapen tubers should not be so employed, a fact now generally acknowledged by all the leading cultivators. The tubers required for planting should be selected in the autumn, and be laid out rather thinly in a shed or outhouse from which a moderate frost can be excluded, and the potatoes can be effectually protected by coverings of straw or refuse hay during periods of severe weather. There is no better way than putting the tubers in a single layer in shallow boxes, but this is not practicable excepting for a few of the choicest kinds: for not only do they take up much space, but there is great difficulty in protecting them in severe weather, such as experienced in the two previous winters. They may be spread out two or three layers in thickness without any danger of their making the long white shoots produced when stored in a large bulk; and if a layer of some dry material is placed on the floor and shelves previous to their being stored they can be readily covered when there is an appearance of severe frost setting in. In mild weather they must as a matter of course be fully exposed, so that the shoots produced in the store may be of a deep purple colour, and so short and hard that there will be no danger of their being broken off or bruised when the potatoes are removed to the garden or field, provided that they are handled with a due amount of care. A few days previous to planting, to have everything in readiness, the large tubers should be cut up into sets, having from one to three short stubby shoots each, and the sets to be planted whole should have their shoots reduced to the same numbers, the weakest being as a matter of course removed. By reducing the shoots of the strong-growing kinds to one, two, or three, and those of the smaller sorts to two, three, or four, the production of shaws is kept within reasonable bounds, and the crop is able to derive the fullest possible advantage from the sunshine and air, which are such important factors in potato culture.

WHEN AND HOW TO PLANT.

It is quite impossible to fix any particular date for planting potatoes that will be suitable for cultivators in all parts of the country, as so much depends upon the season, the condition of the soil, and the locality. Upon this important point I can only speak generally, and ask my readers to apply my suggestions to their individual circumstances as to them seems best. In the planting of potatoes the importance of "taking Time by the forelock" is abundantly shown; but at the same time there must be no undue haste, for it is better to defer the work beyond the time usually considered the most suitable than to go on the ground when it is so wet that it is practically impossible to plant with a good tilth. My long-established rule as to planting is to divide the potatoes into two batches, and to plant the first batch at the beginning of March, and the second in the first week or ten days of April. If the weather is such that planting cannot be done early in these months, I proceed with the work as soon afterwards as possible. Owing to the thorough preparation my soil undergoes in the course of the winter, I seldom meet with any serious delays, and when they do occur they are invariably caused by the rainfall being above the average.

The sets should invariably be planted in shallow trenches made with a spade, the depth in some degree to be regulated by the character of the soils. On light soils the trenches may be from four to six inches deep, and on strong loams a depth of from two to four inches will suffice. Overcrowding has such a material effect in reducing both the bulk and quality of the crop that it must be avoided. On rich mellow soils the rows should range from thirty inches to four feet six inches apart, the lesser distance for the Ashleafs and others of compact habit, and the greater for such robust growers as Magnum Bonum; whilst for the varieties of moderate growth the rows should be three feet six inches and four feet respectively. On medium loams and light soils a distance of from six to nine inches less will afford ample space.

As the trenches are opened out the artificial manure selected is evenly distributed along the rows at the rate of about five hundred-weight to the acre. When this has been done, the sets are placed in them at the proper distance apart, which varies, according to the habit of the respective kinds, from fifteen to twenty-four inches. In some degree the distance at which the sets are put in the trenches is regulated by the space between the rows. I then have the sets covered with stable manure and the trenches filled in.

SPRING AND SUMMER MANAGEMENT.

The shaws of those planted in the first week or so of March will begin to make their appearance above the surface before all danger from frost is over, and a certain degree of watchfulness will be necessary to prevent their having the tops nipped off. They certainly must not be left to the tender mercies of the weather, and there is no more simple plan of protecting them than by drawing a little of the surface soil over them when there is an appearance of frost. I also in special cases use light canvas on wires stretched across and fixed to stakes, and uncover every morning. It might be thought almost unnecessary to allude to the importance of protecting the shaws from frost; but a warning is unquestionably needful, for many growers are quite careless about the exposure of the tender green tops to the biting frosts that accompany the keen easterly winds which sweep over the country during our spring season. Every top cut off is a direct loss, and when the growth has made considerable progress and is then cut down, as may happen in the middle of May, or even later, the crop is materially reduced, for the plant does not recover from the shock, no matter how favourable the weather may prove afterwards to the end of the season.

Not less important than the protection of the shaws from frost is the thorough cultivation of the spaces between the rows in the early part of the season. From the time the shaws are well above the surface and beginning to grow freely, there must be systematic digging between the rows with either spade or fork, according as the staple is pasty or dusty. But for all but the lightest of soils the fork will be the most suitable implement. This stirring of the intervening spaces must be continued as long as it is safe, the time to stop being when there is danger of bruising the tops or disturbing the bottoms. The soil, again and again loosened and aerated, will absorb sunshine, will generate carbonic acid, and develop silicates and phosphates and alkaline salts for the service of vegetation as it becomes pulverized and acted upon by the air, the dew, the rain, and the light.

LIFTING THE CROP.

I have on more than one occasion stated in these pages that it is not only not necessary to leave the lifting of the crop until the tubers are what is technically called "ripe," but that there is considerable risk in so doing. Many cultivators are afraid to lift the crop until the shaws have completely died down, under the impression that the tubers will not keep. But this is a mistake, for which they generally have to pay in losses from disease. The tubers must be full grown and have attained a certain degree of maturity, but it is not necessary to wait until the skins are set, for if they are laid in the sun for a short time to harden, and handled with a due amount of care, they can be stored without the skins being rubbed off. As a matter of fact, I have not had on my table finer potatoes than those that have been lifted before the skins were firm and that we could not handle until they were ripened a little in the sunshine. For all that can be desired in respect of quality and keeping they are ripe enough when they have attained their full size, according to the variety, and if lifted they are safer from disease, which generally accompanies the ripening process if the weather happens to be moist and cold. The best advice that can be given to cultivators with reference to the lifting of the crop is not to wait until the shaws are dead or dying off, but to be guided by the roots only, and when they are fully grown secure them, for from that moment they are never safe.

SELECTING AND PREPARING FOR EXHIBITION.

The tubers required for exhibition should be selected when the crop is lifted; and, as a matter of course, the most handsome samples of full size, according to the variety, without being over-large, must have the preference. They ought to be not only even in outline, but fresh in colour and free from defects caused by wireworm or other pests that prey upon the tubers, for judges who know their work are not satisfied with a glance at the tubers as they lie upon the dishes, but handle and thoroughly examine them, and are not slow in detecting faulty samples. About double the number of tubers wanted of each variety should be picked out to afford plenty of choice for selection when the final preparations are made, and it is a good plan to sort out eighteen tubers for each dish of nine. Samples of each variety grown, so far as they are able to furnish exhibition specimens, ought to be selected to strengthen the hands of the cultivator in making up collections. As they are sorted out they should be put into boxes unwashed and carefully packed in dry sawdust or other light substance, and have a label attached to them, so that no mistake may occur in naming them. In preparing the tubers for the show, careful washing is all that is necessary, and this is best done with a rather soft brush, such as is used for brushing the finger-nails at the toilet table. There should be no scrubbing beyond what is necessary for the removal of the soil, and the business of the brush is simply to cleanse them honestly with pure water. Every tuber should appear in its natural colour with its proper skin unimpaired. Beyond this nothing should be done, and the exhibitor may be well assured that such tricks as skinning, rubbing down with sand, and greasing will not improve his chance of success, if the awards are made by competent men, but they may bring disqualification.

CHOICE EXHIBITION VARIETIES.

We now come to the important matter of making a selection for planting, and with reference to it, it may be said with advantage that the number of varieties planted should considerably exceed the number it is intended to show. To put the case as plainly as possible, a cultivator who intends to show twenty-four sorts ought to plant at least forty-eight, and, for the assistance of those who are anxious to compete in the larger classes, I shall give a list of fifty. No matter how constant and good certain kinds may be, they will sometimes disappoint, because perhaps the soil does not exactly suit, or because the season is too hot, or too cold, or too wet for them. The cultivating of a large number of varieties will entail rather more trouble at the planting and lifting

seasons, but there will be no material loss of space, for but few of the best exhibition varieties are otherwise than good croppers, and of excellent quality. The fifty sorts I should recommend are—*Bedfent Prolific*, *Bresee's Climax*, *Bresee's Peerless*, *Matchless*, *Fillbasket*, *Lord Mayor*, *Model*, *Fillham White*, *Porter's Excelsior*, *Reading Abbey*, *Reading Hero*, *Rector of Woodstock*, *Schoolmaster*, and *White Emperor*; *Adirondack*, *Beauty of Kent*, *Brownell's Beauty*, *Lye's Favorite*, *Gramplan*, *Improved Peachblow*, *Radstock Beauty*, *Red Emperor*, *Scotch Blue*, *Fortyfold*, *Triumph*, and *Vicar of Laleham*; *Bresee's Prolific*, *Cobbler's Lapstone*, *Cosmopolitan*, *Covent Garden Perfection*, *International*, *King of Potatoes*, *McKinlay's Pride*, *Magnum Bonum*, *Myatt's Prolific*, *Pride of America*, *Snowflake*, *Wiltshire Snowflake*, and *Woodstock Kidney*; *American Purple*, *Beauty of Hebron*, *Early Rose*, *Garibaldi*, *Late Rose*, *Lee's Defiance*, *Manhattan*, *Mr. Bresee*, *Queen of the Valley*, *White Elephant*, and *Trophy*.

The four new varieties, *Suttons' Early Border*, *Suttons' Reading Russet*, *Suttons' Prizetaker*, and *Suttons' Fiftyfold*, raised by Mr. Fenn, and now being sent out by Messrs. Sutton and Sons, are very promising and should have a careful trial.

BOTANICAL SCIENCE IN ITS RELATION TO ORNAMENTAL ART.

By F. EDWARD HULME, F.L.S., F.S.A. Read at a Meeting of the Society of Arts, January 18, 1882.

It has been my lot in life to spend much of my time in the midst of rural scenes. First, as a Londoner spending long vacations in a country home, and now as one of the magistral staff of a big public school that has its home amidst the verdure of the Kennet valley, while the chalk hills lock us in on every side; on one of these we see the outer edge of the grand forest of Savernake, a woodland district that stretches, free to all, for many miles. On the other hand, my tastes have been artistic and archæological, and I have from boyhood had two ruling passions—the love of nature and the love of art. Having then thus trespassed on your good nature, by giving you this slight autobiography, you will readily understand that I am desirous of convincing others that these two distinct tastes are by no means antagonistic. It will be at once conceded that a love of nature is not merely not antagonistic, but is essential to a follower of pictorial, or, as it is often called, fine art.

It is needless then to stay to point out that he who would paint the rush and turmoil of the ocean must himself have felt its grandeur, that the man who would delineate for us some scene of pastoral peace must himself have felt its sweetness; the painter of the harvest field must himself have rejoiced in its golden plenteousness before transferring its rich wealth to his canvas; while the man who would charm us with some scene of domestic felicity must have felt the joys of home. One can imagine nothing more irksome than the artists' toil if bereft of the artistic feeling. When however we turn to another phase of art, the ornamental or decorative, this love of natural beauty is by no means so evident, and we are at once assailed by arguments on naturalism and conventionalism of treatment and the like. With these we will shortly deal; but may we not pause for a moment to consider whether the lower estimate in which decorative art is held when compared with pictorial may not in some degree be traced to a healthy feeling in men's minds, that on the whole the representation of God's work, and of the creatures of His hand, is a nobler thing, in all its grand simplicity, than any idealization, conventionalism, or whatever other name we may give to the introduced human element? The highest form of decoration merges imperceptibly into fine art, and though any one taking up the design for a book cover, or an engraving of the San Sisto Madonna of Raffaele, would have no difficulty in apportioning either to their true relationship, it is none the less true that decorative art and fine art are separated by no keen line of division. The noblest works of art are themselves designs, as witness the grand groupings in the Last Supper of Leonardo, and no mere soulless photographic transcript. We had indeed some difficulty in finding a suitable contrast to our fine art illustrations; we at first thought of wall-tiles, but we remembered in time the graceful designs of Moyr Smith, full of quaint mediæval fancy, and we felt that these were in their degree fine art. We then ventured on the idea of Christmas cards; but here too the designs on many of them deprived us again of the sharp contrast we desired, as not a few of them practically are pictures.

It is needless to thrash out again all the arguments for and against naturalism and conventionalism. Where the highest degree of naturalism would not be felt to be inappropriate, as in some china painting, there need be no qualms of conscience, we imagine, in using it, and the genius of the designer is then shown, both by his artistic power, and also by the steps he takes, by grouping, arrangement, and the like, to suit it to its position. Ordinarily, however, certain restraints will arise, and a mere or less degree of conventionalism will be necessary; but that work, we take it, is the finest which conforms fully to all necessary limitations and drawbacks, and yet most fully gives us therewith a sense of the beauty of nature. These limitations will give us the necessary limits for our guidance. If I, for instance, am given a full palette of pigments, and am assured a suitable position for my work, I may throw into it all my power, and give to the uttermost of my ability my sense of the glowing beauty of the rose, or the exquisite purity and texture of the lily; but if you tell me that these goods will be produced cheaply, and printed throughout in blue, I feel that I cannot then give you what I would of the rose—that I could not caricature it in fact (for whoever saw a blue rose?); so I give you a floral form so far conventionalized that, while my taste will, I trust, charm your eye, your sense of the proprieties will receive no shock. So too, if my artistic abilities are at too low an ebb to give you more than an inferior naturalism, I fail again to fill you with a sense of the exquisite beauty of nature; and here again a conventionalism of treatment would have been better. I remember once going over a large pottery works in Staffordshire, and seeing many cups and saucers painted, we were told, by children, for 3d. or 4d. each, and we could only wish that such work was impossible at any price. At the mere memory of them I could only recover my equanimity by feasting my eyes on some delightful specimens of Indian pottery I saw so fortunate as to have around my study. Here we have no grotesque mockeries of natural beauty, but a full sense of the limitation imposed by the few colours and the

simple treatment necessary, and the results an altogether admirable conventionalism. Where a plant is clearly recognizable, the colouring should be appropriate. A few days ago I saw the design for the back of a playing card, in which the violet was treated naturally, yet its blossoms were bright pink. If the designer wished to convey the idea of a violet, why did he make its petals bright pink? If, on the other hand, he wanted bright pink, why did he take the violet when some half-dozen plants as beautiful—the dog-rose, the campion, and so forth—were equally available? I once heard of an old lady in an æsthetic household, tired, doubtless, of the long disputes over principles, laying down the axiom, “It is not this that’s pretty, nor that that’s pretty, but its what any one thinks is pretty that’s pretty;” but even her all-embracing latitudinarianism, though it would shield the black teeth of the Papuan, the flat head of the Choctaw, or the crippled feet of the belles of the Celestials, would shrink surely from a deliberately and wantonly bright pink violet! My present purpose, however, is not to defend either one or the other of the two great principles, for there is abundant room for the use of both, and, “circumstances,” as the copy-books tell us, “alter cases.” It is rather to point out the desirability of a more general study of nature on the part of our designers. I cannot conceal from myself or my audience the feeling that the riches, the inexhaustible riches, of nature afford the designer an opportunity that no study of anthemion, acanthus, or the like, can give, and that the man who has studied and sketched by the road-side, or in the meadow, is not only a better renderer of natural forms than the man who is content to draw his inspiration from books, or his own internal consciousness, but that that same knowledge leads to a nobler conventionalism of treatment too, when his work calls for that treatment; that the man of study and observation is doubly armed, while the man without a well-stored sketch-book is doubly weak; that in any case the work founded on knowledge must be preferable to that of ignorance.

Some of my hearers may here take alarm, and declare that botany, with its long array of multi-syllabled words, is surely a needless study; but I would venture to say that the efficient designer should be not botanist only, but anatomist, archæologist, and many other things besides, if he is to take a high rank, though he will naturally not require to go so deeply into any of these special studies as those who make them the work of their lives. There must surely be a happy medium somewhere between the total want of study, for example, that prevents a designer drawing the human figure correctly, and that profundity of knowledge of the structure possessed by any of our great surgeons; while a man may be legitimately ignorant, so far as concerns his work, of the stone age or the cave dwellers of remote antiquity, and yet find immense advantage from his knowledge of the details of various styles, of a knowledge of heraldry, and so forth.

The Science and Art Department very wisely require some little knowledge of botany from all the art teachers they train, the questions being framed to bring out not only the knowledge of structure, but to test the candidate’s power of applying his knowledge in the direction of art. As I have for some years had the honour of being the examiner, I can readily give some two or three examples of the sort of questions set. “Give five examples of bi-symmetrical flowers;” “Give any details you can of the dandelion—order, genus, specific name, structure, where and when found, its economic or artistic value, and any other points that may occur to you respecting it.” “Sketch a calyx, a corolla, a leaf, a root, a fruit, and in each case state from what plant you derive your example.” “Explain any terms with which you may be familiar, as applied to leaves, descriptive, for example, of their forms, textures, positions on the plant, veining, &c. Illustrate by sketches, and state what plants you use as illustrations.” “Draw a square so that one of its diagonals (about 6 inches long) shall be upright. Fill this with a design based on any plant you like, and below it state all you know of the plant—name, structure, previous use in art, &c.” I take it that none of my audience will feel that a designer could be anything but the better for the power of answering such questions as these, and that the student who answered the question, “Give botanical details, habitat, season of flowering, &c., of the following common plants, pimpernel, sow-thistle, woody nightshade, and avens,” by saying, “Being a London student, I have not the opportunity of becoming acquainted with these common plants,” placed himself at a disadvantage with his fellows. I do not say was placed at a disadvantage, but placed himself; for I doubt not that half an hour’s walk westward from South Kensington would have placed him in possession of examples of all four plants.

Many persons are afraid of science; yet science, after all, only means knowledge, and no one surely need be afraid of that; while the word Botany, I need scarcely remind my hearers, is derived from the Greek word for plant. If, then, any one of my audience who is alarmed at the notion of being set down to study the science of botany prefers to consider that I am trying to induce him to learn something about the common plants around him my object will be equally well attained. There is no doubt that botanical studies can be made to look uncommonly dry to the uninitiated, and that some of the terms are of portentous length; but I contend that all the terms that we deem it essential to the designer to know can readily be mastered. I remember to have seen an excellent little work in which all the facts of plant structure were explained in ordinary language, but this necessitated a great deal of roundabout diction that might have been prevented, had a few technical terms been mastered, and, as these terms are found in every other book the student desires to consult, it would seem the wiser policy to brace one’s nerves to the requisite tension, and face the difficulty. The most accomplished and tasteful designer, if he superadd some little knowledge of plant structure to his other gifts, will be enabled to add the great charm of truth to the forms of beauty he creates.

Let us now see how far this knowledge may be expected to help us, though indeed I can scarcely hope in the short time at my disposal to do more than indicate some few points to illustrate its claim to our attention.

In the first place, our work will be consistent, and we shall employ together plants that have some natural affinity either of time or place: the ignorant draughtsman not unfrequently places together plants that flower in different seasons, or that are found in quite diverse localities. Any one would of course see that there was something chronologically wrong in a group of snowdrops and poppies, or topographically faulty in a combination of water lilies and wheat; yet, extreme as these cases are, I have seen examples that come rather near them. Of course, here again, “circumstances alter cases,” and one would be justified in blending into one whole the entire floral year, as a wreath on the cover of an almanac for example.

In the next place, our forms will be correct instead of false. Conventionalism legitimately sets us free from the necessity of identifying our forms with those of nature, but a natural treatment requires an observance of natural facts. If we desire to use the graceful five-pointed leaves of the ivy we may not add thereto the clustering berries, for these are accompanied by leaves of a wholly different character, nor may we add tendrils to the convolvulus, an error too frequently committed. Further, it will prevent our falling into the error of making our stems grow out from each end, when a little spiral curvature prevents our at once noticing our perversion of natural fact. No natural stem sprouts equally from each end. An example will illustrate the error to which I allude better than any lengthy verbal explanation. [Figures drawn on the black board.] Having thus far dealt with negatives, and pointed out what a study of natural forms will prevent us doing, let us now consider one or two things which it will aid us to do.

In the first place, the infinity of variety in nature will be reflected in our own work, and instead of the constant repetition of some few forms, beautiful as they may be, the whole realm of nature is outstretched before us, either to adopt literally or to adapt as the nature of our work requires. The Egyptians felt the beauty of natural forms, but give us little beyond the lotus, the papyrus, or the palm leaf; the Greeks, earnest students of nature in its highest branch, the human figure, were content to express the overflowing wealth of floral beauty around them by the graceful acanthus leaf, and more rarely—in their vase decoration, for example—the olive, the ivy, or the vine; the Gothic carvers give a far greater variety, and bring before us the oak, the maple, ivy, buttercup, wild rose, and many other beautiful forms, but even they left much untouched. I may perhaps be reminded of the Greek honeysuckle pattern, but the anthemion is rather a testimony to the beauty of a mass of radiating and upspringing masses, instinct with a suggestion of vitality and growth, than a definite suggestion of any one plant, and we can only ourselves regard its occasional resemblance to the buds of the honeysuckle as an accidental rather than an incidental result.

As I have just referred to the decorative art of the Egyptians, I may point out for our own warning that while it is strictly appropriate to adorn the capital of a column with the lotus, it is a grave error of judgment to make the lotus flower itself the capital; and it is only the very conventional nature of the treatment that prevents one at once rebelling against the idea of supporting heavy beams of stone on the delicate petal tips of a water lily. We see the same error, the accessory become principal, in two sketches—the one taken from a drinking cup in the British Museum, and the other, Chinese in its origin, in the fine collection at South Kensington. In this latter the forms are fungoid, and as most people have a firm conviction that every form of fungus, except the mushroom, is rank poison, a further uncomfortable element may be said to be introduced.

Nature too will aid us no less in colour suggestions than in form suggestions. The rich tints of the autumn—the brilliant yellow of the dying maple, the bright crimson of the herb Robert, the variety of browns, yellows, crimsons, in the foliage of the bramble—are all full of suggestions to the designer; while the quaint forms and sombre richness of tint of the sea-weeds are in themselves a grand field still waiting to be worked. Many other good ideas for colour arrangements might be suggested, but my desire is to whet your appetites and send you searching for yourselves, that your own eyes may see the beauty that is in every summer hedgerow, rather than to spoil its grace for you by mere cold verbal description on this winter’s night.

Things that repeat mechanically and frequently should be conventionalized. It is an insult to the infinite variety of nature to repeat at every few inches the same bunch of roses. Hand-work, on the contrary, may justly be varied; and even if we confine ourselves to our roses, we are able to introduce a sufficient modification in the grouping to prevent the tedious sense of sameness. Perhaps the greatest triumph in this principle of variety in unity and unity in variety is seen in the carvings of Westminster Hall, where we see the favourite badge of Richard II., the white hart, introduced no less than eighty-three times, and though all are equally consistent with heraldic accuracy, no two of them are exactly counterparts. Though we admire the long row of Corinthian capitals, all as like as two peas (a strictly appropriate simile in a botanical paper), or the stately avenue of sphinxes in front of some grand temple in the valley of the Nile, one cannot help feeling that much individuality has been crushed, and we turn with a feeling of refreshment to the play of fancy seen in all the varied details of some grand old Gothic pile, and breathe a freer air.

Where, in addition to the inevitable necessity of repetition, the exigencies of manufacture, as in weaving, prevent any accurate representation of natural forms, conventionalism should again be resorted to. It may be of very varying type in its departure from nature, but where everything has to be worked in squares and to have outlines like flights of stairs, a fatal bar is placed in the way of adequately representing the graceful beauty of nature. It is surprising to see how near an approximation may sometimes be gained by a clever designer under so painful a limitation; but the struggle is too unequal after all, and can only be at all tolerated when the squares are so small that at a little distance the eye fails to perceive them. In glass painting all the tints will be flat, there will be no suggestion of light and shade, and the leading forms will require to be strongly outlined; but apart from these two necessary limitations, there is nothing to hinder strict truth of representation. And as the glass painter finds his employment in two principal directions—religious, or the glorification of the Creator, the saints and martyrs of the Church; or heraldic, for the glorification of national or family pride—he should needs be able to draw correctly the lily that his virgins bear, or the palm branch in the hands of the victorious saints of God, as well as indicate beneath heraldic conventionalism his sense that he has some just notion of what a rose, a thistle, or a shamrock are like.

All work done under Mohammedan influence is compulsorily conventional, for the code of Islam forbids the representation of any natural form. Shut out from all contact with nature, their artists devised works of exceeding richness. Yet they owed their charm to the intricacy of their design and the richness of their colouring, and after the first feeling of wonder at complex arrangements and of pleasure in their scheme of colour is over, we turn from them unsatisfied. Japanese art is now fashionable, and we may but seem to be joining in the general applause; yet how delightfully fresh one at once feels it! We must bear in mind too that this popular applause, though in some cases of little or no critical value, springs from the

true estimation first expressed by those whose opinions really were worth regarding, and this esteem will remain when the votaries of mere fashion have deserted Japan and all its ways, and raised another idol on the empty throne; for the art of these people is no dead thing, but a vital force, instinct with appreciation of all the beauty and quaintness of nature. Technically, too, these people can draw; they have both the observant and appreciative eye, and the ready hand; no complexity of structure, no sharp foreshortening is shirked by them, and all the beauty that their eyes delight in their hands transfer unflinching to paper. If I might delicately hint at such a thing, may it not possibly be that some of our people contend for conventionalism rather than nature, because, amongst other more avowed reasons, it is a very great deal easier to draw? The designer should not rest content with being "a metropolitan student," knowing nothing of the hedgerows that surround him at a very short railway ride, but sally forth, note-book in hand, well persuaded that even the roughest sketches made from living nature are a most valuable stock-in-trade. I always impress this point strongly on my own resident studio pupils, budding designers, and all upon whom I can exercise any influence. As examples of the sort of thing I mean, I have here some sheets from our folios. Any one who will do me the honour to examine them will see that they make no pretensions to finish in the conventional sense of the word, yet I would say for them that I think they contain all that a designer needs. I have myself when designing for manufacturers found the immense advantage of a well-filled drawer of them. In making such sketches all the salient points should be seized, and as much of the life history of the plant given as possible; one should see the opening bud, the blossom in all the glory of its full expansion, the fruit that follows it. All modifications and varieties in the form of the foliage should be noted, and the way the flowers are arranged on the stem should be given. Very often, too, the sections of either stem or fruit will give admirably suggestive forms, and then these too should be carefully added. As examples of stem sections we may give the *Carex vulpina*, the *Alisma plantago*, and the *Spiraea ulmaria*, a kind of sedge, the great water-plantain, and the meadow-sweet.

Amongst fruit sections we may notice the primrose, the snowdrop, the *Tellima elegans*, and the hemlock. It is evident that many of these natural forms might, with very little modification, suggest ornamental arrangements, either the section of the primrose or the snowdrop being as they stand very suggestive of some of the Greek patera forms. The forms of the flowers are no less suggestive, giving us, as they do, many beautiful examples of radiate and symmetrical forms. In most of these forms we find that the symmetry of the whole is produced by the aggregation of a series of parts in themselves symmetrical, while in others this general symmetry is quaintly produced by means of units in themselves unsymmetrical. The St. John's wort and the periwinkle are good examples of this peculiarity. In other flowers again, as the blossom of the *Pelargonium tortuosum*, or the Chinese lantern plant, the arrangement is only bi-symmetrical.

The inflorescence of the plant, the way in which the flowers are arranged, is another feature that may well be studied by the designer. Some flowers, as the snowdrop, rise singly, and stand alone on the summit of their stalks; others, as in the hyacinth or the foxglove, make a long line of blossoms fringing the stalk that supports them all; others again, as in the flowering rush, form what is termed an umbel, and all spring, fan-like, from one point, a peculiarly beautiful arrangement for decorative work. The arrangement of the leaves too is another feature to be noticed. In many plants, as the laurel and the privet, they grow in pairs. Any one acquainted with the Greek vase painting will remember how free a use is made of this arrangement. In many cases, again, as in the ivy, the leaves grow alternately; while in others, as the cleavers or the woodruff, the leaves grow in a ring. I have here some diagrams showing how these arrangements can be applied decoratively by the designer. The forms of leaves vary very considerably in various parts of the same plant, the lower ones being often less richly cut than the upper; the marsh mallow affords us a good illustration of this; while in other plants, as the avens or the buttercup, the reverse is seen.

In many plants too the earliest or root leaves are of a quite different form to those that succeed them. This fact must be well-known to any one who has ever sown mustard or radishes. The sunflower and syeamore give other good illustrations of this feature, and it is needless to dwell on its decorative value.

The various forms of leaves are so multitudinous that I feel how impossible it is to do any justice to their rich variety in so short a sketching time as is here open to me. Here we have a rough sketch of the leaf of the dandelion, and here we have an ornamental adaptation I have based on it. Some leaves are of this elongated character, and are composed of parts given off from a central line, while others radiate from a single point. The leaves of the ground ivy and the coltsfoot will show how great a variety is possible in forms based on the same plan.

It would be easy, having once descended from the general to the particular, to go on sketching by the hour together various suggestions derived from natural forms; but in any case I could not exhaust the subject, though I might very probably exhaust our audience. Allow me, then, in a few closing words, to commend to all designers the great importance of such a study of nature as I have here indicated. Believe me, the hours so spent are no lost time. Books are often ransacked for illustrations, but the aid they afford is as nothing compared to the sketches one can make with the living plant before one. I am of course aware that many see all this as strongly as we do ourselves; but it is to those who have not yet found out all the pleasure and the profits of such a course I venture to suggest it. The study is in many ways its own great reward. Should I have failed to convince my hearers the fault is mine, and not the cause I plead; though I would fain hope that the fair fame of nature has not too greatly suffered at the hands of her self-appointed spokesmen.

DISCUSSION.

Mr. George Wallis said every one who took an interest in this subject was greatly indebted to Mr. Hulme for bringing it before the Society of Arts. It was a subject which had long wanted to be discussed properly, and certainly the illustrations which had been given of the value of the study of plants, through the study of botany, and the advocacy of its application to ornamental design, were such as no one could fail to appreciate. It was one thing to tell people to study nature, and quite another thing to teach them how to do so, with a distinct purpose, and then to apply it to practical use. The ordinary mistake, which had existed for the last forty

years, was in taking a pictorial view of ornamental art. Haydon and Ripplingill, when advocating schools of design, looked at it from the pictorial point of view. Haydon said to him once, "So you would take a lily, but you would not draw it like a lily." "No," was his reply, "if I drew a lily, I should draw it like a lily; but if I wanted to make a cup of a lily, I should simply seek to reproduce the form in such a manner that it should stand upright in the material I have to work in." This pictorial point of view of decorative art had continued to prevail more or less all through. The study of geometry, of nature, of botany, in relation to design had become more or less engrafted on the system of our schools of art, and step by step they had taken a better standing than they formerly did as compared to the Continent; so much so, that the system pursued at South Kensington was a source of astonishment to the French Commissioners in 1862, and still more at the exhibition of 1868, so that at all events we had made some progress. But they still required to have the difference explained between the pictorial representation of plant forms and the conventional representation. Mr. Hulme had told them that this conventionalism was a matter of dispute between mere imitation and conventionalism of form; but the question really reduced itself to this shape. If he took a lily as the subject of a painted decorative panel, it was perfectly clear that he could make such a representation of it as would not at all offend the eye of an artist; although it would be more or less conventionalized, in order to properly fill up the space allotted to the ornament. But when the same design was taken as the subject of wood or stone carving, the conventional treatment would become altogether different, or else it would be simply a wood or marble imitation of a lily. Again, in the case of textile fabrics, one mode of treatment must be adopted if the subject were to be printed, and another if it were to be woven. Mr. Hulme had given an illustration of the notching effect produced by weaving, and if this were not attended to by the designer he would print an imitation of a woven design, or weave an imitation of a printed one; therefore conventionalism was required to vary according to the material and mode of manufacture for the purpose for which it was to be applied. Again, in a wall-paper, which probably enabled one to reproduce a lily in a form which brought it nearer to a picture than any other, it must be remembered that the ornament must be produced by a series of blocks, and the design must be conventionalized in order to make it properly decorative. That was his notion of what conventionality ought to be in relation to design; the mere exaggeration of form in one direction or another, or the taking of one portion of a natural object away from its proper surroundings was not conventionalizing nature; it was simply taking liberties with it, which no lover of nature would dare to do. As long ago as 1839, he delivered a lecture on the "Principles of Natural Form," which created some interest amongst his friends, and he had been repeatedly asked to work out the idea; but being a loving student of nature, the more he studied nature, and particularly plant form, the more difficult he found it to satisfy himself, not that the theory he held was right, but how far it could be practically applied to the purpose to which he had devoted his life. It was this question of the practical application which had kept him from rushing into print, as he otherwise might have done. When he joined the School of Art at Somerset House in 1841, Mr. Dyce was the director; and one day he designed a cup after the shape of the *Malope grandiflora*, a species of mallow. Having worked it out step by step from the flower, he showed it to Mr. Dyce, who was much pleased with it, saying it was quite original; and the question then arose how it was to be used. Mr. Dyce recommended him to show it to Mr. Apsley Pellatt, a large glass manufacturer, and he did so. When he took it out of his pocket, it happened to be upside down, and Mr. Pellatt said it would make a very good design for a decanter, and if he would sketch him a design for a stopper to suit it, he would give him £5 for it. That was the origin of the broad-bottomed decanter, of which he had seen many since. This was a practical illustration of how a design should be worked out. There were three main points which must be kept in view. First, What was it for? next, What was the material of which it was to be made? and third, What was the method by which it was to be made? Unless all these points were considered, it must be a drawing, or an idea, but could not properly be called a design.

Mr. Pfoundes said he was pleased to hear Japanese art so highly spoken of, and he might remark that, very much the same system as that now advocated had been followed for many generations in Japan. He had brought with him some Japanese sketches, which would illustrate and confirm this statement. The Japanese, it was true, did not dissect plants, but they went to nature, and studied floral sprays, leaves, and flowers as they grow, commencing with the most simple sprays of the willow, consisting merely of curves and lines, and gradually combining them until they produced a most perfect picture. He must say, however, that the bulk of the Japanese decorative ware, of which we saw so much in the shops now, was really not the art which was admired amongst the Japanese themselves. He was very glad to find, on so good authority as that of Mr. Hulme, that the study of nature was being followed in England, and this was more desirable than a mere imitation of Japanese designs. Indeed, he had seen examples in which some of our eminent artists had produced the most absurd results by following the latter plan; for instance, he had seen a picture hanging in a well-known gallery, in which birds only seen in Japan in winter were flying about in a garden amongst summer flowers; a Japanese artist was never likely to make such a mistake as that.

Mr. H. Clements thought there was no question that great advance had been made in art matters since 1851, mainly owing to the fact that now drawing was taught generally, whereas formerly it was only taught to those who were supposed to have a talent for it. The result was that our designers were now superior to those on the Continent. The reader of the paper dwelt on the importance of studying nature, and said, that without that any high standard in art was impossible. All the great artists had studied nature, and in no other way could success be attained.

The Chairman, in proposing a vote of thanks to Mr. Hulme, said he could not help expressing his gratification that one who was pleased to acknowledge the benefits he had received from the Science and Art Department during the last twenty years had had an opportunity of giving the Society so valuable a paper. He did not think there was any part of the teaching of the Science and Art Department more important than that relating to design. They all knew that by its means a great number of artists were being trained throughout the country, but they were also anxious that there should be a large number of designers, and it was only

the principles which Mr. Hulme had enunciated with so much clearness and force which were likely to produce such a body of designers as would enable us to keep ahead of other nations. What had been the cause of our great success at recent Exhibitions? All foreigners, at least, were agreed that it was owing to the influence of the Science and Art Department and schools of design. Within the last few months a large French deputation had come over specially to study the South Kensington system in all its developments, and the means by which it spread a knowledge of art throughout the country. It was his duty occasionally—rather oftener than he liked sometimes—to go about the country on the business of the Department, and he was supposed to be able to address various audiences on art; this was a mistake, but he was able to speak of the experience he had had of the great utility of spreading examples of art broadcast throughout the kingdom, and thereby stimulating the rich manufacturers to devote large sums of money to the foundation of art galleries, which created an interest in art in various manufacturing centres. This system was likely in another ten years to yield far greater fruit than they had yet seen. When he looked at the list of works Mr. Hulme had published since 1868, and saw that his active brain produced some ten books which had become known to every art student in the United Kingdom, he thought they might consider themselves very fortunate that he had been kind enough to give that Society the benefit of his studies.

NEW GARDEN FLOWERS.

DELPHINIUM AZUREUM ALBUM.—A fine white-flowered variety of the pretty *D. azureum*, and possessing a special interest as being one of the very few perennial larkspurs of that colour. Like the typical blue-flowered form, it produces from a tuberous root several erect stems varying from 2 to 3 feet in height, which are furnished below with rather large leaves. The flowers are produced in a very long wand-like raceme, each blossom being about the size of the common annual branching larkspur, and resembling it in form, with a very long spur curved upwards. The colour in the form now offered is a creamy white, and from the abundance with which the flowers are produced the plant is very effective. It is perfectly hardy and of the easiest cultivation in any friable soil, but appears most at home in sandy loam.

DRACOCEPHALUM RUPRECHTII.—The dwarf habit, neat foliage, and pretty lilac-purple flowers of this species render it one of the most desirable of the genus. It resembles in its general habit the well-known *D. peregrinum*, but is less diffuse. It forms a low tuft scarcely exceeding 6 inches in height, with spreading branched stems, which are clothed with ovate-lanceolate foliage, variously incised and toothed. The flowers are arranged in axillary clusters, and are an inch long, the colour being of a pleasing light rosy purple or lilac. It is a perfectly hardy perennial, but blooms easily in the first year from seed, if sown early.

ERYTHREA DIFFUSA.—Although the flowers of the plants of this genus are comparatively small, yet their profusion in some species, and their lively colour, amply compensate for lack of size. This applies with full force to the present species, which is very desirable. It forms a mossy tuft, of low trailing habit, the branches being set with small roundish glossy green leaves, and terminated by an erect corymb of bright rose-coloured flowers. It is perfectly hardy, and may be cultivated either in pots, for which it is well adapted, as well as for baskets or vases, or in the open border, or as an edging for small beds. The seeds are very small, and should be but slightly covered with soil.

IBERIS PRUITI.—Though not exactly a new plant, this candytuft is so little known that it will probably prove a novelty to most amateurs. It is of very dwarf compact growth, with linear blunt foliage, and large umbels of pure white flowers, produced very early in spring. In fading off the flowers frequently assume a tinge of purple which enhances their effect. It is perfectly hardy, and probably of perennial duration; it is easily raised from seed.

GRINDELIA GRANDIFLORA.—The general characteristics and aspect of the plants of this genus are pretty well known. This species was first introduced as long ago as 1853 to the Royal Gardens, Kew, but not having produced seed, was speedily lost. It is probably the most ornamental of the genus, and is certainly the nearest in habit of any yet introduced to gardens. It grows about 2½ to 3 feet high, with erect pyramidally-branched stems. The flower heads are produced singly on the numerous stems and branches, and resemble those of the well-known *G. squarrosa*, being about 1½ inches across, with deep yellow ray-florets and disc of same colour. The plant is perfectly hardy, blooming the first year from seed if sown early; but whether it is a biennial only or a true perennial is not yet established.

LINARIA MARITIMA.—This is described as a very pretty species of toadflax, comparatively unknown in gardens, but eminently deserving of general cultivation. It forms dwarf compact bushes about 6 inches high, which are so covered with showy bluish-purple flowers as to conceal the narrow, linear, glaucous foliage completely when in full bloom. The individual flowers are larger than in *L. alpina*, and consequently more effective. They are produced in July and August. As it blooms freely the first season, it may be treated as an annual, but the roots are of perennial duration.

NAMA PARRYI.—A handsome novelty belonging to a Californian genus of the Hydrophylls, or Nemophila family, and the most striking of the species yet discovered. It attains a height of from 4 to 5 feet, but is often much dwarfer, with stems woody at the base, and terminated by a branched panicle of flowers arranged in dense clusters, like those of many of the borage-worts. The corolla is about an inch in length, funnel-shaped, with spreading five-lobed limb, and is of a pleasing lilac-purple colour. It is likely to prove a very desirable addition to half-hardy perennials, and possesses the additional interest of belonging to a genus not hitherto under cultivation. It may possibly flower the first year if sown early, and planted out in rich soil; but some plants should be kept in pots to allow of protection being afforded them.

TRICHOSTEMA PARISHI.—Among labiate plants few are more remarkable than the species of this small genus, and the present novelty is especially noteworthy, exhibiting as it does in a striking degree the characteristics of the genus. It is a half-shrubby perennial, growing about 18 inches high, with erect stems. The inflorescence occupies at least one-half of the stem, and forms a virgate interrupted spike, the whole of which is clothed with purple woolly hairs, some of which are glandular. The flowers are borne in

lateral opposite cymose clusters of eight to ten each, the corolla being about ¾ inch long, of a bluish-purple colour, in form resembling that of some species of *Ajuga*, but with five nearly equal lobes, and are remarkable for the great length of the projecting stamens and style, which in the bud are coiled spirally. The plant is a native of Southern California, where it grows on dry hill-sides, and appears to be closely related to *T. lunatum*, an equally ornamental plant not yet in cultivation. It will probably prove to be half-hardy in this country; and it is so interesting and striking a plant that few will grudge it the necessary protection.

PAPAYER APULUM.—This novelty comes to hand from Southern Italy, and is described as being a dwarf species, producing in profusion orange-scarlet flowers, with blotch of deep violet colour at the lower part of each petal. It may prove to be a desirable addition to dwarf border annuals.

PENTSTEMON COBÆA PURPUREUS.—Although this fine plant appeared in my Catalogue for 1879, its great value as an ornamental hardy perennial was not specially pointed out, nor had I then cultivated it and become personally acquainted with its merits. Having tested its hardiness, and flowered it for two successive seasons, I am in a position to strongly recommend it to all amateurs of choice hardy plants. The ordinary form of this species, *Pentstemon Cobæa*, is tolerably well known in gardens, though less cultivated than it deserves to be, but the form now offered is so far superior in the size of its flowers, as well as in their deeper colour, that it may be said to eclipse it altogether. In general habit, foliage, and form of flower, it does not differ from the type, but is more robust, of somewhat taller growth, and has broader foliage. It is however in the size of its flowers that the greatest difference exists, their capacity being such that a large thumb can readily be thrust into the tube of the corolla. The deeper violaceous colour adds considerably to its effect. The plant is apparently hardier than the type, and, judging by the experience of the last two winters, appears indeed capable of resisting the severest frost. Under favourable conditions it will bloom the first year from seed, but less strongly than in subsequent years.

AMMOBIUM ALATUM GRANDIFLORUM.—The typical plant of this name was introduced to gardeners quite fifty years since, and has long been esteemed as a very neat and easily-cultivated everlasting, succeeding in any friable soil. Till now it has been perpetuated by seeds through many generations, without variation. But at length progress is reported from Germany, in the form of the present novelty, which is said to produce flower heads nearly twice as large as those of the older plant. They are also of a purer white, and quite constant from seeds. Like the original species, it flowers first year from seeds, but is perennial in dry soils. Beyond the merits of its pretty white yellow-centred flower heads, its singular winged stems will always attract attention in the borders; and the utility of its flower heads, when cut prior to full development, for the preparation of winter bouquets, gives it considerable claim to wider cultivation.

ASTER PTARMICOIDES.—There are many asters in cultivation of a more showy character than this comparatively unknown species, but few exceed it in neatness of habit. It may be termed a dwarf plant, not generally attaining a greater height than 15 inches, the stems arising from a tuft of linear-lanceolate entire foliage, 3 to 4 inches in length. The flower heads are borne in a large flat corymb, being individually rather small, but producing some effect by their number and distinct white colour, which is somewhat rare in the genus. It is perfectly hardy, and seems to succeed in any ordinary garden soil.

CAMPANULA SIBERICA EXIMIA.—This variety differs from the older plant in having flowers of an agreeable lilac-purple colour. It appears also to be more floriferous than the type. It succeeds in any soil where the Canterbury bell thrives; in other words, in almost any friable garden soil.

CARPENTERIA CALIFORNICA.—A new hardy evergreen shrub of moderate growth and bushy habit, bearing pure white flowers, nearly as large as those of the dog-rose or gum cistus, can scarcely fail of a welcome in European—and especially in English—gardens. Such a plant is the remarkably distinct *Carpenteria californica*. It is described as growing in a wild state, from 5 to 15 feet high, with opposite broadly lanceolate entire foliage. Flowers produced on long naked peduncles, terminal, and from the upper axils, each 2 to 2½ inches across, with broadly obovate pure white petals, contrasted with numerous stamens bearing yellow anthers. The seeds are very small, like those of the *Jamnesia americana*, but more pointed, and should be sown very thinly and but slightly covered.

GAILLARDIA PICTA LORENZIANA.—The ordinary forms of *Gaillardia picta* have the outer or ray florets generally ligulate or strap-shaped, those of the centre or disc being tubular. In some forms, known in the trade as quilled, cultivation has transformed the flat ray florets into tubular ones, but much longer than those of the disc, and with dilated funnel-shaped mouths. In the variety now offered it would appear that the greater part of the short and narrow tubes of the disc have become changed into elongated and enlarged florets, varying in size however, those of the margin being the most developed and those of the centre of the disc the smallest. In the most perfect specimens the heads are nearly globular, and from 3 to 3½ inches in diameter. It is said to be extremely floriferous, and varies in colour from sulphur-yellow to deep yellow, orange, amaranth-red, and claret.

HETEROTOMA LOBELIODES.—This very interesting plant is not a novelty in the strict sense of the word, but it is comparatively unknown. It is an herbaceous plant of the lobelia family, the stem becoming woody at the base, with foliage somewhat resembling that of the fuchsia, being broadly ovate with distant teeth. The flowers are produced in racemes, and have a bilabiate calyx, and a very curiously-shaped corolla of a tubular form, with a yellow limb; the tapering base of the tube, which is red, being prolonged downwards in a curved manner. The staminal column projects conspicuously from the mouth of the flower, the two lower anthers being hairy. It was introduced about twenty years since from Mexico, where it is popularly known as the "Bird Plant;" but remarkable as is the form of the flower, the resemblance suggested is scarcely obvious. It will succeed in a good greenhouse and is by no means difficult to cultivate.

Tavern Street, Ipswich.

WILLIAM THOMPSON.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—"JAMES EPPS AND CO., Homeopathic Chemists, London."—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

The House, Garden, and Poultry Yard.

TO THE SKY-LARK.

O EARLIEST singer! O care charming bird
 Married to morning, by a sweeter hymn
 Than priest e'er chanted from his cloister dim
 At midnight,—or veiled Virgins' holier word
 At sunrise or the paler evening heard;
 To which of all Heaven's young and lovely Hours,
 Who wreathes soft light in hyacinthine bowers,
 Beautiful spirit, is thy suit preferred?
 Unlike the creatures of this low dull earth,
 Still dost thou woo, although thy suit bewon;
 And thus thy mistress bright is pleased ever:
 O! lose not thou this mark of finer birth;
 So may thou yet live on, from sun to sun,
 Thy joy unchecked, thy sweet song silent never!

BRYAN WALTER PROCTER.

THE HOUSE.

IN COMMENCING the management of aquaria it is of immense importance that in the first instance too much be not attempted. As in many other pursuits, the safest plan is to begin in a small way, and as experience is gained in carrying out the various details the operations can be extended in whatever direction may be desired. The dimensions and the forms of the tanks must be left to individual taste, but they ought to be of moderate size, and possess a fair degree of strength. The rockwork to be somewhat limited in quantity and light in construction, so that it will not occupy overmuch space, or add materially to the weight, and to be built on a level surface, a wooden slab being preferable. When properly set, immerse in water for a month, as new cement is most injurious to the fishes. The colour of the rockwork is not of so much consequence, as it soon acquires a colouring of its own; but a greyish brown is the most pleasing to begin with. In stocking a tank it is not necessary to introduce vegetation, and at the most a few plants of *Vallisneria spiralis* are alone admissible, and these should be put in when the bed of clean pebbles is formed. The tank ought to be fitted up and in working order for four or five weeks before the fishes are added, and during that time the water should be changed every three or four days. After the introduction of the fishes the water will not require changing at all if a judicious system of management is carried out, but it will be necessary to add a little occasionally to replace the loss from evaporation. The fishes should be comparatively few and small, and, taking all things into consideration, the gold carp is decidedly the best. A subdued light is the most preferable, and if vertical so much the better. When the aquarium occupies a position near a sunny window the blinds will require careful management, as continuous sunshine is most hurtful, and will soon cause an immense amount of mischief.

THE GARDEN.

ANNUALS that require to be raised thus early in the season must have careful attention, and the very common error of putting the seed pans in a strong heat and subjecting the plants to it for some time after they are up must be avoided. When they are pushed on with a high temperature and an abundance of moisture at an early stage they become so weakened that under the most favourable circumstances they do not quickly recover. The soil for the seed pans should be rich and fine. Good loam, improved by the addition of thoroughly-decayed manure and leaf-mould, with sufficient sand to render the texture porous, will suit all kinds of annuals that are sown in pans under glass. Sow the seed thin, cover very slightly, and lay squares of glass over to keep a uniform degree of moisture without the necessity of watering. Should watering become necessary, take care to avoid washing the seeds out. If the pans or pots containing the seeds are stood for half an hour or so in a vessel containing two or three inches depth of water they will absorb sufficient, and there will be no occasion to pour water on the surface. As soon as the young plants appear, remove the glasses and place the seed pans in the fullest light, when air can be given without danger to them.

AURICULAS are now growing, and want frequent supplies of water and abundance of air when there is no frost.

BEDDING PLANTS to be shifted on as fast as possible. Soft-wooded plants required to grow quickly to be potted in compost consisting of fibrous loam, leaf-mould, and well-rotted manure in equal proportions, and the stuff pressed into the pots rather firmly.

CAULIFLOWERS will be growing now. Give air by tilting the lights, and let them have warm showers; but cover up at night in case of frost.

CONSERVATORY to be kept as much as possible without fire heat, as the natural temperature will now be high enough for most of the forced flowers, such as *Cinerarias*, *Cytisus*, *Deutzias*, &c., and they will last longer than with heat. But as frosts often occur at this season, with cutting east winds, a fire may be occasionally needful, in which case get it up without delay, for many of the subjects in bloom now are of a delicate nature, and climbers growing on pillars and rafters will suffer much if chilled.

FORCING HOUSES.—Figs as they progress in growth must have plenty of moisture at the roots, and be kept well syringed. The temperature should range from 60 deg. to 70 deg. through the day, with a fall of 10 deg. at night. Peach and nectarine trees in bloom should enjoy a free circulation of air to ensure the bloom setting. Those started earlier will now require disbudbing. Keep the trees regularly syringed, watch closely for mildew after easterly winds, and sulphur directly it makes its appearance. See that the inside borders are in a proper state as regards moisture. Vines started a month or six weeks since should have a rise of about 5 deg., and those sufficiently advanced should be disbudbing directly the bunches can be discerned, and tied in when necessary. Unless the vines are in flower, maintain a thoroughly moist atmosphere.

HERBACEOUS PLANTS may be divided and planted. The early-blooming kinds are now coming into flower and may be propagated from cuttings as soon as the bloom is over.

ORCHIDS not yet shifted to be attended to without delay; those not requiring a shift will be benefited by being supplied with a little fresh surfacing material, but not to cover pseudo-bulbs just rising. A rise in the temperature

may be allowed now, and a steaming may be given every morning for half an hour by sprinkling the pipes. Beware of sudden outbursts of strong sunshine, and shade if needful.

PIES for succession to be potted without the roots being disturbed, and the shift to be liberal. Use the soil in a warm state, and give water cautiously until the roots have begun to work in the new material.

SPINACH to be sown in successive breadths between rows of peas, and to avoid a glut sow only a sufficient breadth at one time for a fair supply.

STOVE PLANTS.—Continue to shift and repot as required. Nearly every plant in the house will need some attention of the kind, either to give more root-room or to refresh with new compost. As the season is advancing all arrears should be completed quickly.

TOMATOES should be sown in gentle heat for planting out at the end of May. It will be necessary to pot off separately and shift on as required to ensure strong plants. A south wall is an excellent place for them, or a temporary trellis of wire fencing fastened with iron rods three feet high, and facing south or south-west, may be made useful and ornamental, and will grow a large quantity of delicious fruit. They may also be grown in pots in the greenhouse, and will produce a heavy crop. Assistance in the way of liquid manure will at all times be found beneficial.

THE POULTRY YARD.

As the hens are now laying freely and eggs are becoming abundant, the raising of chickens must be at once commenced in earnest, especially on warm dry soils, where there is no great difficulty in rearing early broods. In late seasons it is of course much better for those who keep a limited stock of poultry to wait until the early part of March. The choice of hens for sitting will be much larger, and the risks to which the tender chicks are exposed be very considerably lessened. The eggs selected should not be more than a fortnight old, and, as a matter of course, the fresher they are the better will it be. For the nest it is good policy to select a place quite apart from the yard and the ordinary places of resort for laying. A snug, dark, secluded place is requisite, and a rather damp brick or earth floor is more favourable than a dry wooden floor. Young chickens do not need any food for at least twenty-four hours after they are hatched, and then hard-boiled eggs are the best food they can have, with crumbled bread made slightly moist. The eggs should be roughly cut up, with the shells, for them, and from the first they should have green meat regularly. Nothing suits chickens so well as lettuces roughly cut up, and for hard food there is nothing better than whole groats.

Notes of Observation.

A PLANT FOR HARVEST FESTIVALS.

THE beautiful *Anemone Honorine Jobert* is a very desirable plant to cultivate most extensively, as it produces during the late summer and autumn months an abundance of white flowers, which will be found very serviceable in meeting the large demand at that season of the year for the decorations for harvest festivals.

The Nursery, West Drayton.

R. B. MAKOWSKI.

POTATO WHITE ELEPHANT.

In the issue of the Magazine for November 19, 1881, I reported on sixty-eight varieties of potatoes, of which a large proportion were new, and not then in commerce. Amongst them occurred *White Elephant*, of which samples were sent for trial on our ground by Messrs. Daniels Brothers, of Norwich. In the report of the International Potato Exhibition in our issue for September 24, 1881, it will be seen that amongst the lots shown by me to indicate the relative productiveness of varieties there was the produce of one stool of *White Elephant*, weighing, 9lb. 12oz. I find it recorded in the garden book that the average produce of single stools of *White Elephant* on our heavy land was over 10lbs.; but the tubers did not ripen well, owing to the long-continued rain and the holding nature of our ground. It is a matter of the utmost importance to note all the characters of a potato that is highly productive and not particularly liable to disease, and it will be seen on reference to the report published November 19 that I endeavoured to do so. In fact, I may now refer to that report (p. 659) as in its way prophetic, for, not having grown it on a sandy soil, I could only judge of its requirements by its demeanour. Within the past few days I have been favoured with samples grown on sand in the east of England, and Messrs. Daniels, who send them, very properly challenge me to reconsider the merits of this variety. The samples sent are of fair table size, weighing four to six ounces. They are Snowflake shape, the eyes few but decisive in elliptical pits, the colour pale dull pink, a little tawny at the nose end. Our heavy samples had a satiny skin; these sand-soil samples have a decidedly rough skin, and this is interesting because they justify the belief that a rough skin is a sign of good quality. It was to me an agreeable surprise to see a dish of the *White Elephants* on the table. They were very mealy, snow-white, decidedly elegant, and if not of the finest flavour, very well flavoured for a good-looking family potato. For dry soils, it seems that *White Elephant* will prove "a topper," and its immense vigour and productiveness will keep it going when the seasons are adverse, just as we find with the sorts that have carried us through the last five unfavourable seasons, all of them having one quality in common—a robust constitution.

S. H.

VEITCH'S MODEL BROCCOLI.

In making a selection of broccolis for next season's use, your readers may be confidently recommended the one named at the head of this note. I have grown it now for two seasons, and I find it quite as hardy as any others, as it is very self-protecting. Moreover, it is a good late variety, but its greatest merit is the colour, which approaches more nearly to that of a cauliflower than any broccoli I am acquainted with.

JOSEPH MACDONALD.

THE DWARF ULM SAVOY.

Where large savoy is objected to, the dwarf *Ulm* may be selected as being much smaller in size, and altogether of a superior quality, both in appearance and flavour. It requires less space to grow it, eighteen inches apart each way being ample room for it, but it should have a rich soil prepared for it. It is not however so hardy as the other savoy.

J. M.

CAMELLIAS IN SMALL POTS.

The only risk attending the cultivation of camellias in small pots is of their not having sufficient moisture at the roots, as they require more frequent watering than those in pots of considerable size. I am not aware that the varieties named by "W. M.," at page 67, are more likely to suffer in small pots than others, but I think that the cause of the buds dropping, of which he complains, was an insufficiency of water at the roots some time after the formation of the buds. I am far from saying that camellias of moderate size cannot be grown in small pots, but to obtain satisfactory results they must have very careful watering. I am satisfied that they can be grown in smaller pots than many other plants, because they do not like to be frequently disturbed at the roots; but when so grown those in charge should see that the pots are placed once a week from May to September, and once in three weeks during the remainder of the year, in a pail or tub containing water, to thoroughly moisten the whole of the ball of soil, and if the water is diluted with a little of the contents of the liquid manure tank it will be of great benefit to the plants.

J. MACDONALD.

Camellias used to be exceedingly well grown in small pots by the late Mr. Whiting, when gardener at the Deepdene, Dorking. I remember seeing them there on more than one occasion, and some of the plants were four feet high and in six-inch pots. On asking him how he managed to grow them, he told me he kept the drainage right, and as soon as they went out of flower he placed them in ainery where they had plenty of shade and a temperature of from 75 deg. to 85 deg. while they made their growth, but the greatest care was exercised in watering. Not a drop of clear water was given them, for whenever they required water they had it regularly from a liquid manure tank which received the draining from the stable yard.

A SURREY GARDENER.

A NEW BEDDING PLANT.

As carpet or tapestry bedding is still in the ascendancy in English gardens, your readers will probably be interested in hearing that we have now in one of the Belgian nurseries a plant which bids fair to become immensely valuable for that style of garden embellishment. I will not speak positively as to its adaptability for designs in which the whole of the plants are kept almost close down upon the surface, but for patterns in which the plants are allowed to attain a moderate growth it will prove of much service. It is also likely to prove of service as a flowering plant. The name of this new candidate is *Gynura aurantiaca*, and the introducers are the Compagnie Continentale d'Horticulture of Ghent. It is neat in growth, perfectly hardy, produces brilliant orange flowers, and belongs to the Compositæ. It is however more remarkable for the rich colouring of its leaves than for its flowers, and as a bedder its proper place is amongst the leaf plants. The stem and leaves have throughout a thick covering of hairs, velvety to the touch and of a rich purplish-maroon colour. This thick covering gives the plants the appearance of rich velvet, and in combination with silvery and golden leafage the effect is remarkably good. We have plenty of good golden and silvery leaved bedders, either perfectly hardy or nearly so, but the number of bedders with dark leafage is not large, and those few are so tender that they require to be wintered in the stove and kept under glass until June is well in. Taking all things into consideration, this new introduction is well worthy of the attention of those who are interested, practically or otherwise, in flower garden decoration.

Brussels.

J. B.

ROMAN HYACINTHS.

The inquiry of "W. M.," at page 67 is a very proper one, as all who are interested in early-flowering plants would be glad to know how to utilize the bulbs of the Roman hyacinth the second year. So far as my experience goes, they do not flower well enough the second season to warrant much attention being devoted to them. Several years ago I devoted some attention to them by giving the plants good cultivation from the time they had done flowering until the leaves died down. In the autumn the bulbs were put in the mixed borders, where we always plant our old bulbs; but so few flowered, and the individual spikes were so small and wiry, that I consider they did not give a sufficient return for the time and space devoted to them. I watched them narrowly with a view to find out the reason of the extreme weakness of the whole growth, and I come to the conclusion that the foliage is more tender than that of the large hyacinths, which prevented the proper maturation of the bulb, and a weak growth consequently followed.

J. C. C.

Correspondence.

GAS-HEATED GREENHOUSES.

As you have given prominence (p. 66) to an article from the *Builder* (which also appeared elsewhere last year), I trust you will allow space for a few words in reference thereto, by one who has gone into the subject at least as far as the writer of that apparently has done. I do not know which to admire most, the scientific learning of the writer or the crude simplicity of his experiments, so elaborately described, or the absence of practical application after wading through it all. It reminds me of a time, long ago, when I was satisfied that I could make an unpickable lock equal to Chubb, or any other man. I set to work, and for weeks of nights was cutting and clipping, filing and sawing at models, till I had arrived at perfection, the keyhole being almost invisible. All was well, and I pictured to myself a fortune from the patent I was about to get, when the key broke inside, and in endeavouring to fish out the broken piece I discovered that a strong hairpin would open the lock as easily as my wonderful key. Recently too, I. G. Noramus, Esq., became possessed of a glasshouse, and finding boiler and hot-water pipes expensive, hit on an original idea, as he supposed, for heating it simply and cheaply by making a fireplace at one end and a chimney at the other, connecting the two with a square brick-built tube. Finding it successful, he wrote to the *Times* to make his wonderful discovery public, expecting at least the blessings of mankind in all future ages for his public spirit. As it was not published however, he spoke complainingly of "the folly of those stuck-up people there" to the nurseryman who supplied his plants, who gently hinted that he had seen something of the same kind before within the last fifty years; in fact, if the gentleman would kindly step into his back premises he could show, &c., &c.; but the gentleman had departed, a wiser if not a sadder man. It seems to me that the

writer who considers that engineers never saw or heard of gas vapours, and "have yet to learn the potential agency of many invisible things," is about as wise in his generation and experiments as myself with the lock, and I. G. N. himself. It strikes me forcibly, though, that the writer, "after having dined," lighted his cigar, read Gulliver's journey to Laputa, and having got hold somehow of a copy of I. G. N.'s letter (which did not appear in the *Times*), fell asleep over it; from which he was awakened by "an accumulation of crystals," which choked his flue-pipe (said crystals being really cigar ash), and getting paper and pen set to work to write his experiences, believing that the readers of the *Builder* were "the Marines," to whom such stories would be particularly acceptable. For, after all, what is the "rectangular trunk of brick or terra-cotta tiles" but the common flue of our childhood, and the gas that heated it other than that given off by the burning coal or coke in it; the "torrents of impure vapour" discharged being what his "underlying principles" are—smoke; the "foul acid fluid" being by us ignorantly called "blacks;" while the "gas engineer who dispersed this amongst the growing plants" must have been the writer of this "instructive" article, and synonymous with my friend I. G. N. himself.

But, to take it more seriously, where is the practical portion of this "instructive" letter? How was his "rectangular trunk" constructed? What was the burner like, and the consumption of gas? What good did it do? Did the "shock" to the "cast-iron bell" hurt it? Did it ever warm a tile or brick through, and in how many hours?

If any gas engineer "guaranteed a customer against all atmospheric foulness," when supplying an open gas flame, whether smokeless or not, he should be guaranteed his freedom from the bathroom after he had been locked up in it for twelve hours, "just to test it." But perhaps I ought not to be so doubtful of the ignorance of the gas engineer, after the experience in the conservatory at South Kensington, referred to in the *Journal of Horticulture* this last week. How, why, and wherefore such an arrangement of gas lighting and supply was sanctioned and carried out is for the Royal Horticultural Society to consider, as many others have done when it is too late.

Gas may be safely burnt in greenhouses, either for warmth only, with a Bunsen atmospheric burner, in a properly-constructed stove, or to combine lighting with an Argand burner in an enclosed chimney, provided there is a proper method of condensing the vapours or of carrying them away, the injurious vapours consisting of sulphurous acid, ammonia, &c., the small quantity of carbonic acid liberated not being sufficient to damage plants as a rule. The common error is—having got a stove that will do this, the gas is kept burning to such an extent as to heat the place unduly, without any moisture or ventilation being given; so the plants suffer, being dried up, and the blame is of course laid upon the gas; whereas the same results would have been manifest from an overheated flue. Again, you can return to the "first resolve" of the writer in the *Builder*, and do away with the gas stove, substituting his iron stove-pipe of an oval shape, and arranging to burn gas under a tray of water (all enclosed), and pass the united vapours along to an outlet at the other end; or even bend the pipe back, with a slight rise to an outlet near the starting point. The heat from this is as great as from hot-water pipes. The best form of gas stove is one that draws by its own action fresh air from the outside to be warmed in the stove, and has also a small outlet tube for the used-up products of combustion, securing ventilation, that is, change of air at the same time. This outlet tube is not necessary if there is a complete destruction of the injurious vapours inside the stove, as the laps of glass in the roof will carry off all that is necessary to escape. There is a good stove, known as Ritchie's, largely used of late years; but a still better one (recently patented), with "Syphon" action, in which both the condensing chamber and side tubes are entirely closed, so that no moist vapour can escape into the house. Unfortunately the success of these has brought out imitations, so close indeed that few can tell the difference, the makers of them having even broken up a genuine stove to get the castings as patterns, but not having the patented safeguards they allow the vapours largely to escape. These imitations, it is needless to say, by their unworthiness have caused many people to doubt entirely whether it is possible to safely use such a handy, clean, simple, and economical article as gas is (in large towns) for heating their greenhouses. I should add that the stoves are specially constructed with hot-water heater and circulating pipes as well, combining these advantages in one apparatus.

B. W. WARHURST.

BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.

In reference to the letter of Mr. McElroy, at page 55 of *GARDENERS' MAGAZINE*, Feb. 4, 1882, I beg to offer a few remarks. With reference to the first part of his letter I cannot say anything, as that was before I knew the society. But when he comes to the words "afterwards there came a split," he evidently confuses the split that took place some years ago with another matter, now in question, which took place in 1878. This was not a split at all, but merely the secession of one or two members who were against breaking fresh ground or going to the Royal Aquarium. In consequence, the books remained in the possession of the officers of the society, which was the only Stoke Newington Chrysanthemum Society, until the formation of the one now known by that name. This other society was formed by the seceded members, assisted by friends and some members of the parent society; and I hope the day will be far distant when either society relinquishes the good work they now have in hand, viz., the cultivation and improvement of the chrysanthemum.

Dealing with Mr. McElroy's last remark, in reference to one of his late assistants winning the cup at the Aquarium, I beg to remind him that no cup was offered in that class. It was a prize value £4, which may be an article selected by the winner, or paid in cash, and Mr. Berry chose the cash.

EDWARD F. KEMP.

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PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chickens Houses, Pheasants, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPLOUGH'S PYRETIC SALINE restores health and vigour to the system? Headache, fevers, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist and of the Maker, 113, Holborn, London.—[ADVT.]

Replies to Queries.

Names of Plants.—A. L. B.—No. 1, *Polystichum angulare*; 2, *Polystichum aculeatum*; 3, *Lastrea dilatata*; 4, *Adiantum cuneatum*; 5, *Adiantum capillus-veneris*.

Exhibition Potatoes.—R. H.—We cannot repeat the list. You will find an exact statement of the names of varieties and number of dishes of each shown at the last International Exhibition in our issue for October, 1, 1881.

Herefordshire Pomona.—R. H.—This noble work should be secured in time by all who are likely to want it, for it is not likely to be printed and kept on sale like a flimsy novel, or a history of love and crime that is always in demand. Books of this class sell slowly, but there comes a time when the demand exceeds the means of supply, and then the price rises. We therefore advise you to buy at once at current price, and the order should be sent to Messrs. Jakeman and Carver, Hereford: the subscription price is one guinea each part.

Books.—J. Harvard.—The *Belgique Horticole* is published monthly at 1, Boverie, Liège. There is nothing handier, fuller, later, or cheaper, on the cultivation of vegetables than the "Amateur's Kitchen Garden," published by Groombridge, price 6s. R. Parsons.—The Rev. M. J. Berkeley's books on Mosses and Fungi are published by Messrs. Reeve, Henrietta Street, Covent Garden. Lindley's "Theory of Horticulture" is entitled to a first place in your list. Our copy is dated 1855, and we doubt if later editions are of any special value. In any case, a horticultural library that does not contain this book must be considered lamentably defective. Maund's "Botanic Garden," in six volumes, is worth seven or eight pounds.

THE LATE MR. HURST.

THE death of Mr. William Hurst, the head of the wholesale seed establishment of Messrs. Hurst and Son, formerly of 6, Leadenhall Street, and now of 152, Houndsditch, will be felt with feelings of deep regret, in the seed trade especially, as also in general horticultural circles, in which the deceased was widely known and much respected. Mr. Hurst died at his residence, 16, Kensington Gore, on February 11, after a long and painful illness, at the age of 51, the immediate cause of death being abscess on the brain, predisposed by a gradual softening of this important vital organ. Unfortunately this painful malady also affected Mr. Hurst's eyesight, and to a considerable extent incapacitated him from attending to his business during the past two years. The firm of Hurst and Son was established at Leadenhall Street by Messrs. Hurst and McMullen—the senior partner being the father of the now deceased Mr. Hurst—some fifty years ago. About twenty years ago Mr. McMullen retired from the business, and Mr. William Hurst, who had entered the house at the early age of 14, and had gained a good mastery of the details of the business, was taken into partnership by his father, and the designation of the firm was then changed to Hurst and Son. The elder Mr. Hurst died at the end of 1868, and Mr. William Hurst became head of the house, subsequently receiving into partnership his brother-in-law, Mr. Nat Sherwood, who by Mr. Hurst's decease becomes this head of the house. Under the management of Mr. William Hurst the business largely increased, until it has become the most extensive wholesale seed establishment in the United Kingdom, having business connexions in every part of it, and during the last ten years largely with New Zealand, Australia, and other British colonies. In the early part of his business career Mr. Hurst travelled extensively for the firm, and his amiable character, keen business capacity, strict integrity, and genial temperament made him a great favourite with all his customers, and his periodical journeys were anticipated with real pleasure by those who had dealings with the firm. By all the employés of the house he was greatly esteemed, and in conjunction with his partner, Mr. Sherwood, carried out the principle of gathering about them the best men, paying them well, and affording them every encouragement to serve the firm to the best of their ability. In his private life he was much beloved by a large circle of friends, who deeply regret his decease. Having the care of an extensive and growing business, Mr. Hurst could give but little time to public works, but for many years he was one of the trustees and a generous supporter of the Gardener's Royal Benevolent Institution, in which he took great interest, and was rarely absent from the annual dinner. The late Mr. William Hurst was the last surviving son of the founder of the house; he leaves a sister, married to his partner,

Mr. Sherwood, who is sole residuary legatee. The business will be continued at 152, Houndsditch—to which place it was removed some three or four years ago, in order to afford space for the extension of Leadenhall Market—by Mr. Sherwood, assisted by Mr. J. S. Johnson and others who hold responsible positions in the firm. Mr. Hurst's remains were interred at Kensal Green Cemetery.—*City Press*.

SMOKE ABATEMENT.

It must not be supposed that the smoke formation incidental to the aggregation of nearly four millions of human beings, however much its evil influences may be temporarily increased by combination with fog, is at other times innocuous; and it may perhaps be regarded as almost an advantage of fogs that they call attention to the activity and to the baneful character of an enemy that is always with us. In considering proposals for the abatement of smoke, we are constantly met by objections founded upon the expense which the adoption of these proposals would entail; and it is therefore the more necessary to bear in mind that smoke itself is among the most costly of all conceivable nuisances. The damage wrought by it in London is almost beyond the possibility of estimate or calculation; but must certainly be held to include the speedy deterioration of all articles of clothing, of furniture, and of decoration; and it is probable that the cost of the external painting which smoke renders necessary would be sufficient, if the painting could be dispensed with, to pay for the alteration of all the fire-grates in the metropolis. Unfortunately, however, there is not only the question of mere payment to be considered, but also the far more important one of obtaining something worth paying for. The recent exhibition of smoke-consuming apparatus has, no doubt, served to direct attention to the questions at issue, and may in time serve also to stimulate invention; but it has shown beyond doubt that there is no existing grate for domestic uses which will burn its own smoke; and the only really smokeless combustion exhibited has depended upon the consumption of smokeless fuel. The dull fires of anthracite, or of combinations of coke and gas, however cunningly they may be arranged, and however satisfactorily they may influence the position of the mercury in the thermometer, will have to fight a desperately hard battle before they will be accepted as substitutes for the English fireside; and the combination of smokelessness with a cheerful blaze seems to be no nearer attainment now than it was before the exhibition was held. A report has been industriously circulated that one of the great London proprietors intends or desires to stipulate for smokeless fires in his future leases; but the practical difficulties in the way of the adoption of such a course would probably be insuperable. Moreover, the case, from its very nature, is one in which individual influence can do little beyond affording demonstration of the possibility of pursuing a certain course successfully. If any inventor were to bring a smokeless grate to perfection, no private person would have any adequate motive for the expenditure of money in obtaining it, unless he were to be recouped by the saving of fuel, or unless his neighbours were compelled to obtain it also. Every man may fairly argue that he is not poisoned by his own smoke, but by the smoke of others; and that, unless these others reform their chimneys, he can derive no advantage from any reform of his own. We see no hope in the matter, unless some man of science will first furnish a practical solution of the problem of avoiding smoke formation, or unless his solution, supposing it to be satisfactory, is made to form the basis of a municipal law for the metropolis. Perhaps, by the time when the new system of London government is in operation, the grates of the future will also be ready for the adoption of the residents.—*Times*.

TRADE CATALOGUES.

DANIELS BROTHERS, EXCHANGE STREET, NORWICH.—*Illustrated Guide for Amateur Gardeners.*

NEW PLANT AND BULB COMPANY, COLCHESTER.—*Special List of Japanese Maples, Imported Orchids, Tuberos Begonias, &c.*

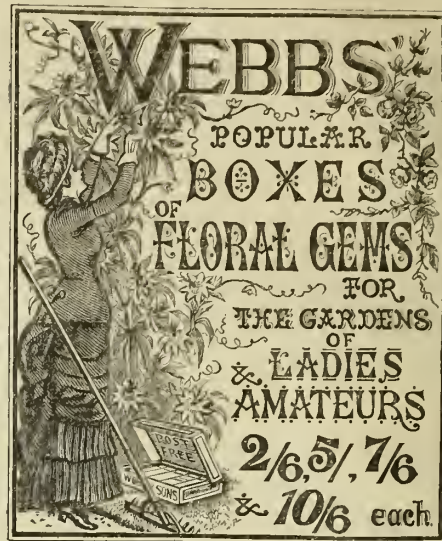
T. S. WARE, HALE FARM NURSERIES, TOTTENHAM.—*Illustrated Catalogue of Hardy Perennials.—Select List of Hardy Perennial and Florists' Flower Seeds.—Spring Catalogue of Hardy Florists' Flowers.*

Obituary.

On the 15th inst., at Spring Valley, Morningside, Edinburgh, Mr. DANIEL MACKENZIE, for forty-six years traveller to Peter Lawson and Son, of the Lawson Seed Company. He had reached the age of 73 years, and his death occurred suddenly.

BEAUTIFUL FLOWERS

MAY BE GROWN FROM



WEBBS' 2/6 BOX contains:

- 3 varieties Hardy Annuals.
- 3 " Half-Hardy Annuals.
- 1 packet Everlasting Flowers, mixed.
- 3 varieties Popular Hardy Perennials.
- 1 packet Pyrethrum.
- 1 " Ornamental Grasses, mixed.

A LADY'S OPINION.

From Miss GREEN, Shimpling Hall.
"The Box of Floral Gems was excellent; I had some splendid Zinnias, Asters, &c."

WEBBS' 5/- BOX contains:

- 6 varieties Half-hardy and Tender Annuals.
- 1 packet Double Zinnia elegans, mixed.
- 1 " Truffaut's French Aster, mixed.
- 6 varieties Showy Hardy Annuals.
- 3 " Popular Hardy Perennials.
- 1 packet Mignonette.
- 1 " Mixed Sweet Peas.
- 1 " Ornamental Grasses, mixed.
- 1 " Everlasting Flowers, mixed.
- 1 " German Ten-week Stocks, mixed.

AN AMATEUR'S OPINION.

"Mr. GEORGE ELLIS (Hotham House) was much pleased with the Box of Floral Gems, both as to quantity and quality."

WEBBS' IMPROVED SCHOOLMASTER POTATO.

THE POTATO OF THE DAY.

This variety commands treble the price of Champions, and other potatoes for table use.

8s. per Bushel of 56lbs., 22s. per Sack of 168lbs.

Lowest price per Half-ton or Ton on application.
5 per cent discount for Cash. 20s. value Carriage Free.

THE QUEEN'S SEEDSMEN,
WORDSLEY, STOURBRIDGE.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Sunths after Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882		
5	S	2nd Sunday in Lent. ○ Full Moon, [Oh. 40m., morn.	6 40	11 39	5 46	6 46	6 15	2 25	2 38	11 50	41.1	Pimelea spectabilis, G.	Pink.	64	
6	M		6 38	11 25	5 46	7 51	6 34	2 55	3 7	0 3	0 20	41.3	Epacris Exquisite, G.	White and Red.	65
7	Tu	St. Perpetua.	6 36	11 10	5 43	8 58	6 52	3 20	3 35	0 32	0 45	41.5	Inatophyllum miniatum, S. Red.		66
8	W	Sir J. F. W. Herschel born, 1792.	6 34	10 55	5 50	10 6	7 14	3 50	4 6	1 9	1 15	41.6	Gardenia Fortunei, S.	White.	67
9	Th	Fire Insurance due.	6 31	10 40	5 51	11 13	7 41	4 20	4 35	1 30	1 45	41.7	Caltha palustris, H.	Yellow.	68
10	F	Prince of Wales married, 1863.	6 28	10 24	5 53	Morn.	8 11	4 52	5 7	2 0	2 17	41.8	Helleborus atrorubens, H.	Park.	69
11	S	Income Tax imposed, 1812.	6 26	10 8	5 55	0 19	8 49	5 25	5 42	2 32	2 50	42.0	Draba alpina, H.	Yellow.	70

The Gardeners' Magazine.

SATURDAY, MARCH 4, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

CLARK'S PATENT SYPHON STOVE may be noted as a very important contribution to the available appliances for the reduction of coal smoke. In this, as in many other matters, our progress must necessarily be slow, and we must not indulge the hope of ever attaining to the desired goal. In other words, the complete abolition of coal smoke is simply beyond reasonable expectation, but we must nevertheless labour with that end in view, or we shall never improve the conditions of city life in any practical degree in respect of the common atmosphere that we must breathe or die. The Smoke Abatement Exhibition has not done much to advance the science of sanitation, but it has done something, and in these days we must be thankful for small mercies. The exhibition has probably accomplished much more than we know of as yet; for although the myriad chimneys of the great towns pour out their smoke as heretofore, the public mind has been awakened both to the facts of the case and the possibility of improvement; and in this country, and in this very happy era of impossibilities, public opinion is the lever that moves the world. We repeat that the exhibition has done something. It has enabled Dr. Siemens to demonstrate the possibility of domestic heating by means of a gas flame and a coke fire combined. It has illustrated the uses of anthracite coal, which produces but little smoke, but diffuses in the atmosphere of the apartment heated by it a taste of sulphur that very few persons, as yet, are prepared to appreciate. But we will not pursue the theme in a general way, for the mention of sulphur gives the cue for a return to the subject immediately before us.

In the ordinary consumption of common gas, whether for light or heat, there is liberated a considerable amount of sulphur in a gaseous form. It matters not now what name these sulphurous emanations should bear. The fact however is full of importance, for the gaseous compounds of sulphur that are diffused as the result of the ordinary consumption of gas are principally chargeable with the mischief that ensues to property and health. The non-chemical reader may permit us to inform him that it is impossible any consumption by fire of any substance should take place without the formation of water. The fuel contains hydrogen, the atmosphere contains oxygen; the two rush together; the act of chemical union is productive of light and heat and water. It is always so; there is no exception to the rule, provided of course that the fuel, whatever its name may be, contains hydrogen as one of its constituent elements. All the oils contain hydrogen, and common coal

gas is largely charged with the same ethereal element. Therefore, whichever of these materials we employ for producing light or heat will be sure to produce in burning a considerable amount of water. In the consumption of carbon the principal product is carbonic acid or carbonic oxide. For present purposes the correct nomenclature is of no consequence. It is simply of consequence to know that

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the carbon of the fuel combines with the oxygen of the atmosphere, and the act of union is attended with the production of light and heat, and carbonic acid or carbonic oxide, as the case may be.

Now let us return to Clark's stove. This, for the first time, and in its own peculiar way, renders it possible to employ a gas flame to give light and heat simultaneously, without any flue to carry off the products of combustion, and without injury to the health of the persons breathing the air that has been warmed by the process. Such a contrivance is, we think, quite worthy of a place in a leading article in the GARDENERS' MAGAZINE. This stove may be used in a conservatory any length of time, the flame that gives light and heat being in the very midst of the most delicate plants, without any fear of the slightest injury to leaf or flower. It has been under our observation for a considerable length of time, and has been subjected to a series of trials under our own direction, and with a view to discover its weak as well as its strong points.

It is the more important to give attention to this contrivance because it appears to afford a scientific basis for the heating and lighting of apartments by gas without any of the deleterious consequences we have hitherto been compelled to submit to. The flame is produced in a commonplace way, but the heated air and its poisonous constituents are made to circulate through chambers in which the sulphur compounds and in part the carbon compounds, are condensed with the water that the flame produces, and the water, charged with the obnoxious substances, passes out at the base of the machine into a tray provided for its reception; the consequence being that a nearly pure air, heated much or little, as the case may be, is diffused in the apartment for the comfort of those who use it. We say once more that the plan of this contrivance is, so far as we know, the practical beginning of a reform in the burning of gas. Hitherto we have allowed the heated air to spread in its own way, to blacken the ceiling, destroy curtains, pictures, and metallic decorations, and undermine the health of the persons breathing the gaslight-heated air. Now we may have a great gas flame in the room without fear; for although the carbonic acid is not all removed from the heated air given out by the machine, the proportion that remains is very small, and as the sulphur and mechanical impurities are entirely removed the small proportion of carbonic acid that remains is of little consequence practically.

MANCHESTER SMOKE ABATEMENT EXHIBITION will be opened on Tuesday, March 14th.

BORDEAUX EXHIBITION of Industrial and Agricultural Products will be opened on June 1.

HULME'S "FAMILIAR WILD FLOWERS."—The current number of this elegant work completes the third series. The fourth series commences March 27.

"PAXTON'S FLOWER GARDEN" for March contains coloured figures of the delicate double Bouvardia Alfred Neuner, and the very elegant and showy Tacsonia manicata. The subjects figured in black and white comprise Aconitum sinense, Astrapea viscosa, and Freziera theoides.

DISTILLERS' WASH is converted into a valuable artificial manure by treatment with perchlorate of iron; it throws down a deposit which is formed into cakes very rich in nitrogen and phosphoric acid.

WEST OF SCOTLAND PANSY SOCIETY.—The third annual competition of Pansies, Roses, and Pinks will be held in the City Hall, Candleriggs, Glasgow, on Wednesday, July 26.

AN EXHIBITION OF CAMELLIAS, HYACINTHS, AND OTHER SPRING FLOWERS will be opened in the Royal Botanic Gardens, Regent's Park, on Wednesday next, March 8, and continue until Saturday the 18th.

THE DOUBLE FLOWERING WISTARIA is the subject of a beautiful plate in the March number of the Florist and Pomologist. The fruits figured in the same number are the Bedford Prolific and Bigarreau Gros Cœur Cherries.

EALING DISTRICT GARDENERS' SOCIETY.—A special spring show of plants and cut flowers will be held in the Drill Hall, Ealing Dean, on Wednesday, March 22. The profits will be given to the Library Fund of the Gardeners' Society.

MR. SAGE has been presented with an address and a writing desk of walnut wood by the forty men and boys employed in the gardens at Ashridge. Mr. Sage has left Ashridge to take charge of Earl Brownlow's gardens at Belton, near Grantham.

THE SO-CALLED "ENGLISH GARDEN" at Homburg has just become the property of Baron von Minnigerode, the purchase price being 70,000 marks (£3,500). Under certain restrictions the park will remain open for strangers as heretofore.

MR. THOMAS MULLIS, late gardener at Pitmaston, Worcester, has been appointed to the charge of the gardens of Lismore Castle, Ireland, a seat of the Duke of Devonshire.

DR. NEUBERT'S "DEUTSCHES GARTEN-MAGAZIN" (Weise, Stuttgart) for January contains a coloured group of flowers of twelve varieties of tuberous begonias. The plate is by no means a masterpiece of either drawing or printing, but it may be useful to many cultivators of these flowers.

EMIGRATION TO CANADA AND THE UNITED STATES.—The Rev. A. Styleman Herring, B.A., and Mr. John James Jones, member of the School Board for London, will take out a large party of emigrants on April 26. Any of our readers intending to emigrate should send for particulars to Mr. John James Jones, 98, High Street, Homerton, London, E.

THE BRAZILIAN BROMELIADS, discovered in 1879 during the journey of the Princes Auguste and Ferdinand of Saxe-Coburg, are described in a paper under the auspices of the Federation of Horticultural Societies of Belgium; the editors being Professors E. Morren and H. Fonsny. Copies of the paper, which bears the title "Les Broméliacées Brésiliennes," are obtainable at 1, Boverie, Liège.

THE SEED HARVEST OF 1881.—Messrs. Carter and Co., of High Holborn, in a report just issued, state that, with few exceptions, the seed crop of 1881 was superior to that of 1880, both in quantity and quality. The extreme drought of July last, and the succeeding heavy rainfall in August resulted however in a shorter crop of grass and some other seeds than the earlier anticipations warranted.

OUR HOME NATURAL HISTORY obtains admirable treatment from the pen of Captain Mayne Reid in the columns of our lively contemporary the *Illustrated Sporting and Dramatic News*. Not since the days of "Rusticus," who in his time was regarded as having caught the mantle of Gilbert White, have we met with such fresh, original, and engaging notes on our familiars of the fields and woods as those of the gallant captain and prince of story-tellers.

FITZ PARK, KESWICK, has been secured as a public recreation ground at a cost of about seven thousand pounds, of which a little over half has been subscribed by the people of Keswick. The site of Fitz Park is known to all visitors to the delightful capital of the English Lake District, as it comprises the tract of land, 21 acres in extent, between the railway station and the town, and a field of six acres connected with the hotel. Keswick very much needs an open space for public recreation, and we hope the money required to complete the purchase will soon be obtained.

THE ALTERNATIVE SYSTEM proposed in an essay which accompanies Messrs. Sutton and Sons' Farm Seed List is obtaining attention everywhere as embodying the true principles of agricultural revival. The rotation proposed comprises grass, roots, and corn, and the importance is urged of having a large portion of every farm sown with artificial grasses, which shall remain down from two to four years. Thus grass becomes the principal crop, and the land has rest from the plough until new demands for corn crops shall render it desirable to break it up again.

THE ELECTRICAL EXHIBITION AT THE CRYSTAL PALACE is now in full working order, and the result is one of the most surprising and delightful effects imaginable. We say "imaginable" in compliance with usage, but in truth it is unimaginable, both as regards the variety of methods of illumination that are brought into comparison and the picturesque scenes that are produced. The view down the nave can never be forgotten, and the fountains and lilies display beauties never revealed before. We hear nothing of any intention to test the power of the electric light on the growth of plants, but the opportunity is unique.

PITCAIRN ISLAND was visited by H.M.S. Thetis on the 30th of April last year, and the Admiralty have just received the report of Captain P. W. Stevens on the subject. He reports the little community as happy and prosperous, though poor enough to need and command active sympathy. They now number 96 persons. Their chief agricultural crop appears to be the common yam. But they also grow sufficient quantities of potatoes, bananas and limes, and are likely to give special attention to the breadfruit and the cotton plant. They seem to need some enlarged industry that would attract trading ships to them, for then they would secure all they want without need of appeal to British benevolence.

DISTRESS FOR RENT.—Sir Henry Holland, M.P., has made some modifications in the Bill which he introduced last session relating to "distress." It is now proposed to enact that no arrears of rent be recoverable by distress after it has been due two years. It is, as before, proposed to exempt from distress for rent in certain cases the live stock and machinery that are found on the premises, but are not the tenant's own property. The exemption would arise where the landlord has received notice within four days of the making of a *bonâ fide* agreement for the "agistment" or feeding of the live stock; also where male stock is hired by the tenant solely for breeding purposes. Agricultural machinery would be exempt where it has not been on the premises for more than six months, and the agreement for hire does not exceed that period. With regard to other machinery hired for use in the tenant's trade or handicraft, the period of twelve months is taken. The landlord is authorized by the Bill to require the owner of live stock to remove it from the premises within four days, or to pay the arrears of rent. If the arrears be thus paid the owner can set off the sum against the debt due in respect of "agistment" or feeding. Where any live stock or machinery that is entitled to exemption is seized by the landlord, courts of summary jurisdiction are empowered by the Bill to order restoration, an appeal from such decision being allowed under certain restrictions to the Quarter Sessions.

AN AMATEUR'S FERNERY.

ON more than one occasion it has been my privilege when in North Devon to visit the garden of an amateur where the British ferns find a congenial home, for the proprietor is a great admirer of these graceful subjects. If I make some reference to the fernery now I hope it may be of some service to some portion at least of the readers of the Magazine. It is proper to remark first that the owner of this garden confines his attention exclusively to British ferns, and that he not only cultivates them, but devotes a considerable portion of his time to their collection. The majority of his specimens are those of the kinds which he has collected in their habitats in various parts of England and Wales. In doing this he has of course spent much time, and in providing them with a suitable home he has made a greater outlay than is usually accorded to our native ferns; but the results are well worthy of all that has been done.

From the first time of seeing this fernery I was struck with the thorough way in which the preparations were made, and the taste and judgment displayed in providing suitable positions for the various species and varieties, and the care with which they were attended to. I may say a path has been struck out in their cultivation different from anything I had previously seen in the cultivation of British ferns, for the proprietor has fitted up a proper glasshouse to provide them a home. Certainly the house is not an elaborate structure, but it is substantial and eminently suited to the purpose. It is in fact a span-roof house about sixteen feet wide, one end abutting against the gable end of a brick building. The gable faces due north, so that the house stands with its ends pointing north and south, and the part next the building is shaded by it. The roof is formed of Paxton lights, which rest on brick piers, which are four feet apart and have a bank of earth between them. Two steps lead down to the house, which has only one entrance, from the north end. The object of providing a house of this description, the proprietor told me, was to enable him to enjoy his fernery under a covering of glass when the weather did not admit of his doing so in the garden. In the centre of the house space has been set apart for a table and chairs, where the owner could read or write during the summer months amongst his pets, and very cool and comfortable quarters they must be on a hot summer's day. The house is about thirty feet long, and in the summer months the glass is shaded by limewash in the inside, and a tank supplied with water is placed at one end. All things considered, I do not know where I have seen a more satisfactory arrangement.

To describe the interior of the house in more detail, I may say that on entering the door a walk five feet wide leads to an open space in the centre which serves for the reception of a table and two or three chairs; the centre, space narrows again to a five-feet walk, which leads on to a bank of ferns against the gable end of the building before alluded to; on both sides are banks of ferns. The banks were in the first place formed with earth, and the surface is undulating and covered with stones, and amongst them are freely distributed many pieces of rock secured from the sea-coast.

The arrangement of the different varieties appeared to me to have been done with more than an ordinary amount of judgment. Each one, from the Royal Fern, *Osunda regalis*, towering up to a height of six feet at the far end of the house, down to the *Hymenophyllum tunbridgensis*, luxuriating on a moist sandstone rock in a shady nook, showed that it was quite happy in its new home. In the arrangement, so far as the requirements of the particular kinds admitted, each class is grouped together, and for the purpose of comparison there is nothing to be said against it; but as to artistic arrangement it is not the best that could be adopted, because it does not admit of that uniformity of surface which is desirable in a limited space.

The group of lastreas is especially pleasing to a lover of ferns, but the group of spleenworts pleased me the most, as it comprises a large family of most elegant subjects, and the whole of the species and varieties are represented. The polystichums form of course a prominent group, and the polypodiums are attractive and interesting. However, it is wrong perhaps to single out any particular groups where all are so good. So I will pass on to say that to provide suitable positions for those that required the most shady place thin pieces of red sandstone are placed so as to give the required degree of shade to any of the small-growing kinds. Even *Lastrea recurva*, that delights in a shady swamp, was growing luxuriantly under the shelter of one of these stones so placed as to afford shade and prevent a too rapid evaporation of moisture.

It must be admitted that the shelter of a glass roof is not absolutely necessary to grow our British ferns, but that they can be better grown with its aid and afford a greater delight over a longer season I am quite satisfied from what I have seen of this particular collection. It may be mentioned that a Paxtonian house of this description is not a costly affair, and its excellent system of ventilation renders these houses peculiarly suitable for such purposes.

J. C. C.

CLIMATE IN TOWN AND COUNTRY.—In a lecture by Professor Frankland, on "Climate in Town and Country," it was stated that of all known substances white paper is that which is the most efficient in reflecting heat so that if any one wishes to get the greatest possible advantage from the sun's rays white paper is the substance upon which he ought to stand. The lecturer indicated the practicability of constructing in this country an artificial winter resort for invalids. For this purpose a huge semicircular shelter would be necessary, at a high elevation, fronting south, and looking over the sea, and the sunlight would evidently have to be reinforced by a profusion of whitewash and white paper. The audience was naturally most interested in the lecturer's remarks on the climate of towns. The evils of our London climate are, he said, excessive heat in summer and cheerless gloom in winter. He strongly recommended householders to whiten their roofs, and it seemed to result from his observations that anyone who paints his house dark red does a distinct injury to his opposite neighbour in winter and to himself in summer. He stated that 33,333 tons of coal are consumed in London on a winter's day, whose combustion launches into the air 1,250 tons of sulphurous acid. It is not factories but domestic fires which do the real mischief. If all the factories ceased to-morrow the smoke and fog would be as bad as ever. There are about 1,800,000 domestic fireplaces burning daily in London houses; so that, if even 20,000 of the so-called smokeless grates—which, however, are not really smokeless—were substituted for the present grates, the effect would be imperceptible. There is but one remedy for the smoke of London, and that is to stop the importation of bituminous coal.

CONSTRUCTION OF HORTICULTURAL BUILDINGS.

By F. A. FAWKES, F.R.H.S., Author of "Horticultural Buildings Illustrated."

First of a series of Lectures delivered before the Crystal Palace Schools of Landscape Gardening and Practical Horticulture.

You will doubtless find, if you have not already found, that there frequently exists a great diversity of opinion amongst gardeners regarding the construction and description of glasshouses and appliances best suited to various requirements. In one case you will find a house stated to be suitable which in another case is declared to be totally unsuitable. I propose in my remarks to go a little deeper than surface opinions, by endeavouring to confine my statements to matters of fact, and to explain some of the principles of horticultural construction, as well as the application of those principles. In this way I think you will obtain a clear grasp of the subject. Further, I propose to deal with mechanical and constructional information only, omitting everything having reference to cultivation proper, and leaving the consideration of this part of the subject to abler hands than mine. In fact, I apprehend my province is to speak of the tools and their manufacture, *not* how to use them.

We will first glance at a few hints which we may find useful to bear in mind when we have occasion to design glasshouses; then we will discuss a few scientific principles, which it is necessary for us to know; then look at some of the various forms of houses, and pass on to an analysis of some details of construction.

Never forget that you must aim at perfection. Be thorough. What is worth doing at all is worth doing so well that it cannot be beaten. Depend upon it, even from a commercial as well as a social point of view, nothing pays like setting up a high standard. If you are consulted regarding the erection of, say, growing houses, obtain a clear idea what, and how much, is required to be grown, and, if possible, the amount of money which it is

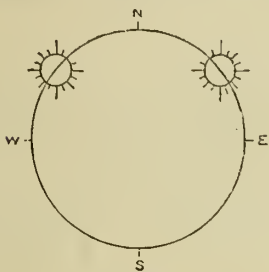


Fig. 1.—Longest Day.

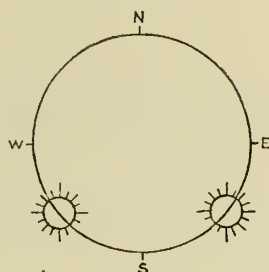
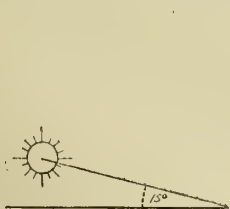


Fig. 2.—Shortest Day.

POINTS ON THE HORIZON OF THE SUN'S RISING AND SETTING.

proposed to expend on the houses. Examine all the contingent conditions, such as aspect, site, soil, drainage, levels, the most suitable dimensions, the position of the boiler, the necessity for subsidiary buildings, such as potting shed, tool house, fruit and seed rooms. Then, having grasped the whole situation, and looked at it from every point of view, you will be able to commence planning the required glasswork.

But after you have formulated your plans you may find the cost requires to be reduced. Well, you will find three courses present themselves to you. 1st, You can retain the original dimensions of the proposed glasshouses, and cut down the cost of workmanship and materials. (Never do this : it is a fatal policy.) 2nd, You can reduce the dimensions of each of your glasshouses, retaining the same workmanship. (This is a much better course to pursue.) Or, 3rd, The plan may remain substantially as proposed, but part only of the work carried out, the remainder being left for a future opportunity. (This is by far the best thing to do, of course supposing your plans represent really necessary erections.) To illustrate what I mean : Suppose, for instance, you find it necessary, in order to yield a given result, that a range of five lean-to houses must be built, and that after you have planned them to be erected of certain dimensions and in a substantial and efficient manner, you find they will cost more money than you have at your immediate disposal, it is much better to dispense with, say, the two outer lean-tos for the present, leaving three efficient houses, than run the risk of ruining the whole range by either making all the five lean-tos smaller, or else sacrificing good materials and good workmanship.



Flg. 3.—Shortest Day.

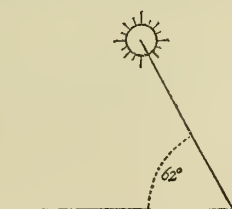


Fig. 4.—Longest Day.

ANGLE OF SUN'S MAXIMUM ALTITUDE.

You will readily appreciate the point, which is in fact the same principle as that frequently involved in building a church. The whole may be planned at one time, but, in consequence of want of immediate funds, the body may form the first erection, and a tower or steeple may be added at a subsequent period.

Another point to make a note of is this: Never attempt to cover the maximum area with glass at the minimum cost, *regardless of materials or workmanship*. The peculiar variations of temperature to which horticultural buildings are exposed necessitate greater care in the choice of materials and in working those materials than almost any other description of buildings.

Remember, too, that when the glasshouses are built and finished the designer's moral responsibility does not end there. These houses, or rather their contents, require attention, and the greater and the more elaborate the attention subsequently bestowed upon them, the greater and the more advantageous will be the tangible result in fruit or flowers; so that, in plan-

ning houses, the question of the amount of labour which can be subsequently devoted to working them must not be lost sight of. It is far better to put down a given amount of glass with the certainty that it will be carefully and efficiently worked afterwards than build double the quantity with the possibility that it will be neglected.

It is very usual to allow the word "greenhouse" to embody every form of horticultural glass structure. We must therefore attempt some slight classification of these buildings. They are broadly divisible into two classes, showing houses and growing houses. (And when I speak of "houses" throughout these lectures, you will always understand I mean glasshouses). Amongst growing houses may be enumerated greenhouses, plant houses, plant stoves, forcing' houses, propagating houses, cucumber houses, early and late vineries, muscat houses, melon houses, pine succession and fruiting houses,

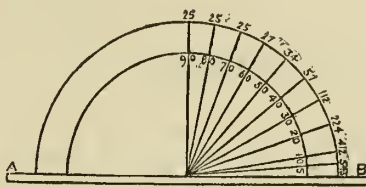


FIG. 5.—DIAGRAM SHOWING LOSS OF SOLAR RAYS
IN TRANSMISSION THROUGH GLASS.

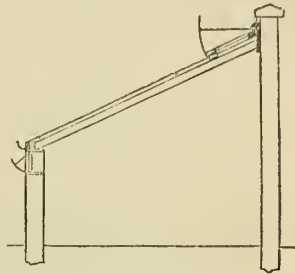


FIG. 6.—LEAN-TO HOUSE WITHOUT FRONT LIGHTS.

fruit or orchard houses, pits and other houses, the uses to which they are applied being indicated by the name. Many of these names however are merely convertible or synonymous terms. For instance, an early vinery, a plant stove, a cucumber house, and a melon house are all forcing houses.

These various growing houses, as you will see later on, differ in their dimensions, or rather their proportions, the construction of the substructure

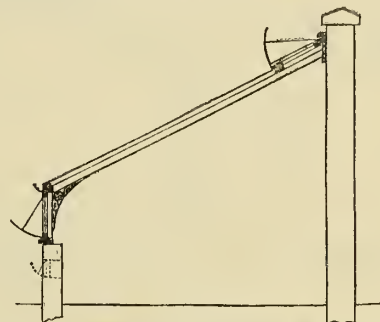


FIG. 7.—LEAN-TO HOUSE WITH FRONT LIGHTS.

as well as of the superstructure, and the arrangement and fittings of the interior.

So much for a few general remarks. Now for some very necessary scientific facts.

It will have probably occurred to you many times that the form, the position, the proportions, even the dimensions, of glasshouses depend, to a great extent, upon the sun. It is therefore of primary importance that we have a few clear ideas about the sun and sunlight. You are all aware that the sun does not rise exactly in the east and set exactly in the west, and attain the same altitude all the year round. In point of fact, the sun on the shortest day, December 21, rises about 50 deg. east of south, attains a height of about 15 deg. above the horizon, and sets about 50 deg. west of

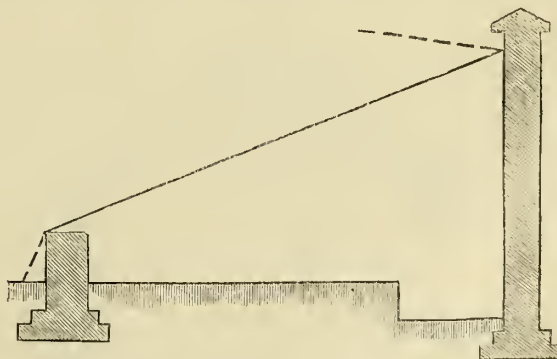


FIG. 8.—WIDE LEAN-TO HOUSE WITH LOW ROOF.

south, and on the longest day, June, 21, rises about 50 deg. east of north, attains a height of about 62 deg. above the horizon, and sets about 50 deg. west of north; occupying between the longest and the shortest days positions between the two points shown on the diagrams. Figs. 1, 2, 3, and 4.)

At midsummer the sun describes that part of a circle which is contained in about 260 deg. of the horizon (the whole circle of course being 360 deg.), while at midwinter it only describes that part of a circle which is contained in about 100 deg. As, moreover, the sun always attains its highest altitude opposite the south point at twelve o'clock noon, the morning sun occupies the right-hand half of each of the diagrams (Figs. 1 and 2); the afternoon sun the left-hand half.

These variations in the sun's altitude have a most powerful bearing on plant life, and in connexion with them very interesting points may be raised regarding the varying intensity of rays at different angles, light rays, heat rays, chemical rays, and the various properties of each; but this is scarcely the proper opportunity to discuss them all. I must however

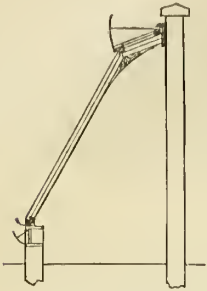


FIG. 9.—NARROW LEAN-TO HOUSE, BROKEN ROOF.

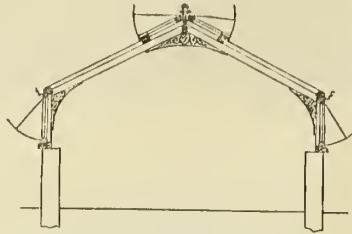


FIG. 10.—SPAN-ROOF HOUSE WITH SIDE LIGHTS.

mention to you that when the sun's rays strike a sheet of glass some of those rays cannot pass through the glass. The proportion of obstruction depends upon the angle at which the rays impinge upon the glass.

The diagram (Fig. 5) shows a sheet of ordinary glass, A B, and the various lines rays of light impinging upon it at different angles. The inner figures show the angle of incidence, the outer figures the rays out of 1,000 which are lost in transmission. You therefore see that the more nearly the rays impinging approach a right angle the smaller is the proportion of light lost in transmission. Adapting this principle to our glass roofs, we deduce the fact that the more nearly sunlight strikes our roofs at right angles the less is the obstruction to the light. This fact is of all the greater importance when we require to derive the maximum benefit from

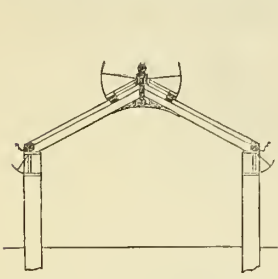


FIG. 11.—SPAN-ROOF HOUSE WITHOUT SIDE LIGHTS.

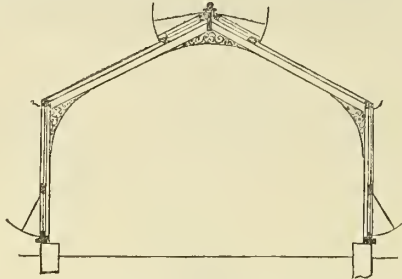


FIG. 12.—SPAN-ROOF WITH HIGH GLASS SIDES.

sunlight in our houses. We shall have occasion to speak of the effect of the sun's rays striking a roof at various angles when we come to an analysis of the various parts of a house.

Keeping in our mind, therefore, the leading points connected with the sun, the position on the horizon, where it rises and where it sets, and the altitude it attains, we will pass on to the various forms of simple growing houses, and the reasons for their assuming these forms.

The first and most natural form is the lean-to (Figs. 6, 7, 8, and 9). This form is used under the following circumstances:—When a wall or building already exists, against which it is desired to place a house; when a wall is specially built in order that a house, or combination of houses, may face the south, and have brick protection from the north; when the exigencies of the plants to be grown demand this form; when the maximum length of

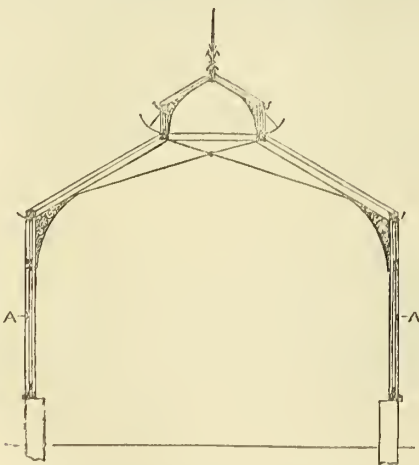


FIG. 13.—LARGE SPAN ROOF HOUSE. A A, CASEMENT LIGHTS.

rafter is required; when outhouses, sheds, &c., are required on the opposite side of the wall; and when, with a wall already existing, a house having a given area is required to be built at the smallest cost.

Of course, the best aspect for a lean-to house is to face the south. It will then catch a larger amount of sun than if placed in any other position. Even when the lean-to faces exactly south, and the wall is consequently due east and west, part of the early morning and late evening sun will be lost, for, as you will have seen, the sun rises north of east and sets north of west during part of the year.

Sometimes the wall against which it is proposed to build a lean-to does not face exactly south. You will then remember that by so much as the aspect of the wall is inclined towards the west point, by so much do you lose the morning sun; and if the aspect of the wall is inclined towards the east point, by so much do you lose the afternoon sun. Another point it is as well to remember is that, other things being equal, a lean-to is easier to heat than a span house.

The next simple form of house is the span. (Figs. 10, 11, 12, and 13.)

This form is used under the following circumstances:—When no high wall exists or is required; for building at right angles to, and in combination with, a range of lean-to houses against a south wall; when the minimum height is required, so that there may be as little obstruction caused as possible; when plants require to be within reach, and yet as near the glass as possible, and when from local circumstances this cannot be effected in a lean-to house; when great length of rafter is not necessary; and when the length of a house requires to be in the direction of north and south, and each side requires an equal amount of solar rays.

The best aspect for a span house is of course for the ridge to run north and south. In this way the contents of such a house obtain as perfect a

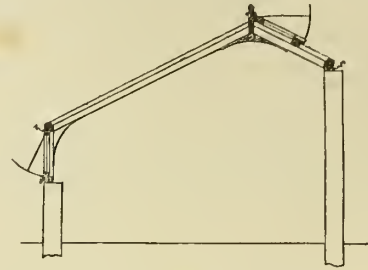


FIG. 14.—THREE QUARTER SPAN-ROOF HOUSE.

distribution of the sun's rays as possible; and while the side facing east receives all the morning and part of the afternoon's rays, the side facing west receives part of the morning and all the afternoon rays.

Frequently however span houses are not built with the ridge running north and south. I have even seen them with the ridge east and west. In this way, the side facing south will of course receive a greater proportion of the sun's rays than that facing north, and thus plants requiring different proportions of sunlight can be grown in the same house. A very popular form of greenhouse is a span house about eleven feet wide, somewhat similar to Fig. 10.

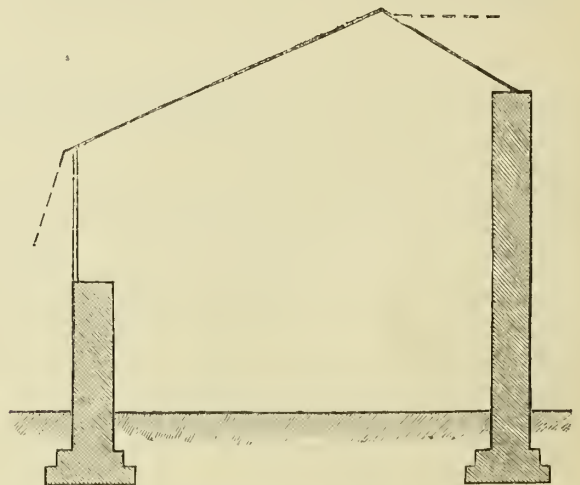


FIG. 15.—THREE QUARTER SPAN-ROOF HOUSE OF LARGE SIZE.

The lean-to and the span are of course the two chief forms you will meet with in connexion with glasshouses; but there is another, a sort of compromise between the two, namely, the three-quarter span (Figs. 14 and 15), which will be found very useful under the following circumstances:—When the back wall of an otherwise lean-to requires to be kept as low as possible, so that, without departing from the main features of the lean-to, the wall may form the minimum obstruction; when it is required to let light in at the back, or for utilizing morning or evening sun, which would otherwise be lost; when the maximum length of rafter is not a *sine quâ non*; when a certain inclination of roof is required without altering the width, or raising any more than is necessary an existing back wall; and when, for architectural purposes, an ornamental ridge is advisable, yet the house requires to approximate as nearly as possible to the lean-to form.

Unless to fulfil some of these special objects, or in combination with other houses, three-quarter span houses may be considered rather ugly. You will find that the most complex arrangement of houses may be split up into a combination of some of these three forms—the lean-to, the span, and a house somewhere between the two.

It would be perfectly futile for me to attempt to give you an account of all the combinations which it is possible to construct. Each case must be treated on its own merits, and with regard to local and other conditions. I may say however that the same principles which regulate the construction of simple houses regulate the construction of each house in any combination.

When a number of houses are required they should be planned so that they are compact, not straggling; so that the buildings for consecutive operations are, as nearly as possible, in consecutive order; so that there may be no long undivided houses; so that the boiler, or boilers, are in a convenient position for the work they have to do; so that each separate building does not suffer in efficiency through being placed in combination with others. A very suitable combination is shown in Fig. 16.

(To be continued).

SPECIMEN BEGONIAS.

By ROBERT OUBRIDGE, Church Walk Nurseries, Stoke Newington.

THOSE who are at all desirous of shining at the exhibitions during the ensuing summer with the tuberous begonias must very soon make a beginning, as it is only by starting the corms early enough to be able to grow them to their full size without having to hurry them on with artificial heat that they can be had in perfection.

By far the greater proportion of the begonias seen at the exhibitions present an unsatisfactory appearance, because of their having been subjected to a high temperature within a very short time of their figuring on the stage. The shoots are more or less weak and long-jointed, the leaves wanting in substance, and the flowers thin and of comparatively small size; and if they do not show unmistakable signs of exhaustion before the day is out, they fail to produce that striking effect so essential in plants grown for competitive purposes. It is a very important matter to have specimens that are dwarf in growth, furnished with flowers of the finest quality, and so hardy in constitution that they may with an ordinary degree of care be conveyed to and from the place of exhibition without suffering to an appreciable extent; not less necessary is it to have sturdy plants for the decoration of the conservatory, for it is from these alone that a continuous display of flowers for any length of time can be obtained. I would suggest also that a good proportion of large specimens should be grown for the conservatory, because of the very distinct and effective appearance they present, and the length of time they remain in good condition. It is too much the practice to limit the stock to plants in forty-eights, which, although very useful, should not be exclusively grown even when there is no intention of competing for prizes.

In commencing the production of specimens healthy corms from one to two years old should be selected, as they can be depended upon to break strongly and produce several shoots. For severe competitions first-class named varieties will of course be the best; but for most exhibitions, and for home decoration, selected seedlings of free-branching habit, and producing flowers of good quality, will answer every purpose. When the plants are required for exhibition due care must be taken to

first to last, with the result that, owing to the dense shade of the vines, they become so drawn and weak as to be of but little value for any purpose. The soil must be kept in a nice moist state until the corms are fairly started, when the water supply will require increasing in a gradual manner. As soon as the shoots are an inch or so in height a free circulation of air will become necessary, and this should be maintained throughout the season of growth.

By the time the plants have produced shoots two or three inches in length they will require more space for the roots, and as large shifts are not good put them in five-inch pots, which ought to be filled to about one-third of their depth with medium-sized crocks. Mellow fibrous loam, well-rotted manure, and sharp sand will form the most suitable compost, the sand to be used rather plentifully; but the manure must not be overdone, and one part to every six parts of the loam will suffice. When there is any difficulty in obtaining loam of a friable character, the addition of about one-third of tough fibrous peat will be desirable. From the forty-eights shift to the pots in which they are to bloom, whether eight or nine inches in diameter, as two repottings are quite sufficient. The drainage of these must also be thoroughly efficient, and it is good practice to put from two to three inches of medium-sized crocks in the bottom. The compost should be the same as for the first shift, but the loam ought to be used in a more lumpy state. After they have received their last shift, the only attention they will want will be supplying them with water, regulating the admission of air, and tying out the shoots. On the pots becoming filled with roots, weak liquid manure twice a week or so will be of great assistance, or a little of Clay's Fertilizer may be sprinkled over the surface occasionally, and lightly pricked in with the point of a tally. When the fertilizer is used the surface should be covered with it very thinly, and the application be repeated about every three weeks. At all times the circulation of air about them must be comparatively free, but the cultivator will of course regulate the ventilation by the state of the weather, and be careful to avoid exposure to keen draughts. A position near the glass will be the most suitable, and in very bright weather a thin shade may be employed for a short time in the midday; but begonias are well able to bear exposure to the rays of

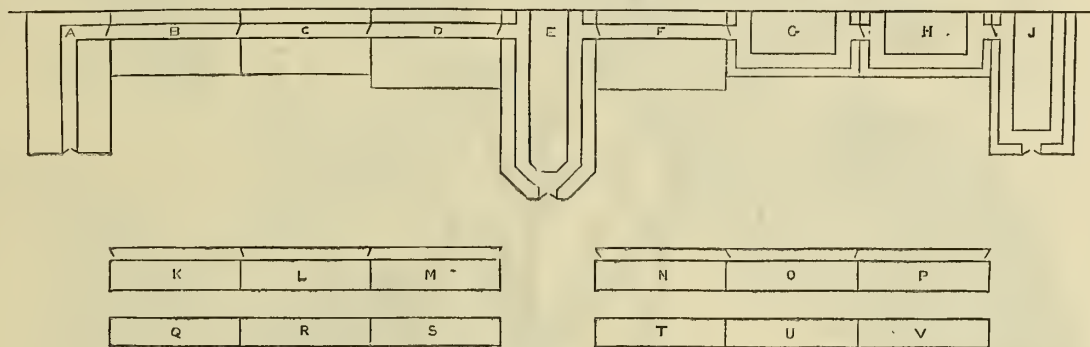


FIG. 18.—BLOCK PLAN OF LARGE COMBINATION OF HOUSES AND PITS.

A, Span-roof Orchard House. B, Lean-to Peach House. C, Lean-to Muscat House. D, Lean-to Late Vinery. E, Span-roof Plant House. F, Lean-to Early Vinery. G, Lean-to Orchard House. H, Lean-to Plant Stove. J, Span-roof, Greenhouse. K, L, M, Three-quarter Span-roof, Melons, Cucumbers, &c. N, O, P, Three-quarter Span-roof, Pines, &c. Q, R, S, Pits, Bedding Plants, &c. T, U, V, Pits, Bedding Plants, &c. Boiler House, Potting Shed, Mushroom House, Gardeners' Office, &c., &c., at back of wall.

start with varieties that are really distinct, because when varieties forming a collection too closely resemble each other the exhibitor is placed at a great disadvantage in a keen contest. When it can be conveniently done, it is a capital plan to prepare a mild hotbed for starting the corms, or to press into service a propagating bed in an almost exhausted state, as very little bottom heat will suffice. By the time the new growth makes its appearance above the surface the season will have so far advanced that the warmth rising from the bed will, in combination with the sun heat, produce a temperature high enough to maintain a steady growth. But it is best to put them in a heated pit, where it can be done, more especially when they are wanted in bloom rather early in the season, as then a little assistance can be afforded them during the periods of cold weather we often have in the spring. A top heat of between 55 deg. and 60 deg., when maintained entirely by the hot-water apparatus, will be quite sufficient; but with sunshine it can be allowed to rise to 70 deg. or 75 deg. during the early stages, and to 80 deg. later on, provided the ventilation is abundant.

A large quantity of soil about the corms when first started is not wanted; in fact, it is injurious to them, and steps must be taken accordingly. There is no better way than to put the corms in large or small sixties, according to their size, with the pots filled to quite one-half of their depth with small crocks. Large corms may of course be put into forty-eights, and the drainage must be in the same proportion as in those of smaller size, for if there is any considerable depth of soil underneath them it will probably become sour and have to be removed when the plants are repotted. A compost of loam and peat in equal parts, with a very liberal proportion of sand, will be the most suitable for using when the corms are started, and afterwards a mixture of a more substantial character will be required. The corms must be buried half an inch or so below the soil, which should be pressed moderately firm. The pots can be placed upon, or be partly plunged in, the bed, but if the heat is at all brisk they should stand on the surface. They can also be started in any of the houses, but in the greenhouse the progress will be rather slow at first. The early vinery is very often taken advantage of for starting the tuberous begonias, and when a point is made of removing them from it as soon as they begin to grow freely it answers very well. But it is too much the practice to keep them in the vinery from

the sun if they have been well exposed to light from the first, and the ventilators are opened sufficiently to prevent the thermometer rising too high. There must be no stopping, and the shoots should be tied out just far enough apart for the foliage and laterals to have room for their proper development. A small span-roof house is the best place for them after they have had their final shift, but a roomy pit will do very well.

The following will form a capital collection, the varieties being quite distinct and of good quality:—*François de Craen*, crimson-scarlet; *Paul Quequignon*, bright scarlet; *Emperor*, bright orange scarlet; *Paul Masurel*, scarlet shaded orange; *Lelia*, deep crimson; *Madame Crousse*, bright rose; *Prince of Wales*, rich crimson; *Raphael de Smet*, rosy pink; *President Hardy*, bright rich rose-pink; *Charles Boinet*, orange shaded yellow; *J. A. Clarke*, salmon; *Monarch*, rich red; *Lady Hume Campbell*, blush-pink; *Madame Valette*, rosy carmine; *Pearcei Improved*, yellow; *Rosea superba*, deep rose; *John Laing*, light red; *Alba floribunda*, pure white; *Mrs. G. Scorer*, rich scarlet; *Mentor*, rosy crimson, and *Wonder*, yellow.

THE POTATO TRADE.—*The Railway News* states that the importation of European potatoes and other vegetables at New York, in consequence of the drought of last autumn, continues on an increasing scale. The *Furnessia*, from Glasgow, recently took out 1,127 tons, and further heavy consignments of potatoes from the same port are expected. These potatoes sell at 82½ cents the bushel, at the same time the native product commands 1 dollar 8 cents. The greater portion of the supplies in the New York market are foreign.

CORBULARIA MONOPHYLLA is becoming well known amongst cultivators of choice hardy plants, and Mr. Barr appears to have a commercial stock of it. There seems to be need for determining the relation of this plant to the "White Bastard Rush Daffodil" of Parkinson's "Paradiseus," p. 106, and the *Cantabrica* of Haworth, as well also with the statement of Dean Herbert (*Am.*, p. 297) to the effect that "there is no reason to suppose that two white varieties were ever known." It is figured in *B. M.*, 5,831, but there is no reference there to any of the foregoing citations. The specimens we have seen as often bore two leaves as one.

Notes of Observation.

A HARDY CLERODENDRON.

UNDER the head of "New Plants," notice has been taken of *Clerodendron trichotomum*, as figured in *B. M.*, 6,561; but its importance is such that a special note is needed in the interests of cultivators who value first-class plants. This clerodendron is a native of Japan, and although a novelty in gardens is not by any means a new plant. It was introduced some twenty years ago, and of course was for a time regarded as tender; but proving hardy at Kew it acquires peculiar interest, and its beauties may be reconsidered. It is a shrub or tree rising six to ten feet; the branches smooth and soft, the leaves flaccid, those below very large and trifid, those above

HOME-GROWN SPIRÆAS.

I have before described in the Magazine the way in which we prepare our supply of plants in pots for forcing, and I refer to it now just to say that each year's experience proves that it is unquestionably the only way to secure good plants furnished with prominent crowns for early forcing. We had on February 1 of the present year several plants in flower in six and seven inch pots with thirty and forty flower spikes, accompanied by plenty of leaves. Briefly stated, the way to prepare them for forcing next year is to pot them now without any delay, and grow them in a cold pit or frame until the end of May, when they may be stood in the open with the pots in deep saucers, regularly filled with liquid manure as often as they become empty. At the end of August the saucers should be taken away, but they must still have sufficient water to prevent their flagging until the beginning



CLERODENDRON TRICHOTOMUM.

ovate or cordate, of a grass-green colour. The flowers are reddish in the bud, white when expanded, with stamens of great length, and style very slender. When in full dress the bold leafage is freely sprinkled with light cymose clusters of red buds and white flowers, and the tree is at once distinct and beautiful, and a first-class subject for the cool conservatory.

PRIMULA ALICE.

Numerous as the fine varieties of Chinese primula now are, Alice will be a welcome addition to the number. The foliage is of a bright green, and the flowers produced in large trusses, of a lovely shade of pale pink, beautifully fringed and of the finest form and substance, greatly admired by all who have seen them.

The Nursery, West Drayton.

R. B. MAKOWSKI.

of October, when water must be withheld altogether. It is in fact a good plan to lay the pots down on their sides after the leaves are cut off in November. They will want no further attention, for the roots must not be disturbed in any way before they are forced and out of flower.

J. C. CLARKE.

THE YELLOW-BERRIED PYRACANTHA.

This is scarcely at all known in gardens, but is quite worth a place where there are many walls requiring furniture. It grows the same as the well-known scarlet-berried variety, and when in fruit is equally showy in its blaze of gold. But it has this peculiarity, that the birds are less fond of it, and it therefore usually outlasts the scarlet pyracantha in its autumnal and winter display.

D. B.

CLIANTHUS PUNICEUS.

This splendid hardy shrub is so rarely seen that I send a note as an awakener, and may it be such unto many! There are several gardens on the western side of Caledonia in which this glorious glory pea is as hardy as a holly or an oak, and everywhere in England, even on the east coast or in the midlands, it endures our winters without hurt with the aid of a wall. A plant that in winter gives us flowers equal in splendour to those of the erythrina, which only flowers in the summer, must be worth planting and nursing, and this glory pea or parrot-beak (for it bears both names in New Zealand) is quite worth a little protection in places where the winter may be feared for it. The proper time for this plant to flower is May and June, but it gives me flowers in November and December when the season is favourable, and on such occasions I take it that the plant favours those who love it, which is quite proper.

D. B.

CHIMONANTHUS FRAGRANS.

How few are acquainted with this deliciously-scented hardy wall plant! Its plain face is to me a recommendation, for in respect of colour it certainly is a curiosity. The place for it is a snug corner where walls meet, and the aspect is south more or less, with complete shelter. Its flowering time is winter, but the season and the aspect may make a difference of a month or more in the time of flowering. With such a plant one may wisely ensure a few strong specimens on walls, and a few more in pots for flowering under glass, both to prolong the season and make assurance doubly sure.

D. B.

RED-BARK DOGWOODS.

Some large clumps of *Cornus sanguinea* and *C. alba* that we have make a brilliant bit of colour on sunny days in winter. And they are quite agreeable in summer with their bold distinctive leafage, and their flowering is not despicable, although one must not go into raptures about it. But in a pure air and on a dry sandy soil, these red-bark dogwoods are very interesting trees. Indeed, when we meet with *C. sanguinea* on open commons on a bright winter day it really warms one to look at it, and the thought that it is the true "gunpowder tree" (for so I have seen it named in the *G. M.*) gives one an additional fillip of warmth, and perhaps of poetical fear also. A group of these cornels within view of a window is a good invitation to a winter walk in the garden.

D. B.

FORSYTHIA VIRIDISSIMA.

This is coming out earlier than usual, and it is flowering more freely than usual. It is a good thing to plant in large clumps. The flowers of this shrub are of the same tone of light yellow as those of *Jasminum nudiflorum*, and are succeeded by a leafage of a light golden green colour, that gives peculiar life to the shrubbery where there is any considerable mass of it.

D. B.

STACHYS LANATA.

This hardy herbaceous plant is so effective and useful for bedding purposes that perhaps I shall do some of the younger readers of the Magazine a service in directing attention to it. I have grown it for a long time, but have paid special attention to it during the past three seasons, and it has afforded much satisfaction. March is in my opinion the best month in the whole year for transplanting the stachys, which must be moved annually. When allowed to remain in the same position for several years it produces its flower spikes rather freely, which necessitates some amount of labour in their removal, and the lines have an uneven appearance after they are cut down. It is not however always practicable to transplant in the month mentioned, and as I am desirous of disturbing the flower garden as little as possible until the beds and borders are prepared for their summer occupants, I generally do the transplanting in the second week in May. I first lift it and dig the border, and then shake away the soil, remove the weeds, and break the clumps into pieces of three or four shoots. These are dibbled in in a line near the verge or other bordering six inches apart. The little tufts are well watered in, and soon recover and form a dense even band. The stachys does not require so much attention during the summer season as most of the other bedders; in fact, very little labour indeed will suffice to maintain it in the best possible condition. By the autumn the bands usually attain a width of ten inches, and when the borders are dug we cut with a spade a strip off each side of the bands. These strips are carefully lifted in lengths of about twelve inches, and placed along the middle of the space in the borders rendered vacant by the removal of the zonal pelargoniums and other bedders. The portions are of course lifted with a spade, and care is taken to disturb the soil about the roots as little as possible. The greivish leafage has when in dense bands a very pleasing appearance throughout the winter alongside carriage drives.

The Chestnuts, Beddington Park, Croydon.

D. WAGHORNE.

FRUIT-DRYING IN AUSTRALASIA.—No one who has visited our Australasian colonies in summer or autumn, says the *Colonies and India*, can have failed to note the great waste of fruit of various kinds, the wonderful fertility of the orchards, and the comparatively small demand in the markets. Under these circumstances, is it not surprising that the import of dried fruits, principally from America, shows no signs of being affected by home-grown produce? New South Wales alone imports annually some four million pounds weight, and pays nearly £34,000 duty thereon. An attempt is now being made to promote the business of fruit-drying in the colony, and several of the American machines have been tried. In Fiji the Zimmerman drier, a portable and cheap little contrivance, has been doing good work for some time past drying bananas, and that the result is satisfactory may be judged from the fact that the demand has hitherto exceeded the supply. The products of a good drier are stated to be much superior to the finest sun-dried or kiln-dried fruits. Having lost only the water in the process, they are essentially fresh fruits, as they retain nearly all the sugar, and are bright and attractive to the eye. Evaporation takes place so rapidly that the flavouring essences are preserved, and the colour and structure unchanged, so that the dried fruit wants water alone to restore to it its pristine properties. The Zimmerman machine will dry apples, pears, pumpkins, peaches, and cherries, as well as the more delicate fruits, strawberries, raspberries, and grapes, at a very trifling cost. There can be but little doubt that fruit-growers in all the colonies have it in their power to add a remunerative process to their industry. Tasmanians especially, who have long complained of the Victorian duties shutting out their jams, might thus utilize their surplus fruits, and find a ready market in more distant countries.

The House, Garden, and Home Farm.

WRITTEN IN A VOLUME OF SHAKESPEARE.

How bravely Autumn paints upon the sky
The gorgeous fame of Summer which is fled!
Hues of all flowers that in their ashes lie,
Trophied in that fair light whereon they fed,
Tulip, and hyacinth, and sweet rose red,—
Like exhalations from the leafy mould,
Look here how honour glorifies the dead,
And warms their scutcheons with a glance of gold!
Such is the memory of poets old,
Who on Parnassus' hill have bloomed a clate;
Now they are laid under their marbles cold,
And turned to clay, whereof they were create;
But god Apollo hath them all enrolled,
And blazoned on the very clouds of fate.

THOMAS HOOD.

THE HOUSE.

THERE are plenty of bulbs in flower now to dress windows and side-boards, and it is a matter of some importance to keep them fresh and clean as long as possible. One of the most important points is to remove them when the gas is lighted, provided they can be spared, and it is equally advisable to place them for the night where they will be safe from frost or a very dry atmosphere. When left on the tables they are intended to adorn they not only suffer from the gas at night but from the dusting and rummaging that goes on in the morning. As a matter of course, it is by gas-light they are often the most wanted, and then of course they must do their duty; but it is well to keep in mind that extreme conditions are injurious, and table flowers may be kept a considerable length of time by means of a little reasonable care. We have had to water our fern cases, the plants in which have been growing all the winter, and are now in a finer condition than we remember ever to have seen them at this time of year.

THE GARDEN.

GREENHOUSE AND CONSERVATORY.—There must be no delay in shifting on all subjects that require increased root room, for vegetation is now becoming active, and if plants make new roots in old exhausted soil it impairs their vigour. Pot Cape Bulbs, Lilliums, Gladioli; shift Ericas; start Fuchsias, and take cuttings. Camellias done flowering to be started into growth in a moist atmosphere and genial temperature. Give plenty of water, alternating with liquid manure, to Pelargoniums, Calceolarias, Cinerarias, and other subjects advancing into bloom.

STOVE AND ORCHID HOUSE.—Start Gesneras, Gloxinias, and Achimenes, and shift those already forward enough. Specimens plants in growth must have a brisk temperature. Be in no haste to train climbers, as the training checks their growth. In the orchid house there must be an increase of temperature, and the shading must be used during sudden outbursts of sunshine with east-winds.

FORCING HOUSES.—Discontinue syringing as the vines come into flower, and slightly increase the temperature, and give air only when the weather is mild. As soon as the fruit is set, throw water on the paths, to make a moist air, and use the syringe freely. Tie in the shoots before they get unmanageable, and stop laterals at the first eye beyond the bunch. Swelling fruits in the pinery to have a brisk temperature and plenty of water, but withhold water as soon as they begin to colour. Keep successional plants growing freely, and shade all newly-potted suckers. The principal work in the houses devoted to peaches and nectarines now consists of disbudding, thinning and training in; and the trees should have daily attention.

PITS AND FRAMES.—Introduce to the forcing pit Roses, Rhododendrons, Azaleas, early Pelargoniums, Gloxinias, and Achimenes. Sow tender Annuals, Melons, Cucumbers, Capsicums, Tomatoes, and a few pans of Celery, Lettuce, French Beans, &c., &c., for planting out early on warm sheltered slopes. Give auriculars plenty of water and air; keep them near the glass, and shade during strong sunshine.

FLOWER GARDEN.—Lightly fork the borders, so as not to injure the roots of herbaceous plants, and make the surface moderately fine, to give a neat appearance. Herbaceous plants for summer and autumn bloom may now be planted, though autumn is a better time. Bedding plants and dahlias to be propagated in quantities. Sow hardy annuals in the borders, and put a tally to each patch; as soon as large enough to handle, thin the patches, and plant out the thinnings wherever required. Lay down turf, make box edgings, turn gravel paths, and use the roller freely on lawns and walks. At the end of the month train and trim ivy, reducing the growth on walls, &c., to one regular felt or layer of shoots, and removing all the leaves, so as to expose those shoots to view.

FRUIT GARDEN.—Cuttings of bush fruits may still be put in. Grafting should not be delayed, as the sap is now rising. Pruning and cleaning ought to have been completed long ago; if not so, let your motto be "Better late than never." Burn all the prunings and clippings of trees, hedges, &c., and use the ashes as a top-dressing for quarters of bush fruits. Mulch raspberries with half-rotten dung, and take care they are not dug between. Lay down plenty of manure between strawberries.

KITCHEN GARDEN.—Manure plots that are to be sown or planted this month and next, and dig the ground over deeply, and leave rough. If the ground is well drained, plant at once the main crop of potatoes, but on wet soils wait till next month. For main crops of potatoes choose a plot that was well manured last year; for early sorts that are to come up before the autumn rains set in manure may be dug into the trenches. Potatoes are best planted in trenches and covered loosely with soil. Make new plantations of Artichokes and Horseradish. Mark out Onion beds, and let the soil be liberally manured. Prepare for successional summer crops, so as to have the ground firm and well sweetened in time to receive them. Sow Turnips, Long Radish, main crop of Parsnips, Horn Carrot, Cauliflower, Cabbage, Savoy, Broccoli, main crop of Onions, Peas, Beans, Lettuce, Leeks, Spinach, Parsley, and small Salads.

THE HOME FARM.

HEDGES properly made and well kept contribute so much to the general appearance of the home farm, and are moreover so essential for keeping cattle within the assigned bounds, that it may be taken for granted they are well worth all the labour involved in their management. For enclosures within view of the residence, the fences should be about four feet in height, and from thirty inches to three feet in breadth. Holly hedges have much to recommend them, but the growth at first is so slow that they cannot be employed otherwise than for exceptional purposes. The most generally useful hedge plant is the White Thorn, or Quick. In the formation of quick hedges mark out their positions and trench to the depth of twenty or twenty-four inches a strip of land about two feet in width. Along the middle of this plant two rows, the lines to be eight inches apart, and the plants six inches from each other, arranged alternately. Stout three-year-old plants should be selected, and previous to placing them in position cut them to a uniform length of about six inches. In the course of the summer a vigorous growth will be made, and in the winter following cut the young shoots back to within about eight inches of the base with a knife. In the second and third year the same course should be followed. By this practice a much stronger base is obtained than when summer clipping is practised during the first three years.

The most valuable brood of ducks is undoubtedly the Aylesbury, and as the birds of this breed are the most ornamental, they are to be preferred when they are allowed to range about the garden and to have access to ornamental water. Those however who prefer coloured birds should keep the Rouen breed, for when the strain is good the birds possess beauty, although less striking in appearance than the white Aylesbury birds. Ducks will be laying very freely now, and advantage should be taken of the abundant supply of eggs for raising the main stock of ducklings. The ducks must not be set upon eggs, or failure, more or less complete, will be the result, and the best plan is to put nine eggs under a Cochin hen. A warm and rather dark place should be selected for the nest, and a rough lattice provided which, while allowing the ducklings to run in and out, will keep the hen in. They will require feeding from the first, and to begin with they should have coarse oatmeal in water, then whole groats in water; and as soon as they can manage oats they must have them to make an end of extra labour. They ought also to have, in addition, shred lettuce, minced kitchen fat, soaked bread, and other waste from the kitchen, which they gobble up with a zest peculiar to themselves. The annual renewal of the stock is essential, for after the second year the ducks are late in laying, and become so tough as to be hardly fit for the table. If the strongest and forwardest are saved for the renewal of the stock, and a drake be obtained from a distance about every third year, a strain will be ensured that will in every respect prove thoroughly satisfactory.

BASKET WILLOWS.

By Mr. SCALING. From Transactions of the Highland Society.

THE SPECIES OF WILLOWS are numerous, and much confusion exists in their classification. There are however only about six species, with their numerous varieties, that are of any commercial value, or worth cultivating with a view to profit. Three of those species are essentially basket willows, and the other three are adapted for poles and timber trees, and they differ so much in character and constitution that the treatment and soils adapted for one are very unsuitable for the others. The tree forms or species of basket willow most in use are *Salix viminalis*, *S. triandra*, *S. purpurea*, and their numerous varieties, about sixty of which are in cultivation; but at least two-thirds of this number might be discarded with advantage to both grower and consumer.

Salix viminalis, or the Osier proper, is the most important variety under consideration. This class may be easily distinguished by its long narrow leaf, widest near the base, but seldom exceeding three-quarters of an inch at its widest part; the leaves are slightly dentated at the edges and of loose texture; they are smooth above, and covered with a white silky pubescence below, and are entirely destitute of stipules. The bark of the twigs is smooth to the touch and sweet to the taste. Between thirty and forty varieties of this species are now in my possession, differing much in the colour of the bark, size of growth, toughness of wood, &c., but all may be known by the above description, and, what is of equal importance, the description cannot be made to apply to any other species of willow. The six best varieties of the Osier are known in the trade by the names of White Osier, Brown Osier, Merrins Osier, Basford Osier, Belgian Osier, and Longskin Osier, and this number is sufficient for all practical purposes of the basket maker. The *S. viminalis*, or Osier proper, is the best adapted of all willows to the rich soils found on river margins where it is subject to occasional floods. It is a vigorous grower, very hardy, and must be well fed by the deposits of floods or by artificial irrigation to maintain it in continued perfection; and it bids fair at no distant date to solve one of the questions of the present day, viz., the disposal of surplus sewage. Its capacity for absorbing sewage has already been tried with success upon several farms, as for example at Northampton. *S. triandra* is the type of the next group of willows used in basket making. It might be supposed that the name *triandra* was a sufficient guide to identification, but as the inflorescence of willows is too variable to be depended upon, a more simple and certain means of identification is necessary. There are a great number of varieties of this willow, more than twenty of which are under cultivation, but all may be easily recognized by the circumstance that from three years old and upwards they all annually shed their bark, and as this is not the case with any other willow no one can fail to identify it. The *S. triandra* yields the best results when planted in a rich loamy clay. It is a native of Northern Europe and very hardy in constitution. The wood is harder than that of the Osier, and it is slower in taking root; but when it has obtained a good hold in suitable land it will last longer without replanting, and under favourable conditions it is a very profitable willow to grow. The best six varieties to cultivate are known under the following trade names: Brown Norfolk, Green Norfolk, Italian, Black German, Black Mule, and French.

S. purpurea, the type of the third group of basket willows, is of more slender habit and more precarious to grow than those previously named; indeed, it may almost be said that none but professional willow growers can deal with them profitably. They grow well in sandy loam, and will do moderately well in a gravelly soil. There are more than twenty varieties of this group, but only two that grow well in Scotland, *S. purpurea*, and *S. Kirksi*; the latter is known by nurserymen under the name of Whipcord. The demand for this willow is somewhat limited, and it cannot therefore be recommended for general cultivation.

CONDITIONS OF GROWTH.—One of the first and most important is that no willow intended either for poles, timber, or for basket work, can be profitably grown in a sour swamp or in waterlogged land. No reasonable amount of flooding nor of artificial irrigation will injure willows, provided the water can get away and not remain to become stagnant. Another matter of importance is the careful selection of cuttings. When forming a new plantation, not only is it advisable to have the best kinds, but it is of equal importance to take care that there is no mixing of different varieties. Not only each species, but each variety, must be kept distinct; any mixture of sorts is fatal to success. Mixed basket willows, however good each sort may be, are of small value; besides, no two varieties grow precisely alike; one variety always overpowers the other, and uniformity of crop is destroyed. Cuttings may be taken from either one or two-year-old twigs. If taken from one-year-olds, not more than three cuttings must be taken from any rod, however large it may be, for if large there is a risk of the top not being sufficiently ripe to grow; but if taken from two-year-old twigs they may be cut up to the extreme growth of the first year. The recognized length for cuttings is 12 inches; the thick ones may be one or two inches longer, and the thin ones one or two inches shorter. They should be cleanly cut, without any splinter, and with one stroke of the knife. The trade price for cutting is 10s. per 1,000 for mixed or unselected sorts, and 15s. per 1,000 for guaranteed sorts. The number of cuttings per imperial acre should range from 20,000 to 30,000. Professionals often plant many more, but the extra care involved by so doing would not do for general practice. The following distances at which cuttings may be planted will be found well adapted for general purposes:—*Salix viminalis*, 20 in. by 16 in.; *S. triandra*, 18 in. by 15 in.; *S. purpurea*, 16 in. by 13 in. It is not always advisable to follow a hard and fast rule in planting; something in all cases must be left to the judgment of the planter. Therefore, in giving the distances just named it is with the idea that a margin is left to the judgment of the person who has the work in hand. It may however be said that it is safer to err on the side of overclose than over-wide planting when it is considered that the value of a basket willow depends more upon the twigs being long, straight, and clean than it does upon the toughness and elasticity. All basket willows grow crooked and covered with lateral twigs when too much space is allowed; and for the same reason they are not of much value when grown in long narrow plantations. To be good they must be massed, and receive light and air from above, and not at the side.

LAND FOR PLANTING.—In the preparation of this much must be left to the superintendent of the work. Where steam power or horse power can be applied, it is cheaper than the spade and quite as effective. The chief thing to insist upon is that, by whatever means it is done, the hard pan or subsoil must be broken up to a depth of 12 in. to 14 in., and the surface brought into a good free mould before planting. The planting may be done at any time when the ground is free from frost between the middle of November and the end of March. There are some advantages in early planting, but those advantages chiefly arise from having the work well in hand, for if deterred, the spring frosts may necessitate the work being done under unfavourable conditions; but in so far as the ensuing crop is concerned it is of very little importance. When the land is in suitable condition the cuttings are easily planted. The palm of the right hand should be protected by leather, for the purpose of pushing them down to the required depth; and when pushed in the soil must be firmly trodden around them, taking care not to bruise or bark them in so doing. Many cuttings die from this being imperfectly done. I regard this as of so much importance that I always appoint one man to attend to it, and at the same time to see that the work is neatly and uniformly done. The whole operation is simple; each man will plant from 2,000 to 3,000 cuttings in a day when he has got used to the work. After planting, the land must be kept clear of weeds. This is especially important for the first two years, after which time less attention will suffice. But it must not be forgotten that if a profit is to be made by growing willows they must not be allowed to struggle for their existence against weeds.

THE FIRST CROP of willows is seldom of much value; but however poor it may be, it must be harvested or cut off; for if it was allowed to stand over until the second year the united produce of the two years would be nearly worthless. If the first year's crop be carefully cut, without disturbing the rooted cuttings, the second crop will be of considerable value, from which time there will be a gradual increase of value up to four or five years, and should all circumstances be favourable, a plantation of *S. viminalis* should last (without replanting) fifteen to twenty years, and a plantation of *S. triandra* from twenty to twenty-five years, and a plantation of *S. purpurea* from fifteen to twenty years. All willows for basket work should be cut as early in the winter as possible after the leaf has fallen. The knife used for cutting is shaped like a sickle, but not so large in the circle, and in using it the cut is made from the ground upward, the left arm encircling, and the hand grasping the twigs whilst the cut is made. The grass and weeds must be shaken out of the twigs before they are tied into bundles, for if this is not done the willows are apt to mildew. The size of bundle that is most convenient for moving about is 36 in. in circumference at the band. The bundles must be tightly tied, and the band should be 12 in. from the root ends. The appearance of the willows is much improved by neat and uniform tying, and extra care in this operation will not be thrown away when they are offered for sale. As soon as tied they should be carried off the ground and set on end; and in this state they are ready for market.

THE COST FOR WILLOW PLANTING under ordinary circumstances may be stated at £25 per acre for *Salix viminalis*, £30 per acre for *S. triandra*, and £35 per acre for *S. purpurea*, and when let by contract this is the usual price. The current expenses attending cultivation will be as follows, under ordinary conditions:—

Weeding per acre	...	...	...	...	£1 0 0
Cutting and tying	...	...	...	...	1 10 0
Rent and taxes	...	...	...	...	2 10 0
Interest on outlay	...	...	...	...	1 5 0
Deterioration	...	...	...	...	1 5 0
Incidental expenses	...	...	...	...	1 0 0
					£8 10 0

The value of willow crops will range from £10 to £20 per acre, according to the state of trade and the seasons. Occasionally they are worth more than twice that amount. But I should not advise any one about to plant to base their calculations upon extreme profits, lest disappointment ensue. A good return for the outlay may be relied upon in the average of years, and it may safely be said that few, if any, crops will give better results, provided the rules here laid down are duly observed.

SHORT NOTES FOR SMALL GARDENS.

By THE VICAR'S GARDENER.

CARE OF LAWNS.

The present time, when the weather is mild, is a good time to examine the lawn, and where there are any depressions to have them filled up. This can be done by taking off the turf and filling up the hole with some good earth, so as to make the surface level. This will not only add to the appearance of the lawn, but the mowing machine will make better work on a level surface than on uneven ground. Where new surface turfs are used they should be cut as near as possible one uniform thickness, or the surface cannot be laid level. Now is a good time to remove any perennial weeds from the grass, such as dandelions and plantains. The best way of getting rid of them is to dig them out with a long-bladed knife, and put a pinch of salt in the hole to destroy the roots that are left in the ground. A capital dressing for lawns where the soil is poor is one prepared with one bushel of fine earth, one bushel of wood-ashes, and one gallon of soot, well mixed together and spread evenly on the surface: this quantity will suffice for spreading over six square yards of ground. As a rule, the lawns that produce the most daisies are in an impoverished condition, and there is no better way to get rid of the daisies than dressing the surface with manure in the autumn and again in the early spring. Short well-rotted stable manure laid on the surface in October soon has its goodness washed into the earth by the autumn rains, and another light dressing of the same material in the month of February is very beneficial. Once compel the grass to grow and the daisies will gradually disappear.

PRUNING SHRUBS.

Where any evergreen or deciduous shrubs have outgrown their allotted space, this is the best season of the year in which to do any cutting back that may be necessary, as the young growth that will soon be made will quickly hide any unsightly places resulting from the pruning. The common laurel is a very unruly growing shrub if left alone to spread in its own way. At the same time it is an accommodating plant for the pruner to operate upon, for if the very argeest branches are cut back they will break out into fresh growth with remarkable freedom. The Portugal laurel is not quite so accommodating, although the young branches may be pruned without risk, as they will break into growth again immediately if the pruning is done this month. Where any shrubs are growing into the walks they should now be cut back, and very often it will give the work a better appearance if the other parts of the plants are cut in at the same time. In fact, a little judicious pruning will make all the difference in the appearance of the shrubs. The removal of a straggling branch or two will often convert an ill-formed bush into a handsome specimen. Ivy on walls or buildings should now be cut back where it has overgrown the space.

FLOWER BEDS.

Flower beds that are occupied with spring-flowering plants should now have a general cleaning. Where the edges have become uneven or any way out of shape, the edging knife should be used in preference to the grass shears to set matters right. Where the plants have their roots near the surface the soil should be pressed firmly about the roots with the hands, and where there are any losses amongst the plants the spaces should be filled up, if there are reserve stocks, without any delay. All weeds or dead leaves should be cleared off at the same time, and the whole of the surface between the plants moved up an inch in depth. Now is a good time to plant any of the violas that are intended for summer flowering in the beds or borders. At this time of year violas may be increased in a very simple way. All that is necessary is to dig up the old plants and divide them into two or more portions, but each part should have a portion of roots attached to it. In selecting the pieces for planting again, choose those from the outside of the old tuft, as they are the youngest and will invariably grow stronger and flower more profusely than those pieces from the middle.

SINGLE DAHLIAS.

By W. KEMP.

It is a mistake to suppose that the single dahlias surpass the varieties with double flowers, and those who assert that they do so show a want of knowledge of the florists' art, and a large amount of prejudice. To my mind, the single and double dahlias do not come into competition with each other, so distinct are they, and we shall perhaps best further the cause of floriculture by considering their claims apart, and avoiding the institution of comparisons. But if the single dahlias do not surpass the noble show flowers which produce such a grand effect upon the exhibition stage, or the bright and elegant little pompones, which present such a charming appearance when staged in bouquets with their foliage, and tell so well in large decorations; they possess much merit, and should be rather extensively grown for the decoration of the flower garden and for furnishing cut flowers. I would even go a step further, and suggest that they are worthy of encouragement at the hands of the managers of horticultural exhibitions; for, as demonstrated over and over again at the metropolitan and other gatherings, a good stand of flowers is exceedingly effective. It is to be hoped that the committee of the National Dahlia Show, to be held at the Crystal Palace in September next, will not overlook them, and further, that, if they do provide a class for them, they will stipulate that they shall be shown with foliage as cut from the plant. When staged, as I have on more than one occasion seen them, without foliage and the florets resting upon the board, they have a wretched appearance, and there could not probably be any better way of bringing them into disrepute than by showing them in that way.

Long before any noise was made about single dahlias the older kinds had a place in my garden, and I used to grow a dozen plants or so of *Alba*, *Coccinea*, and *Lutea*, which have white, scarlet, and yellow flowers

respectively, because their flowers were found so useful for indoor decorations from the beginning of August until the frost cut them down. I also raised a few seedlings most years, and several that I selected are decidedly superior to the parents, but in my opinion not distinct enough to send out. Some of my selected seedlings have flowers of a smaller size than the types they represent, and although they cannot be rightly regarded as improvements, we value them as highly as those the blooms of which have been improved in size and shape. The raising of the single dahlias from seed is a very simple matter, and as the seed is now plentiful and obtainable at a very reasonable rate it affords a ready means of raising a stock. Seed can be purchased in separate colours or in mixture, and where it is desired to work up a large stock the best course will be to buy a packet of each of the three leading colours, namely, white, scarlet, and yellow. There will be a considerable variation in the size, shape, and tone of the flowers of the seedlings, but, according to my experience, there will not be many decidedly poor, and the amateur may plant them in his flower border with the full assurance of their adding in some degree to its attractions. A very important point in raising dahlias from seed is to sow early enough to have strong plants by the end of May. It is best to make the sowing at the end of February or very early in March, because when delayed long after the middle of the current month there will not be much chance of the plants producing sufficient flowers in the following summer to make an effective display.

There is nothing peculiar in the raising of seedling dahlias, but as so few amateurs and young gardeners have had much practical experience in the work, some details will perhaps be useful. I invariably sow my seed in five-inch pots, which, as a matter of course, are properly drained. We fill them to rather more than one-third of their depth with crocks, and then put in enough light sandy soil to fill them, when it is pressed moderately firm, to within about half an inch of the rim. When we prepare a mixture specially we employ loam, leaf-mould, and sand in equal proportions, and it is found to answer very well. The surface is made quite level, and the seed distributed evenly over it, and covered very lightly with a little of the finest of the prepared mixture. A cucumber pit is a capital place for the seed pots, as the heat is favourable to the quick germination of the seed, and, in combination with the atmospheric humidity, highly conducive to the rapid growth of the young seedlings. After they have acquired a moderate degree of strength, and before they have become crowded, they are pricked off into pots of the same size as those in which the seed was sown, and from six to eight put in each. They remain in these until the leaves begin to touch, and are then put singly in three-inch pots. As soon as they have recovered they are removed to cooler quarters and gradually hardened off. When the cucumber pit is at all crowded we remove the seedling dahlias to a structure in which the temperature is lower before potting them off; but as it is essential to grow them on freely at first it is best to delay the removal until afterwards. When potting them off I use good loam to which a liberal proportion of nicely-rotted manure has been added.

Those who would rather confine their attention to the named varieties should, if they possess the conveniences for striking the cuttings, buy pot roots now of as many sorts as they can obtain of those they select. The pot roots can be packed and sent by rail at a very cheap rate, and a stock can be worked up from them at a small cost. There is also the great advantage of the cultivator having the plants under his care from the first, and growing them on steadily in a cool temperature. In starting with dry roots put them separately, if only one of each is obtained, in five-inch pots; but if there are two or three of each they may be put together in pans of a suitable diameter. In both cases a mixture of loam and leaf-mould in equal proportions should be used, and the roots should have the help of a brisk bottom heat. In a comparatively short time they will commence to make new growth, and the young shoots may be taken off close to the base, and inserted singly without any preparation beyond having, if necessary, the two lower leaves removed. But when it is desired to obtain as large a stock as possible from roots, the shoots should be allowed to remain until they have made three joints, and be cut off close under the second. Two breaks will be obtained from each of the joints that remain, and these in due course can be taken off and struck. The usual practice of inserting the cuttings in thumb pots is a good one, and can be well recommended, but if more convenient they can be put several together in others of larger size, and potted off separately when struck. Whether singly in thumbs or five or six together in five-inch pots, they should be transferred to large sixties as soon as they are furnished with a few roots, and, like the seedlings, have the help of a substantial compost. It would be an advantage if they could be shifted into five-inch pots as soon as they are well rooted, but there are few gardens in which either the time can be allowed for the work or the space spared for the plants.

Both seedlings and plants raised from cuttings ought to have a place in a pit from which the frost can be readily excluded, as soon as they are sufficiently advanced to be removed from the cucumber or propagating pit. They should also be near the glass and enjoy a free circulation of air, with full exposure in genial weather as soon as they are able to bear it. Like the pompones and show dahlias, those with single flowers require a sunny position, and should have a moderately rich soil.

The following are some of the best of the established varieties:—*Alba*, white; *Amaranth*, rich amaranth, the florets yellow at the base; *Aurantiaca*, orange-yellow; *Cervantesi*, orange-scarlet; *Coccinea*, bright-scarlet; *Lutea*, rich yellow; *Morning Star*, crimson-scarlet; *Mulberry*, rich maroon; *Painted Lady*, lilac-pink; *Paragon*, maroon, the florets evenly margined with magenta-purple; *Perfecta*, crimson-scarlet; *Scarlet Gem*, scarlet, and *Yellow Gem*, yellow.

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EVERLASTING FLOWERS FOR WINTER BOUQUETS.

EVERLASTINGS form such charming winter ornaments for the drawing room and the dining room sideboard that where floral decorations in the dwelling house are in constant request a good assortment should be grown. They are not perhaps of so much importance in gardens where the conveniences exist for the production of a constant succession of cut flowers throughout the winter months as in those in which the forcing pit has no place, but they should be grown according to individual requirements in gardens of all classes. With but little manipulation and the exercise of a fair degree of taste bouquets and baskets may be arranged that will add to the attractions of the most elaborately-decorated and splendidly-furnished drawing room, or brighten up in a remarkable manner the plainly-furnished cottage parlour as the case may be. Much more pleasing and elegant are the bouquets of everlastings than many of the so-called ornaments which too often have a place in the reception rooms of the middle-class villa, and considering with what little trouble and expense a good supply of flowers may be had, it is rather surprising that the ladies of the household do not see that a small breadth is set apart for the culture of a few of the choicer kinds. The cost of the seed is very small; so small in fact that a collection of twelve or twenty kinds could be had for a mere trifle, and the cultural details are of the simplest possible character. A few of the sorts may be grown entirely out of doors, and a small proportion require the shelter of glass; whilst others, and they are perhaps the majority, require the aid of glass during the early stages of growth only.

Generally speaking, the best course in the cultivation of everlastings specially for the supply of flowers for winter decorations is to sow early in March the seeds in pans or boxes, and place in a frame in which the warmth is sufficient to assist the seed to germinate within a reasonable time of the sowing being made; then in the case of those to be grown outside to prick off into other pans or boxes when sufficiently advanced, and harden off and in due course plant out. Those to be grown in pots should also be pricked off in precisely the same manner to economize space, which is usually very precious in March and April, and as soon as they are becoming crowded be put separately in three-inch pots. Those grown outside should be planted in a bed or border in the kitchen garden, or in some rather out-of-the-way position, in preference to putting them in a prominent part of the flower garden. The everlastings, it must be understood, are not so attractive during the summer season as a host of bedding and other flowering plants which are then at their best, and the blooms must, to have them in the best possible condition for bouquets and other decorations, be cut before they are fully expanded; therefore a portion only of the flowers will remain until they attain their full development, and the few that will be left will certainly appear to disadvantage in comparison with the phloxes, annual and perennial, zonal pelargoniums, asters, zinnias, and other subjects that could be mentioned. Those which can be grown successfully in the borders are not very particular as to the character of the soil, but like most other free-growing plants they make the most satisfactory progress in a soil that is rather rich and open. In most, if not all, cases it will suffice to apply a rather liberal dressing of some fertilizing agent such as well-rotted stable manure or leaf-mould a short time before putting out the plants. If the soil is naturally heavy a good dressing of river sand or road drift will be of service in keeping it open to allow the roots to run freely. The position selected must not be shaded or overhung with trees.

ACROCLINUM ROSEUM and ACROCLINUM ALBUM are both most desirable, for, unlike some others, they are eminently attractive when growing, and the flowers are most useful for winter decorations. They must have greenhouse culture, as they are not hardy enough to be grown outside. Sow the seed of these in pans, and as soon as the seedlings are large enough put them in small sixties, three in each, and when they are well established shift into five or six inch pots. Use a compost consisting of six parts of loam, two of manure, and one of sand. If no manure from the stable or hotbed is available use Clay's Fertilizer at the rate of a large double handful to a barrowful of soil. As this manure is of great strength, it is very important to add a very small proportion, and afterwards, if the plants require a little stimulation, a good pinch sprinkled over the surface of the soil and then pricked in will ensure a most vigorous growth. The plants can remain in the pit until they are coming into bloom and ready for the conservatory, or they can be taken to the greenhouse as soon as they are potted. The typical form, which bears flowers of a rich rosy purple colour, is the most useful of the two both for the conservatory and in a cut state.

AMMOBIUM ALATUM is a perennial and reputed hardy; but practically it is only half-hardy, and the greatest success will be obtained by growing it as an annual. The flowers are white, and from twelve to eighteen plants will furnish a sufficient supply for all ordinary purposes. The seed should be sown in a pan and the plants be pricked off into a box and be put out as soon as they are moderately strong. It is a good plan, when it can be done conveniently, to sow the seed in July, prick the seedlings off into a box as in the spring, and then winter them in a cold frame and plant out early in April. There is a very fine variety under the name of *A. alatum grandiflorum*, which has much larger flowers than the specific form, but as yet the seed is very much dearer.

HELICHRYSUMS form a most valuable group, and in some respects are to be preferred to any of the other subjects. They possess the advantages of being strong in growth and hardy in constitution, and they produce in great profusion flowers of large size and attractive in colouring. They are especially suitable for those who have no glass in their gardens, as a stock can be obtained by sowing the seed in the border. But owing to the importance of gathering the flowers before the summer is too far advanced, it is much better to raise the plants under glass when it can be conveniently done, and have them strong by the end of May. The seed should be sown in pans, and the seedlings be pricked off about two

and a half inches apart in shallow boxes, or on a bed in a cold frame. The soil with which the boxes are filled or the bed made up should be rather rich, to encourage a free growth. In planting them, lift with as little injury to the roots as possible, and put them in their place in the border as quickly as is consistent with the work being properly performed. It will be well to plant in moderately rich soil, and as they all grow rather strong the rows should be eighteen inches apart, and the plants from ten to twelve inches, according to the character of the soil. The most useful of the comparatively large numbers of forms in cultivation are the following:—*Helichrysium bracteatum*, light yellow; *H. bracteatum album*, white; *H. compositum roseum*, rose; *H. compositum luteum*, yellow; *H. compositum coccineum*, bright red; *H. compositum nanum atrocoeruleum*, crimson, and the white, yellow, golden, scarlet, and purple forms of *H. monstrosum*. The so-called scarlet-crimson and purple varieties are very effective and most desirable, although the colours do not approach in richness the purples, crimsons, and scarlets we have in the flowers of other classes of plants. It may be added that the helichrysums attain a height averaging two feet.

HELIPTERUMS produce flowers of great beauty. They are unfortunately too tender to be grown out of doors excepting in the south and west, and on warm soils in the midland and eastern counties. They will afford an ample return for any extra attention that may be bestowed upon them. The seed must be sown early in March in pans or pots, and when they are large enough to handle put those to be grown out of doors single in small sixties. The stock to be grown in pots should be put in large sixties, three plants in a pot, and be shifted into six-inch pots when they are well rooted. For the latter a compost similar to that recommended for the acrocliniums should be provided, and they ought to have a light and airy position in a pit or in the greenhouse. Those to be grown outside should have a warm sunny position, and be planted from ten to twelve inches apart. *Helipterum corymbiferum* and *H. Sandfordi* are the most desirable, and of the two the last-mentioned is the best known. One of the essential points in growing the helipterums out of doors is to have strong examples in readiness for planting in the second or third week of May.

POLYCOLYMNA STUARTI, although of less importance than some of the other things mentioned, is well worthy of attention. It has the advantage of being perfectly hardy and free in growth. It can be grown entirely out of doors with a full assurance of success by sowing the seed at the end of March or early in April, and it can be sown where the plants are to remain or in a nursery bed. The plants attain a height of about eighteen inches, and should be put about a foot apart each way.

RHODANTHES are in some respects the most attractive of all the everlastings that can be readily raised from seed, and are certainly the most useful for the decoration of the conservatory. They do best when out of doors in a warm sunny position and on a comparatively light soil. The beginning of April is soon enough to sow the seed, and to avoid the work of pricking or potting off fill a given number of small sixties with a light sandy mixture, and put about four seeds in each. When the plants are well above the surface remove all but the two strongest in each pot, and at the end of May plant out nine or ten inches apart each way without separating them. In raising a stock for the conservatory prepare as many five-inch pots as required by putting a few crocks in the bottom and filling with a light rich compost consisting of loam, manure, leaf-mould, and sand; sow about ten or twelve seeds in each pot, and lightly cover with a little fine soil. If the plants are wanted in bloom on an early date, the seed pots may be placed in a warm pit; but the seed will soon germinate and the plants come along freely in an unheated frame. In all cases they must be placed close to the glass, and have a moderate amount of air, because of their tendency to become drawn and weak. The best for pot culture is *Rhodanthe Manglesi*, and with *R. maculata* is well adapted for supplying cut flowers.

WAITZIAS require to be raised rather earlier than most of the others mentioned, for unless the plants are of a proper degree of strength to put out in the first or second week of May it will be impossible to obtain a full measure of success. *Waitzia acuminata*, yellow and purple; *W. aurea*, yellow, *W. corymbosa*, white and rose, and *W. grandiflora*, yellow; are the most desirable. They should be grown in precisely the same manner as the helichrysium.

XERANTHEMUMS should also be cultivated in the same way as the helichrysums, and it is not necessary to refer to details. They are of quick growth and robust habit, and range from two to three feet in height. The purple, white, and yellow forms of *Xeranthemum annuum* are all good. G. S.

STAINS FOR WOOD.—Of all methods yet invented for the purpose of covering, decorating, and preserving white woods, such for instance as pine and deal, when used for interior work, there is none to equal in simplicity, durability, and economy that of staining; using the cheap chemical fluids known as "Stephens's Stains for Wood." These preparations when applied on white woods do not conceal the natural grain, as paints would do. The grain of a piece of pine, as our readers are aware, bears a very close resemblance to that of walnut;—all that is required to make the resemblance complete is to give to the pine a durable transparent walnut colour, and that is just what staining not only professes to do, but actually accomplishes. The same remark applies to a piece of deal of bold grain when stained in imitation of mahogany or oak, and it would require a person well versed in the respective grains of the woods stained and those it is sought to imitate to distinguish the difference. Stains have for many years past been extensively used in the decoration of churches and other public buildings, and are now more especially employed in the artistic decoration of the better class of dwelling houses, the aesthetic taste of whose occupants enables them to appreciate at its proper value so natural and economical a mode of decoration. It is therefore with pleasure we learn that Mr. Stephens, whose name has been so long and intimately associated with "stains for wood," has received the Gold Medal at Adelaide for his well-known manufactures.

Calls at Nurseries.

MESSRS. J. VEITCH AND SONS', KINGS ROAD, CHELSEA.

For the many attractions afforded by Messrs. Veitch's immense establishment at Chelsea, those of special importance at the present moment are the orchids and amaryllis, of both of which there are now splendid displays. The collection of orchids, as is so well known, is alike remarkable for its extent, richness in varietal forms, and the splendid condition of the individual examples, and there is now an immense number of specimens in bloom, comprising not a few remarkable for their rarity and extreme beauty. The amaryllis represent almost a new feature, for although these magnificent flowers have received special attention at Chelsea for some years past, as exemplified by the splendid collections exhibited by the firm at South Kensington, in no season has there been such an effective display at any one time as at this moment.

The great increase in the extent and attractiveness of the collection of amaryllis is in a large measure due to the immense number of seedlings that are now flowering for the first time, and the higher quality of their flowers. The general effect is also considerably enhanced by the more perfect development of the flowers of varieties selected in previous years, in consequence of the increased vigour of the bulbs. It may perhaps be a matter of some interest to state that during the past five or six years Messrs. Veitch have devoted much time and labour to the improvement as well as the cultivation of the amaryllis, and have raised some thousands of seedlings. From the first the chief object they had in view, if we mistake not, was to raise a race of flowers that should combine effective colouring with large size and fine form. They aimed first of all, as shown by the earlier seedlings, at obtaining flowers of large size, smooth and even in outline, and then proceeded to take the necessary steps to obtain flowers of even higher quality, and rich and pure in colouring; and in this they have been remarkably successful. Those varieties which have been selected for naming have flowers of very large size, some of the largest measuring nearly nine inches in diameter; they are stout in texture, smooth and even in outline, and the colour, of whatever shade, is exceedingly pure. They have been particularly successful in eliminating, so to speak, the green colour which has been so great an objection in the flowers of most of the amaryllis of previous introduction; and in the chief of the new varieties it is confined to the base of the segments. In the two large structures devoted to these flowers there are between six and seven thousand plants of various ages, and of these about six hundred are either in bloom or show signs of flowering this season. A very considerable proportion of the stock consists of course of unbloomed seedlings ranging in age from one year upwards, and as they are the result of careful crosses a considerable number of splendid varieties may be expected to appear amongst them. Specially noteworthy amongst those in bloom were *Empress of India*, a grand variety, with flowers of immense size and exceptionally broad segments, the colour brilliant scarlet-crimson with white centre, and white stripe down the middle of the segments; *John Heal*, named by the Messrs. Veitch after their foreman who has charge of the department in which the amaryllis have a place, is a grand variety of the *Leopoldi* type, the flowers are of immense size and of a rich glowing crimson with broad white tips to the segments; *Jumbo*, deep crimson, very large and fine; *Rev. T. Staniforth*, magenta-crimson, very rich in colour; *Prince Leopold*, sanguineous crimson, superb in form; *Flametta*, brilliant scarlet, very effective; *Ajax*, deep brownish crimson, a distinct and effective flower; *James Douglas*, deep crimson, very large and fine; *Madame Antoinette Sterling*, magenta-crimson, with large white centre and greenish tips; *Firefly*, crimson-scarlet, bright and effective; *Novelty*, creamy white veined with rosy purple; *Royal Standard*, deep crimson with white tips; *The Siren*, vermilion; *Sybil*, crimson with white tips; *Alice Gair*, brilliant crimson-scarlet; *Grand Sultan*, rich crimson with white band and white breaking through at the lower part of the segments; *Clio*, orange-red, a distinct and effective shade of colour; *Sir G. Wolseley*, rich crimson suffused with scarlet; *Brilliant*, bright scarlet, a very effectively-coloured flower of medium size, and *Duchess of Connaught*, pure white and a great improvement upon the other white varieties.

Amongst the orchids claiming special notice were—*Cypripedium marmorophyllum*, a superb new hybrid with large flowers, the labellum and petals purple, and the sepals greenish veined with rose, the foliage very beautifully variegated; *C. porphyreum*, a beautiful hybrid, with bright rosy pink flowers; *Lælia flammea*, a brilliantly-coloured hybrid, the sepals and petals bright nankeen, the labellum yellow with large purple blotch; *Dendrobium splendissimum*, a handsome hybrid, the flowers rose, with maroon blotch on the labellum; *Angraecum citratum*, of this elegant little species there were large numbers of specimens bearing splendidly-developed spikes; *Odontoglossum Alexandræ*, *O. triumphans*, *O. luteo-purpureum*, *O. cirrhosum*, *O. Cervantesi*, *Dendrobium crassinode*, *D. Wardi*, *Phalænopsis Schilleriana*, and *Cattleya Trianae* were also represented by a very large number of flowering specimens. The rare and remarkably distinct *Phalænopsis Stuartiana* was in bloom, and forcibly demonstrated its wondrous beauty, and the beautiful *Dendrobium Ainsworthi* was especially good, as also was the charming *D. endocharis*.

In the structures devoted to plants of recent introduction there is much to interest cultivators, and owing to the care and judgment evinced by the firm in the selection of novelties for distribution, the new plants are all well worthy of attention. In an intermediate house devoted to the fine series of rhododendrons raised at Chelsea, of which *Taylori* is a well-known type, were two new forms of the highest excellence. These were *Maiden's Blush*, an exquisitely beautiful variety, bearing finely-formed flowers of a pleasing blush-pink colour, with creamy white centre and tube, and *Queen Victoria*, a striking variety bearing flowers of the finest form and of an orange-buff colour, with yellow tube. In an adjoining structure the large stocks of *Asparagus plumosus nanus* and *A. tenuissimus*, which will be distributed in the course of the ensuing season, were conspicuous. The first mentioned, as indicated by its name, is a dwarf form of the well-known *A. plumosus*, and is so exquisitely beautiful that it would be no easy task to overpraise it. For furnishing sprays for intermixing with flowers in a cut state it is not less useful than the specific form, and, owing to its compact

yet elegant habit, it forms when established in five-inch pots one of the finest table plants we have. *A. tenuissimus* is of scandent habit, very light and elegant in growth, forms fine specimens, and is of great value in a cut state for floral decorations. It may be mentioned that the sprays are remarkable not less for the length of time they retain their freshness than for their elegance, and those of *A. plumosus nanus* will stand for fully three weeks. Prominent amongst the new plants with coloured leafage were *Croton Brageanus* and *C. Cronstadii*, two narrow-leaved forms that will eventually take a high place in the estimation of cultivators. *C. Brageanus* has long flat leaves about one and a half inches in width, and from fifteen to twenty inches in length; these have a rich rosy red margin and midrib, and are marbled with yellow on a deep green ground. *C. Cronstadii* has leaves about an inch in width, and fifteen inches in length, somewhat spiral, and very gracefully drooping, and the upper surface is richly variegated with golden yellow on a deep green ground, the under surface suffused with deep purplish red. After the plants have become well established, and attained a height of twelve or fifteen inches, the young leaves become almost entirely yellow, and the effect is exceedingly good. As it is very neat in habit and does not run up so quickly as many other of the narrow-leaved varieties, it will prove of immense value for the dinner table, for in richness of colouring and graceful outline it is unsurpassed.

MR. W. J. EPPS'S PEAT STORES AT RINGWOOD.

It is now some years since that Mr. W. J. Epps, who was formerly a nurseryman at Maidstone, and latterly a landscape gardener at Lewisham, was led to turn his attention to the subject of peat. In the course of his practical work as a nurseryman, he found that the peat he had to use for his plants was not of a nature suited to their requirements, and this led him to seek for sources from which could be drawn peat worthy of the name, and also suitable for various classes of plants. In this search, Mr. Epps brought to bear on the subject an intimate knowledge and practical experience of soils and their properties. To his knowledge of floriculture he had added that of chemistry, and these acquirements in combination led to the discovery that there are various kinds of peat, some unsuitable for plant growing. Mr. Epps finds the best to be that formed from the decomposition of bracken or fern fronds, which have grown in old plantations of Scotch fir; this peat having a sharp, sandy, shattery, and gravelly subsoil, well drained by nature. This kind of peat never becomes sodden or sour, and is unlike that which is collected from swamps, old heaths, commons, and moors, which abounds in all kinds of mosses and lichens, engendering fungus, mildew, and disease.

The value of good healthy peat can hardly be over-estimated by gardeners, as in peat taken from the lands just described there is an injurious property which takes the form of disease, having the appearance of a thick whitewash or mortar, sprinkled over the surface roots and base of the stems of the plants that grow in it; causing canker and premature decay. This disease may be observed in passing over commons and places covered with heather. Such peat as this Mr. Epps carefully avoids: he knows too well how injurious it is; for some thirty years since he, when in business as a nurseryman at Maidstone, lost a large quantity of young and valuable specimens of heaths, azaleas, and the like, through potting in peat of this nature, and that has made him very careful indeed in selecting such as is quite free from the germs of disease.

In the Ringwood district there are immense tracts of peat land; and having personally explored some portions of these, and witnessed the care with which the peat is selected and dug, I can bear testimony to the exertions put forth to secure only the very best material.

There are different qualities of peat. First comes orchid peat: this is of the finest quality, and has to be sought for with much diligence. The men who go forth to dig it pursue their responsible avocation with great care and with commendable judgment. Orchid peat is of a light fibrous texture—indeed, nothing but fibre. It may be said to be composed almost wholly of decomposed bracken roots and stems, and it can be found only in favourable districts on gravelly and sandy subsoils, and after being stacked for a time and mellowed by keeping, and rendered fit for potting, it is when picked to pieces like a handful of shag tobacco. For ericas and plants of a like character peat of a closer texture is required, with a fair amount of sand in it. For camellias a still more holding material is required, but divested of some of the sand. *Rhododendron* peat, which is the commonest of peat, is of a closer texture, and how well it suits this class of plants is seen by the freedom with which the plants grow in plantations, &c., where this peat abounds in the Ringwood district. The plants grow vigorously, flower profusely, and shed their seeds in autumn, which, falling on the soil round the plants, spring up and produce hundreds of seedling plants for furnishing plantations in spring. The staple part of good peat is decomposed bracken and the leaves of the Scotch fir.

Peat being a great absorbent of water, in a wet state weighs nearly one-third more, especially when black sandy soil is incorporated with it. It is therefore the practice to sell it by the cubic yard or load rather than by weight; and in order that when peat is despatched there should be the maximum quantity with the minimum weight, Mr. Epps has built commodious peat stores at Ringwood station, in the form of sheds roofed over at the top but open at the sides, so that air can circulate freely. Here the peat is stacked, 500 tons or so at a time, the advantage being that it can always be despatched in a perfectly dry state. These stores are always kept filled with peat, carted there in dry and seasonable weather, and therefore capable of being loaded in a good and satisfactory condition at any season of the year. For the convenience of customers in the neighbourhood of London requiring small quantities only, a supply of peat is kept at the Vauxhall station of the London and South-Western Railway.

R. DEAN.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7s. 6d. and 1s. 1d., labelled, "JAMES EPPS AND CO., Homeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

Replies to Queries.

W. B.—The Gros Maroc grape will answer your purpose, as it is a fine black variety and keeps well.

J. T. and Others.—Seed of the Lyon Leek is offered by Messrs. Stuart, Mein, and Allan, Kelso, N.B.

G. F., Ipswich.—The "Improved" sorts are ignored, because they belong to the region of bogus.

Potatoes for Cold Soil.—Ipswich.—Try Magnum Bonum, Scotch Champion, and Covent Garden Perfection. Plant on the surface and mould up in a ridge.

Planting Potatoes.—T. J. M.—Large sets may be divided with advantage when planted. If cut some time in advance, they do not make so good a crop.

Asparagus.—J. S. S.—The bed should be remade and liberally manured, and sown again. It is now pretty generally considered that salt is of small importance in the cultivation of asparagus.

Supply Pipe of Boiler.—C. P.—The proper place for the supply pipe to enter the boiler is within a few inches of the bottom, but it will answer very well when it is connected with the return pipe as in your case.

I. H.—The flower had lost its freshness when it reached us, and we thought it scarcely worth keeping, except to breed from as the possible founder of a new race.

Roses.—Case.—The following are excellent garden roses:—Alfred K. Williams, Anna Alexieff, Beauty of Waltham, Devoniensis, Dr. Andry, Duchess of Sutherland, John Hopper, Jules Margottin, Madame Boll, Marquise de Castellane, Queen of Bedders, and Souvenir de la Mal. maison.

Early Tulips.—J. C. Y.—The two tulips you inquire about are the Rose Van Thol, of which the flowers are nearly white when developed in the forcing pit, and the Scarlet Van Thol, which has flowers of the colour indicated by its name.

Moss on Lawns.—Finch.—You cannot do better than apply at once a dressing of superphosphate of lime at the rate of 3 lb. or 4 lb. to the square rod. This fertilizer will serve the double purpose of checking the moss and promoting the growth of the grass. A second dressing at a similar rate may be applied five or six weeks hence.

Rod of Ground.—G. T.—The rod and the rood are often confounded. Hence the propriety of calling a rod a perch or a pole. There are 160 rods, perches, or poles, in one acre of land. Therefore, as an acre contains 4,840 square yards, a pole or perch must contain 30½ square yards. Whatever the length of each side of a parallelogram, the two measures multiplied must make 30½ to represent a pole. In linear measure 5½ yards make a pole.

Selection of Apples.—J. T.—It is not easy to name the best six kitchen and table apples, but the following are undoubtedly first rate in every way. *For Kitchen:* Beauty of Kent, Ecklinville Seedling, Kentish Fillbasket, Lord Suffield, Wellington, Yorkshire Greening. *For Dessert:* Cox's Orange Pippin, Fearn's Pippin, Court Pendu Plat, Red Astrachan, Ribston Pippin, Worcester Pearmain. A list of the best fifty, forming a fine collection, will be found at page 131 of this year's *Garden Oracle*.

Kainit.—W. T.—This substance is valued for the large proportion of potash it contains, and it is usual to mix it with superphosphate of lime as manure for potatoes. The mixture used on sandy soil, at the rate of five cwt. per acre, is found to give a good return. On heavy land it is less needed than on sand, but on land that has been much cropped it may be used advantageously. Probably in your case three cwt. per acre will suffice. It should be remembered that soluble fertilizers answer best used little and often, for it is easy to waste them.

Names of Plants.—S. P.—1, *Carmichaelia australis*, a greenhouse evergreen shrub, flowers blue; 2, *Calothamnus sanguinea*, greenhouse shrub, flowers scarlet; 3, *Goodia* species, not known under your specific name, a very pretty little greenhouse shrub bearing yellow flowers; 4, *Edwardsia grandiflora*, a free-growing shrub allied to *sophora*, nearly hardy, flowers yellow. J. Roberts.—1, *Ostrya vulgaris*; 2, *Paullinia hispida*; 3, *Lagerstrœmia parviflora*; 4, *Lafœnsia microphylla*. P. P.—The *Menziesia* is a genus of ericaceous plants. Your inquiry appears to relate to a coniferous tree called *Abies Menziesii*. If you send a bit of either we will dispose of the question for you. The merest scrap will suffice.

Books.—E. E.—The best general work of limited range on the treatment of tender plants is the "Amateurs' Greenhouse," published by Groombridge price 6s. The best treatise on grape vineries is that by W. Thomson, published by Blackwood, price 5s. J. R. B.—The best edition of Kirby and Spence is in four volumes 8vo. The one-volume edition is without the plates. Sweet's "British Flower Garden" consists in all of seven volumes large octavo, and is sufficiently indexed. All London's books are obtainable. For general use at your country place the "Amateur's Kitchen Garden," price 6s., will be found sufficient, and any bookseller can obtain it for you. We do not supply books or engage in trade in any way whatever. S. Phillips.—Hooker's "Journal of a Tour in Iceland," 1813. Lecture on Iceland, by C. G. W. Lock, *Society of Arts Journal*, April 30, 1880. S. J. Mullen.—A work on the London Parks by a gardener, N. Cole, is published at 171, Fleet Street. A. B. C.—The "Amateur's Greenhouse," price 6s.

Forming Lawn.—Young Gardener.—The ground should for the purpose mentioned be oblong in form, the length and breadth to be determined by the space available. The surface must be free from irregularities, and the proper level can be very easily obtained with the aid of a few short stakes, a strip of deal with perfectly straight edges and twelve feet or so in length, and a small spirit level. You must first drive one of the pegs into the ground to the desired level, and at a distance of eleven feet if the straight edge is of the length mentioned, a second peg must be driven until perfectly level with the first: to ascertain when this is the case rest the ends of the strip of deal on the two pegs, and place the spirit level near the middle, and raise or lower the second peg until the bubble of the level is in the centre of the tube. A third peg must then be fixed at a distance from the second similar to that of the second from the first, and made level with it, and the process repeated until the whole length and breadth has been levelled. If the ground is higher at one end than the other, you should as far as possible take for the starting point a level that will enable you, when the levels are finally determined, to make good the deficiency at the lower end with the soil from the higher end. In like manner, hollows should be filled with the

soil from the higher parts. After the ground has been levelled it should be carefully dug over and the surface made perfectly smooth, and be either sown down with grass seeds or turfed over. A good sward may be very quickly obtained from grass seeds, but the ground cannot be played upon so soon as when turf is laid down. Three bushels of seed per acre is the proper quantity to use, and it should consist exclusively of grass seeds, as clovers are more susceptible to injury from the feet than the grasses. Any of the seedsmen who deal in grass seeds will supply you with a suitable mixture if you state the purpose for which it is required and the character of the soil on which it is to be sown.

Correspondence.

INTERPRETATION OF SCHEDULES.

YOUR reply to Mr. Hooson at page 83 will, I have no doubt, prove extremely useful. If two varieties of a species are admissible, it is, as you say, sufficient to say so, and the schedule should carefully abstain from any attempt to explain what is the meaning of the term species. If the learned men cannot agree, how should the gardeners be expected to have clear and unchangeable ideas on the subject? I remember our Editor's lecture on pelargoniums at South Kensington, when he concluded by asking, "What is a species?" and then replied, "I really do not know," made an end of his discourse, and resumed his seat. The meaning is clear, you say, provided that two varieties of a species are to be invited. But you further say that something better may be done than to invite two varieties of a species, and that something better consists in inviting two species or varieties of a genus. If two of a species are allowable, as in the rule quoted from the Elland schedule, then I may put up a host, say, of acacias, or heaths, or, as you say, of begonias; and if I can show that they rank as species I am within the law, and yet perhaps my plants are so nearly alike that I do more harm than good by showing them in a class intended for mixtures. But if you enlarge the rule and demand the representation of genera, I can only show two acacias, or two heaths, or two begonias, or two dipladenias, ixoras, or what else. We have transformed a bad rule into a good one, and I would word it thus, "Collection of ten stove or greenhouse plants in bloom, all distinct, and not more than two of any one genus." We do not want nearly allied species; we do not want to be enthralled by the question, What is a species? In respect of What is a genus? there is no such formidable difficulty: there are no such fine lines to divide, and no such fancies to perplex us.

R. W. P.

In regard to the interpretation of schedules, there is one matter I would take the liberty of referring to you. Very often an item like this occurs in a schedule—"12 Hyacinths, distinct varieties." Some people hold that 12 distinct varieties must be staged; others that the 12 refers to "hyacinths," and not to "varieties"; and therefore any one who stages two or more varieties is in keeping with the schedule; the phrase "distinct varieties" being indefinite.

Paisley Horticultural Society.

ROBERT MACFIE.

[If such a rule is intended to provide that the hyacinths are to be distinct, it can be very easily amended. We have but to say, "12 hyacinths in 12 distinct varieties," or "12 hyacinths in 6 distinct varieties" as the case may be. In most cases it is an advantage to have them shown in pairs, and then the second form of the rule suffices.—ED. G. M.]

Literature.

Household Boiler Explosions, their Cause and Prevention. By W. INGHAM. (Lockwood and Co.)—A very good engineer's statement of the case, with a proposal for a two-cistern arrangement to supply the house generally as well as the bath room, the boiler being as usual in the rear of the kitchen fire. It is of importance that builders should master the details of this pamphlet, and give the householders they provide for the advantage of safety with convenience.

Ladies' Gazette of Fashion. (4, Ave Maria Lane.)—This elegant work has always some feature that will continue to interest when the fashions it so ably represents have become obsolete. In the March number are admirable essays on marriages, home employments, and the progress of the arts. Of the fashion plates and the fashions we have nothing to say, and feel inclined to boast of our utter incompetency.

INTERNATIONAL POTATO EXHIBITION.

BALANCE SHEET, 1881.

Dr.	£ s. d.	Cr.	£ s. d.
To balance year preceding	51 5 8	Prizes paid, luncheon, and miscellaneous expenses	
Subscriptions, special prizes, entrance fees, &c.	182 2 3	incidental to exhibition	174 13 0
Subscriptions due	20 3 0	Printing	6 0 0
		Advertising	8 5 0
		Carriage of parcels, postage, office, travelling and other expenses	16 7 3
		Judges' expenses	4 0 6
		Balance	44 5 2
	£253 10 11		£253 10 11

Obituary.

RECENTLY Mr. FANCOURT, some years foreman to Messrs. Cutbush and Son, Highgate, and Barnet, and Messrs. Osborn and Sons, Fulham. Recently, at Oakley, near Bedford, Mr. MCKAY, many years gardener at Woburn Abbey, in his 71st year.

LAMPLOUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sea or Bilious Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff-coloured wrapper. 113, Holborn, London.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avrg. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sunths after Noon.	Sets.	Rises. Morn.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
12	S	3rd Sunday in Lent. (Last Quarter.	6 23	9 52	5 57	1 20	9 37	6 3	6 25	3 7	3 28	42.1	Adonis vernalis, H. Yellow.	71
13	M	[9h. 25m. after.	6 21	9 36	5 53	2 17	10 35	6 52	7 20	3 59	4 17	42.2	Arabis albidia, H. White.	72
14	Tu	Victor Emmanuel, King of Italy, born, 1820.	6 18	9 19	6 0	3 5	11 45	7 55	8 35	4 45	5 20	42.3	Camellia Elvira Bianchini, G. Rose & White.	73
15	W	Earl St. Vincent died, 1823.	6 16	9 2	6 2	3 45	After.	9 23	10 12	6 0	6 43	42.4	Correa Harrisl. G. Scarlet.	74
16	Th	Duchess of Kent died, 1861.	6 13	8 45	6 4	4 18	2 22	10 55	11 33	7 37	8 29	42.6	Eriostemon pulchellus, G. ... White.	75
17	F	St. Patrick.	6 11	8 27	6 6	4 48	3 47	—	0 7	8 58	9 32	42.7	Franciscea confertiflora, S. ... Blue.	76
18	S	Princess Louise born, 1848.	6 9	8 10	6 8	5 13	5 12	0 35	1 2	10 0	10 27	42.8	Scutellaria Mociniana, S. ... Scarlet & Yellow.	77

The Gardeners' Magazine.

SATURDAY, MARCH 11, 1882.

UBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (28 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, MARCH 14.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

THURSDAY, MARCH 16.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

Auction Sales for the Ensuing Week.

TUESDAY, MARCH 14, at 4.0 p.m.—Messrs. Winterton, Beale, and Houlston, at the Saracen's Head, Burton-on-Trent; Lease of The Forge Nurseries, Winshill.

WEDNESDAY, MARCH 15, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

THURSDAY, MARCH 16, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, MARCH 18, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THE STANDARD OF QUALITY IN FLOWERS is of necessity liable to variation in common with all other standards that are subject to the influences of taste and fashion. But the variation is circumscribed by considerations that have a kind of mathematical value, and therefore those who are fairly familiar with first principles do not need to depend on their own whims and fancies when required to pass judgment on new flowers. Standards of weight and measure are provided with great care by governments under the guidance of philosophers; but standards of floral beauty are in the keeping of the foremost horticulturists, and the law of the land does not control their judgments or visit them with penalties for mistakes. It is a free country, and we may certificate weeds and ignore good things, and encourage the diffusion of floral rubbish, and no one dare interfere except by way of "protest," or "criticism," or "repudiation," as the case may demand or as discretion may dictate. For some time past, so it seems to us, we have been drifting into a sea where the tides are always falling, the winds always contrary, and the waves always of such a chopping nature that the best helmsman ever known must fail in the endeavour to reach a port in which even the shadow of comfort may be found. The sea should be named, because it has not yet been defined on the maps, and it is so full of dangers that we must warn the florists to be well prepared when they embark upon it. The æsthetic map of the world—whenever it is produced—should note the existence of this sea, and should label it THE INDEFINABLE WASHING-TUB OF DECORATIVE FLOWERS. A sea and a washing-tub agree in this, that either may be just as large as you can make them. Certain of our friends, who ought to know better, appear to be very anxious to construct a washing-tub big enough for all the good florists' flowers to sink to the bottom, while all the trashy weeds to which they are related—as pawnbrokers may be related to princes—float on the top and first attract attention. In the playing of a pantomime, the player smothered with Dutch metal above, and showing a plump legibility of legs below, will take attention from the really clever girl who disports herself as a heroine with elegance, and makes her robes amenable to her assumption of modest diffidence. So, in the competition of novelties in the floral world, a bit of colour, though manifested in rags, very often carries plaudits against flowers of form, and thus against centuries of floral work, scientifically directed, is set the wonder of a weed that began its

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career with old Father Adam, and has never budged an inch from its weediness from that day to this.

The exhibitions of the present season will illustrate the growing tendency of mere weeds to usurp the places of florists' flowers. We would hail them with gladness if we thought them the more beautiful. It would be a real comfort to all of us if we could regard either Senecio vulgaris or Senecio cruentus as far surpassing in beauty the finest varieties of the florists' cinerarias. But as we cannot, we must advise all actual and possible censors to be on guard against the intrusion into the market, by their aid and unintended connivance, of a lot of trash that they themselves will be ashamed of, and that they will perhaps go so far as to curse certain journalists for encouraging. As regards cinerarias, however, we have really nothing to say, and have nothing particular on our minds. Our anxiety is that weedy things will obtain encouragement as "Decorative," which, even from the broadest decorative view, ought to be ignored at least, but if possible destroyed, just as we would, if we could, destroy every diseased potato.

A very noticeable tendency of taste in certain quarters is shown in the certifying of plants and flowers of very questionable value as "decorative." It occurs to us sometimes to believe, or at least to fear, that the sweepings of the gardens in which cinerarias, pelargoniums, azaleas, roses, and some less important subjects, are raised, are put into commerce under illegitimate auspices, as though the term "Decorative" would cover any number of sins. In the infancy of a flower no one knows its capabilities, and every slight advance is valued; but when great advances have been made it is a violation of the canons of floriculture to stride back towards the wild forms, and make pretence that real beauty has been at last discovered in the seedlings that sound taste would discard as rubbish. We remember seeing a man who had never tasted a good fruit in his life go into raptures in munching some windfalls in an orchard. But in the midst of his raptures he bit a juicy pear in which a wasp was just then busy, and he roared with agony because suddenly stung in the mouth. The experts who were then present had not tasted the damaged windfalls, and they were free to criticise the novice. In the case of fruits official judgments are generally sound, but in respect of flowers we fear that soundness has been in some degree undermined by the fashionable folly of recognizing weeds as garden flowers; and so certificates are likely to go to mere windfalls, and those who attempt to swallow them may suffer for their indiscretion.

The season of novelties has returned. Will the growing folly return with it? Shall we accept as decorative the sweepings of the seed bed, and put absolute ugliness before the elegance, the finish, the substance, the enduring contour and quality of genuine florists' flowers? We do not "pause for a reply," and we are prepared to leave the question open. But it may obtain consideration, for there is a little artistic sanity in the world even now.

INSECTS INJURIOUS TO FARM AND GARDEN CROPS continue to receive the attentions of Miss E. A. Ormerod, of Isleworth, whose report for the year 1881* is now before us. It is of greater bulk than usual, owing to the incorporation with it of a special report on Turnip Fly, which fills sixty pages, and is perhaps the most comprehensive practical paper on the subject extant. The general report comprises notes on the bean aphid or dolphin, the beet fly, the cabbage butterfly, the carrot fly, the celery fly, the daddy long-legs or leather jacket, the wireworm, the gooseberry sawfly, the onion fly, the pea weevil, the pine beetle, and several of the most persistent insect destroyers of our grain crops. We learn from the introduction that the year 1881 was "a season of severe insect attack, especially to root crops and some kinds of forest trees. Turnip fly attack was little short of a scourge over a large part of England and Scotland, and in the north of Scotland, where fly was comparatively absent, a small weevil bore down on the crop in its place; whilst in the south of Scotland it devastated in addition in a part of the attacked area." Cabbage, beet, onions, peas, beans, hops, and gooseberry and currant bushes were in many places very seriously damaged by insects. The loss of a bean crop at Maldon was estimated at a money value of £1 per acre. The loss of beet at Silloth, Cumberland, was reckoned to average from three to ten tons per acre. The loss on forty acres of wheat at Baldock, Herts,

* Published by W. Swan Sonnenschein and Co., Paternoster Row, price 1s. 6d.

by daddy longlegs, was estimated at £100. The loss of wheat by maggot at Tewkesbury, in three years out of four, amounted to fifteen bushels per acre on nearly fifty acres. The loss on twenty acres of white peas near Stevenage through pea weevil is estimated at £40. In many instances the loss on turnips and turnip seed consequent on insect attacks has ranged from £2 to £5 per acre. Thus it will be understood that the insects that prey on the crops reduce the produce of the land, and consequently the wealth of the nation, not by pounds, not even by hundreds or thousands of pounds, but by millions, and it is beyond the power of man to make an estimate of the total annual cost of caterpillars, weevils, sawflies, leather jackets, and aphides.

The fact that every season brings its own batch of insect plagues, and that any particular scarcity of one kind is generally compensated by the abundance of some other, tells but too surely the melancholy truth that man is comparatively powerless against these minute marauders, the very weakness of which appears to serve them for defence against all enemies. What an utterly helpless thing is an aphid! a touch destroys it, and it has no power of defence or escape. And yet it can sweep a field bare of crops worth any amount of money, and the owner can do little more than look on as his prospect of gain, as the result of hard toil, shrinks away and a withering plant tells that the gain is gone and the loss is manifested.

That we are not entirely at the mercy of these minute pests is within the experience of every practical man, and is amply illustrated in the admirable reports of Miss Ormerod. There is one lesson taught by these reports almost page by page. And the lesson is that *good cultivation* is the first, the best, the most lasting, and the cheapest preventive of damage by insects, as well as by disease and adverse climatal conditions. To say that "good cultivation" includes something more than sowing and reaping is not enough, for it should be said to include not only the best routine management of a crop, but fertility of invention in respect of all extraordinary events that may influence its progress. Let us take for example the leather jacket, and observe first that its peculiar mode of assailing a plant is so wasteful and destructive that if we simply fold our hands and look on the field will be cleared, and we may plough and sow again and faintly hope for better luck next time. But good cultivation does not consist in looking on except to derive means for remedial action. The leather jacket comes forth at dusk and feeds during the night, nibbling through the stem of the plant, so that on the morrow it will droop and the next day die. Thus at a certain time the destroyer comes within our grasp. It may be possible to roll the land when the moon shines, and the process may crush the enemy by millions, and perhaps do the plant more good than harm. Or it may be possible to sweep the grubs into heaps and then pickle them with salt, which is a sure destroyer, but can only be employed when the killing is done by a wholesale method; for, generally speaking, to scatter salt amongst growing crops would be no less injurious than the insects it was intended to destroy. Such proceedings we consider to be included in the term "good cultivation." But there are preventives and remedies of a more occult nature that have been discovered by direct experiment, and the relation of these constitutes a very important feature of Miss Ormerod's labours. The most acute and constant observer cannot be expected to discover everything for himself, and it is of the greatest importance therefore that attention should be given to all the positive ends that have been accomplished by our lady adviser and her many assisting friends.

Mr. J. HALL has left Holly Lodge, Highgate, to take charge of the gardens of Shobdon Court, Leominster, the seat of Lord Bateman.

THE FAUNA AND FLORA OF THE RED SEA are being explored by Professor Keller of Zurich.

WEST OF SCOTLAND PANSY SOCIETY will hold its annual exhibition in the City Hall, Glasgow, on Wednesday, July 26.

BURTON-ON-TRENT HORTICULTURAL SOCIETY.—The exhibition of this society will be held on Wednesday June 21, and Wednesday, August 23.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY will hold its annual exhibition on Friday, July 7, in the Great Hall and adjoining grounds.

MR. FRISBY, who has occupied the position of gardener and forester at Blankney upwards of thirty years, has retired on a liberal pension, and is succeeded by Mr. W. Davies of Trentham.

HULL BOTANIC GARDENS.—The curatorship, rendered vacant by the death of Mr Niven, has been filled by the appointment thereto of Mr. Philip MacMahon, formerly of the Royal Gardens, Kew.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT SOCIETY has now invested the sum of £2,161 12s. 6d.; and as the number of members increases this good nest egg will grow. The secretary is Mr. McElroy, The Gardens, Moray Lodge, Campden Hill, Kensington.

THE WHITSUN SHOW AT MANCHESTER is provided for by the usual liberal schedule, which has attractions for all classes of exhibitors. The classes number 77 in all, and they are nearly equally divided between amateurs and nurseryman. The exhibition will open May 26, and continue until June 2.

TABLE DECORATION IN EXCELSIS.—According to the *Engineer*, Messrs. Osler, glass manufacturers, have just completed a remarkable centre ornament for the table of the King of Siam. It consists of a large sheet of glass 56 feet in length, silvered after the fashion of the day, so as to look like a crystal lake, and so arranged that it can be bordered by plants or bouquets of cut flowers. Ornamental temples, fountains, flower baskets, &c., all of cut glass, are placed on it, and at intervals are the royal arms beautifully engraved on raised plates of the same material.

A FIG FOR THE EVOLUTIONISTS may be seen at the present time in the Holloway Nurseries of Mr. B. S. Williams. It is indeed not a fig, but it will answer the purpose. A plant bearing the uncouth name of *Oelma* produces yellow flowers of a commonplace type, but when these fall the top of the flower stem, or thalamus, swells to the size of a plum, but with fine distinct angles, and of a brilliant crimson colour. But there is, after all, nothing really new in this curiosity. What is an apple or a pear but a swollen thalamus? It has been said a hundred times that a strawberry is a "swollen receptacle," which is just the same thing.

WALL FRUIT TREES are showing an intention to resume business for the season, and we rejoice to say that generally speaking they look well, and only want favourable weather to do well. We have seen many apricots in flower in the south, and peaches and nectarines are following closely. In fact, wall trees of all kinds are on the move, and any severe conditions that now occur will tell upon them disastrously. Copings and nets will do wonders now to help them along without any forcing effect, which should never be attempted unless it can be sustained, and therefore close shelters should as far as possible be avoided. Driving rain and snow will do more harm than a little dry frost, but we shall do better now without frost than with it.

THE TESTIMONIAL TO MR. JAMES CLARK, the raiser of Magnum Bonum potato, is proposed by his immediate friends and neighbours, who fully understand his position as well as his merits. Mr. Clark has embarked largely in raising seedling potatoes, and last year his seedling crops, covering some acres of ground, were destroyed by the long-continued rains. For the general public this destruction may be described as a decided gain, for it sweeps out of the way seedlings unequal to the strain that sorts put into commerce must some time or other be subjected to. On the other hand, those that survive it have passed through the very ordeal that is needed as proof of disease-resisting power. But while the public are thus indirectly benefited the loss to Mr. Clark is immense, for the systematic raising of seedlings is a laborious business, and the destruction of the crop gives Mr. Clark a claim on our generous consideration. Had he grown only his own well-proved sorts, such as Magnum Bonum, Covent Garden Perfection, and Pride of the Market, the proposed testimonial would not have been needed. Any sums sent to us will be at once forwarded. The treasurers to the fund are Messrs. Frampton and Son, Highcliffe, Christchurch, Hants.

NEW VARIETIES OF POTATOES are provided for in various ways in the new schedule of the International Exhibition to be held at the Crystal Palace, September 20 and 21. Class O provides a series of prizes for the best dish of any variety not sent out to the public before the season of 1882 (which includes of course the autumn of 1881). Prizes to the amount of £5 are offered by Messrs. Hooper and Co. in this class. A series of classes—P, Q, R, S—have been instituted for Certificated Seedlings of any of the four principal divisions—W. K., C. K., W. R., and C. R. It is important for intending competitors to observe carefully the conditions. In the first instance samples must be sent to Mr. A. F. Barron, Royal Horticultural Gardens, Chiswick, in time for him to grow them with the trial crops of the season, and the secretary of the exhibition should also have a note of them, that they may obtain official attention while growing at Chiswick. At the exhibition, September 20 and 21, there should be placed on the table dishes of nine tubers, and an extra parcel of six for cooking of each competing sort. The judges will have regard to the report on growth and cropping from Chiswick, on table quality from the tasting committee, and they will have dishes of nine each of exhibition samples before them to aid in their final decisions. The prize of £1 for each of these seedling classes may be considered nominal, but the test employed will afford such ample guarantees to the public that the amount of the money will be to all concerned a matter of the smallest consequence.

ROYAL HORTICULTURAL SOCIETY.—In consequence of the great interest taken by visitors in the exhibitions of implements and garden structures held in conjunction with the summer shows at South Kensington, the Council have arranged to hold this year an exhibition of implements from May 23 to July 5. The schedule of arrangements comprises the following classes:—1. Modes of heating a small conservatory attached to a dwelling. 2. Boilers heating 500 feet of 4-inch piping with or without brick-work. 3. Hot-water piping: Modes of fixing and fitting the same, valves, &c. 4. Plant house, vinery or orchard house, span-roofed or otherwise, not exceeding 50 feet in length. 5. Moveable plant pits or frames. 6. Improvements in glazing, ventilation, &c. 7. Decorations for conservatories, ornamental flooring, flower stands, vases, &c. 8. Hand mowers. 9. Horse mowing machines, to cut not less than 30 inches. (All lawn mowers entered for competition to be tried in the gardens.) 10. Wire work. 11. Garden pottery, edging tiles, &c. 12. Garden seats, chairs, &c. 13. Garden engines, syringes, &c. 14. Garden tenting, shading materials, &c. 15. Complete set of lawn tennis apparatus. 16. Miscellaneous subjects not included in any of the classes. 17. Garden cutlery. 18. Garden tools, spades, rakes, hoes, barrows, &c. 19. Meteorological instruments. 20. Plant guards and supports, flower stakes, labels, &c. Silver and bronze medals will be awarded in the several classes, certificates of merit will be conferred upon special novelties approved by the judges, and one or more gold medals will be awarded by the Council for the most meritorious general displays. Entries must be sent in on or before May 13 to Mr. Barron, from whom the regulations and entry forms may be obtained.

CONSTRUCTION OF HORTICULTURAL BUILDINGS.

By F. A. FAWKES, F.R.H.S., Author of "Horticultural Buildings Illustrated."

First of a series of Lectures delivered before the Crystal Palace Schools of Landscape Gardening and Practical Horticulture.

(Continued from page 105.)

HAVING cursorily gone over the different forms of houses, we will analyze some of the details of construction, but before doing so there is an intermediate point which claims attention, and that is—the site. First see that trees or other objects are not likely to obstruct the sun's rays, and thus neutralize the advantages of your glasshouses. Then see if your ground is level. If it is not, ascertain the extent of the fall. If the ground is fairly level in the direction of the length of your buildings well and good. If however the ground falls in that direction it must be levelled. (Figs. 17, 18, 19, 20, and 21.) Figs. 20 and 21 show incorrect levelling.

In any case take particular care that if possible the boiler is at the lowest end, when in many instances excavation may be entirely obviated.

Even supposing the ground is perfectly horizontal, the question of floor levels must be considered. In all the diagrams you will notice the floor level (or the level inside the house) is the same as the ground level, or the level outside the house. If there is a difficulty of drainage, or the boiler cannot be sunk so low as is necessary, it is often advisable to raise the floor level.

Then again it may be necessary to sink the floor line below the ground line, in order that houses may not cause so much obstruction as they otherwise would. In this case great care must be exercised in the drainage,

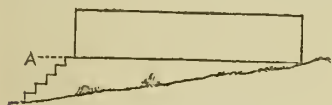


FIG. 17.—HOUSE EMBANKED.

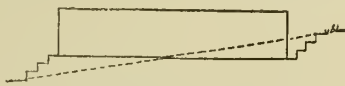


FIG. 18.—HOUSE HALF EXCAVATED, HALF EMBANKED.

or your houses may be perpetually flooded. It used to be the fashion a great deal more than it is now to sink houses, in order that the heat might be retained, but with greater facilities in heating such a course is rendered unnecessary. In fact, it costs more to sink a house than it does to build it on a level with the ground.

These remarks regarding levels will apply equally to combinations as to single houses. Houses composing one range should, if possible, have their floors at the same level. Steps from one house to an adjoining one should be avoided, as much as steps between a hall and a drawing room. Parallel disconnected lines of houses however may occupy different levels, if this is necessary.

The general question of the site is one of the most difficult which you may be called upon to decide. You may frequently think you have selected exactly the position which is the most suitable regarding aspect, when you find you will have to change it, because of some circumstance regarding drainage, the stokehole, a chimney, other buildings, the blocking of a particular view, or some other unforeseen obstacle.

The first and most important part of the construction has to do with the proper pitch of roofs. As I showed you in Fig. 5, a plate of glass forms the least obstruction to the sun's rays when they strike the glass at right angles. As the diagram shows you, a deviation of 30 deg. on each side of this right angle does not make much difference. Now it is found that in order to have a roof which shall receive the sun's rays at right angles, or within 10 deg. of a right angle, at twelve o'clock noon for eight weeks before and eight weeks after the longest day, the roof must, in the neighbourhood of, say, London, be inclined at an angle of 37 deg. from the horizontal, adding 1 deg. for each degree north, and subtracting 1 deg. for each degree south (Fig. 22), thus:—

Latitude 50	Land's End, roof inclined	36 deg.
" 51	London "	37 "
" 52	Buckingham "	38 "
" 53	Nottingham "	39 "
" 54	York "	40 "
" 55	Newcastle "	41 "
" 56	Glasgow "	42 "
" 57	Aberdeen "	43 "
" 58	Sutherlandshire "	44 "

Such an inclination of roof however is only necessary where sun heat and light are required under the most advantageous circumstances. In most cases, for growing purposes, especially where pot plants and flowers require to be near the glass, a lower pitch economizes space as well as artificial heat, and is really found more advantageous. In such cases a pitch of



FIG. 19.—HOUSE ON STEP LEVELS.

26 deg. to 30 deg. is very suitable. Less than this however is never advisable, as any lower pitch than 26 deg. would render the rain liable to drift under the laps of the glass. To render the question of this angular inclination still clearer, I may mention that 26 deg. is equal to a rise of about 6 inches in the foot.

A rise of 7 inches in the foot would equal about	30 deg.
" 8 "	33 1/2 "
" 9 "	36 1/2 "
" 10 "	40 "
" 11 "	43 "
" 12 "	45 "

We thus see that for fruit growing along the rafters, where the ripening process requires the maximum influence of the sun, from 36 deg. to 44 deg., according to the locality, would be a suitable pitch. For plant growing, where low houses are required, a pitch of 26 deg. to 30 deg. is suitable, and

for wall fruit cultivation, where a specially narrow high house is advisable, a pitch for the main roof of 60 deg., or even 65 deg. or 70 deg., may be suitable.

In thinking of the various pitches of roofs, it may be as well to remember that with the same width and the same pitch a span roof, a lean-to roof, and a three-quarter span roof all contain the same area.

As we are now discussing roofs, we will deal with the details connected with the construction of roofs before we pass on to any other details.

In constructing the roof of a glasshouse three points are forced upon us. 1st, Obstruction to the sun's rays must be avoided as much as possible. 2nd, The roof must be solid and substantial; whilst, 3rd, Lateral thrust must be avoided.

The rafters should be sufficiently deep to sustain the roof, and yet not so deep that the rays of the sun, especially when they shine obliquely, will

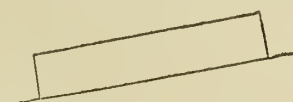


FIG. 20.—UNLEVELLED HOUSE, INCORRECT.

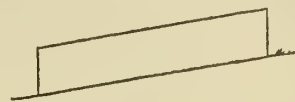


FIG. 21.—UNLEVELLED HOUSE, FAULTY.

be materially obstructed. Three iron brackets, or perhaps a bar, will prevent the walls being thrust outwards. This is a very plain, cheap, simple form of constructing a roof of a narrow house.

A simple truss formed by tie rods in tension and a king post in compression will admit of a very shallow rafter being used; in fact, it may be really nothing more than a sashbar. This construction is suitable for houses up to about 13 ft. wide. For anything wider than this two sets of tie rods should be used, one set for preventing outward thrust of the walls, the other set for preventing each individual rafter from bending. I need not tell you this construction, when properly carried out, renders the roof remarkably rigid. One form of holding up a roof is by internal pillars. These are thoroughly unnecessary for an ordinary form of small roof, and are only required when a large house or winter garden is built. Whenever you see a span house of 12 or 14 ft. wide, in which the roof is supported by pillars, you may be quite certain that the roof is constructed in an improper and un-

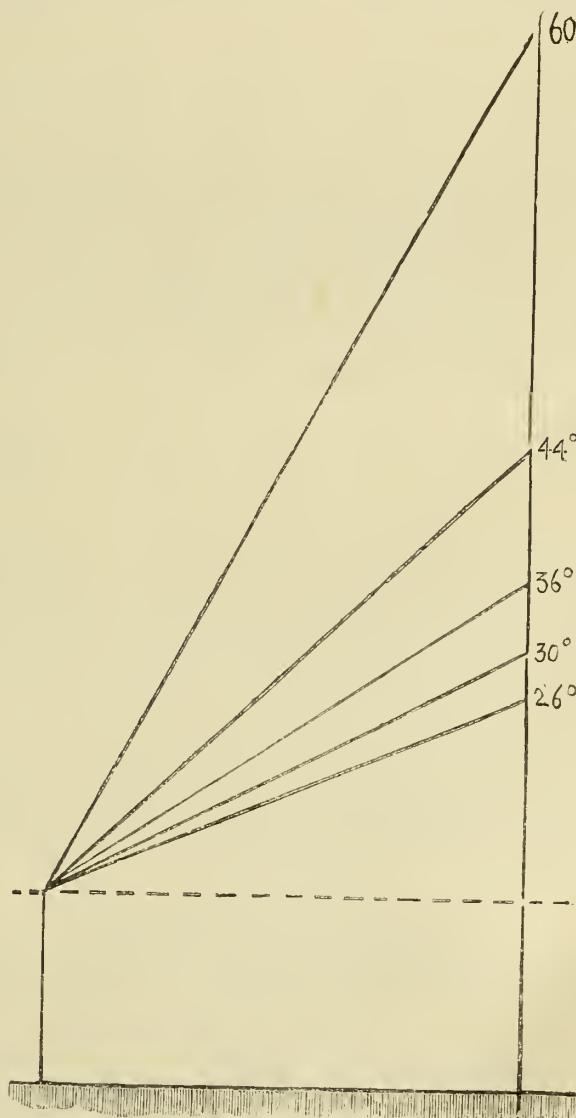


FIG. 22.—DIAGRAM SHOWING VARIOUS ANGLES OF ROOF.

mechanical manner, for vertical supports in a growing house are very awkward and should be quite superfluous.

The ties may be formed out of wrought-iron rods 3/8 to 1/2 in. diameter (for ordinary-sized houses), and must have eyes to enable the rods to be bolted to the king and queen posts and to the brackets. All the brackets should be securely bolted to both mullions and rafters. With such a construction as this the rafters may be from 3 1/2 to 6 in. deep, according to the width of the house; in fact, in some small cheap houses I have seen a

simple sashbar made, with the addition of the tie-rods, to do duty as a rafter, and an exceedingly good one too.

We must now consider the spaces between them, taking the space on the roof first. These spaces may be formed of framed sashes, the sides of each sash resting on half of each rafter (Fig. 23), or simple sashbars may be employed to fill up the intermediate spaces (Fig. 24). For supporting these sashbars, which, on account of their length, would sag, a purlin or purlins must be used: these may be of wood morticed in the rafters, or of T iron. The latter is strong, light, and does not weaken the rafters by requiring such large mortices to be made. The sashes and sashbars may be two inches thick. The spaces between the mullions are usually filled up by framed two-inch lights, hinged at the top, and forming ventilators. I shall speak further of these when I come to ventilation.

Not only are upright sides and the roofs of some houses formed by sashes, but also the ends and partitions. The advantages are of course that a house can be taken to pieces, removed, and re-erected without the necessity of taking the glass out. For ordinary cultivating purposes however the sash construction is rapidly going out of fashion in favour of the sashbar, as the latter is simpler, cheaper, affords less obstruction to the rays of light, and less woodwork for rotting or harbouring insects. I have myself seen some houses which were built with a view to great solidity and durability by employing the heaviest scantling possible. The object however was frustrated, for the timbers not only soon began to sag by reason of their excessive weight, but cracks and crevices were multiplied, innumerable harbours for wet produced, and the houses actually tumbled down in a decayed condition in a very short time.

This brings us to a consideration of the general question of the materials to employ in the construction of our houses. Is iron better than wood or not? You have noticed that I have just laid a stress upon the desirability of employing the minimum mass of materials, consistent with strength and durability, in order that there may be no more obstruction to the rays of light than is absolutely necessary. Now iron possesses this property to a remarkable extent, so that on this account iron is to be preferred to wood for horticultural buildings. Iron, again, is more durable than wood, pro-



FIG. 23.—SECTION OF ROOF WITH SASHES AND RAFTERS.

vided that it is kept well painted. If not kept well painted it will rust, damage the plants, and wear out. On the other hand, iron houses are more costly than wood houses, heat is conveyed away from the interior rather more rapidly, and, unless the glass is carefully put in, it is apt to crack. For these reasons wood, at any rate for growing houses, is preferred to iron. Of course, when I speak of building a house of iron I mean the sashbars, lights, &c., for the tie-rods and purlins can be of iron in all cases. Some houses have been made with copper sashbars. These of course are far better than iron, but are most expensive. It is usual to insert in specifications that all wood employed must be thoroughly seasoned and free from knots and shakes; also that no sapwood is to be used. These are very important conditions in connexion with all horticultural buildings. The peculiarly trying circumstances under which such buildings have to exist—namely, the extremely varying temperatures of the inside and outside, their exposed character, and the uncertainty of our climate—warrant every precaution



FIG. 24.—SECTION OF ROOF WITH SASHBARS.

which may be taken to ensure sound wood being used. If not thoroughly seasoned the wood, after it has been worked up and exposed to the atmosphere some time, will be sure to shrink, and crevices will abound for the retention of moisture caused by internal evaporation and condensation, as well as forming a harbour for insects, and the house will soon be absolutely worthless. Properly seasoned red deal, well selected, is an excellent timber to use for horticultural work. Sometimes cills or plates, most liable to receive and retain rising as well as falling moisture, are made of oak, but under all ordinary conditions this will not be necessary.

There is one treatment of materials however which I should like to mention, and that is a happy combination of wood and iron. Now, if we make plates, mullions, cills, and, in fact, the absolute skeleton, of wood, and the sashes and all the intermediate sashbars of such iron (although I am aware such a combination is not usual), you will have a light strong serviceable house, which will receive the sun's rays in an extremely advantageous manner.

TRAINING ESPALIER TREES.

IN training my few espalier fruit trees I am desirous of training a few young trees neatly and regularly, but find that it is not very easy to do so without investing in costly apparatus, which I am not desirous of doing. A neighbour of mine trains his trees in what I consider rather a rough way. He uses a series of stakes driven into the ground at the back of the trees, to which he attaches the branches. He grows some very good fruit, but the stakes always appear to me to be unsightly and the method clumsy. In an attempt to improve upon this, I adopted a principle of having two upright posts, between which I adjusted a series of wires. This arrangement I thought looked better, but there was a difficulty in properly arranging the wires so that they should all be straight and right. In fastening the wires to the posts great care is necessary, for if one should be drawn a little tighter than the rest the others become at once loose and baggy. A little perseverance however enabled me to obtain four espaliers fairly constructed upon this principle, and so I determined to rest satisfied with the arrangement. Alas! however, my contentment was not to be of long duration, as the strong winds affected the perpendicular position of the posts, and the arrangement became no longer a thing of beauty or a source of joy. If you or any of your readers can advise me as to some other and better arrangement, without having recourse to the elaborate and expensive methods generally advertised, it will much oblige

A NEW SUBSCRIBER.

THE DISEASES OF PLANTS.

IN continuance of this subject, I will now give the old Author's opinion of the external maladies to which trees are subject; also give extracts from what he has to say respecting the attacks of insects, &c. From this it will be gathered that nothing very new in this way has turned up since his time. It will be seen however that every effort was made then, as now, to keep plants clean and to restore them to health when necessary.

"Trees have also their particular external Maladies, such as Cankers, Moss, and Jaundice.

"Cankers are taken out with the point of a knife, cutting away the part affected to the quick-wood, and binding up the wound with Cow-dung in a linen rag tied about the tree. As canker grows apace, it should be taken off as soon as ever it appears, or it will half kill the tree, if not wholly. Moss likewise is extremely hurtful to trees, 'tis like a scab that hinders their growth and beauty; to take it off you must rub the parts with wooden scrapers or hard brushes, or else with a rubbing clout or wisp of straw. This work must always be done soon after the rain, or in a morning before the dew is gone, for then the moss comes off more easily than when it is dry; otherwise in rubbing too hard you may take off the rind of the tree. Some will have it that moss proceeds from the stony bottoms that the roots meet with.

"The Jaundice or languishing of a tree, generally proceeds from the gnawing of worms, unless where the tree be half dead. The best way is to open the roots, and cut away such as are damaged to the quick-wood, filling them up again immediately with fresh mould; by this means the sap will rise afresh, and nourish and strengthen the places affected. Or before you lay open the roots, you may throw some juice of Hogs-dung, which being naturally fresh, will very much recover the verdure of the tree in some cases. This is a less dangerous remedy than the other."

Our Author is not very happy in his remedial instructions as regards the external maladies of trees. Canker is very similar to a well-known disease to which the human race is subject: it is cut and come again; the more we cut the less hope there appears to be of a restoration to health. It is not often that we hear of the gardeners' plaister as applied in a linen rag, although there is no doubt about its usefulness in cases of amputation. Moss is caused by many circumstances besides a stony bottom: insufficiently-drained ground and low-lying situations have much to do with the production of moss on trees. The very simple remedy, dusting the trees with hot lime (not whitewash), does not appear to have been known when these passages were written. It is well known that worms in pots soon make the plants growing in them have a sickly appearance, but it is very doubtful if they have anything to do with the "languishing" or gradual decay amongst trees. There is no doubt much truth in the hint about manure water, as we know that trees and plants often suffer from the sterility of the ground.

"The great enemies to trees are Rabbits, Garden-Mice, Moles, Caterpillars, May Bugs, Ants, Cantharides, Snails, Tons, Turks (whatever they may be), and abundance of Worms, the names of which are unknown to us. Rabbits destroy a garden entirely; when they have once found a way into it, they gnaw and nibble the young Woods, Hedges, and Kitchen Gardens, and cut off all to the very ground, the rest presently dying by the bite of their teeth, which is very pernicious." Your valuable space need not be taken up with a description of the mode by which the rabbits are to be kept out of the garden, as well as how it is recommended to deal with the other enemies mentioned; still it is curious to note the way which they are described, thus:—"The Garden-Mouse is an animal that digs the earth like a Mole, and destroys whatever it meets with within the ground. Moles are creatures that spoil a garden the most of any; for they not only do a great deal of mischief to the young plants, in heaving the earth and laying open their roots, but also their tracks spoil the walks and green plots. Caterpillars are destroyed by cutting off in the winter the leaves to which they stick by clusters, with scissors from the low trees, and from the taller with iron hooks and scissors fastened to a long pole, which the French call Echenilloirs; but do what you can you will always leave some, which are enough to infest a whole garden. May-bugs are very easy to exterminate, you need only shake the trees pretty strongly, where they stick, spreading a cloth below to catch them in it; rain is a great enemy to these insects, as well as to caterpillars. Ants or Emmets are very injurious to trees when once they find the way to them; they are driven away by strewing very fine sawdust about the roots of the tree." I will only mention one more way recommended to destroy ants:—"There is another secret to catch them, which is to throw into the Ant-Hill a bone half pecked, which in an instant will be covered with a Million of these insects, and taking it out quick, dip it into water and drown them; then make use of the bone again as before.

"Cantharides are a sort of Flies that stick to the tops of the trees, especially the ash. They are destroyed by pouring or throwing upon the heads of the trees, by means of a little pump or jet, water in which rice has been boiled.

"Snails are great lovers of the young buds of trees, and with their slime do them a great deal of mischief.

"Tons are great worms that live in the ground and gnaw the roots of trees, especially young Horn-boam.

"Turks are certain white worms that get into trees and eat holes in them, running betwixt the bark and the stem of the tree. It is one of the most dangerous insects, for it not only attacks young plants, but the biggest forest trees are not secure from them. These worms suck out the sap and stop it entirely."

The orange tree is considered by the old Author we have been culling from of sufficient importance to have a special chapter set apart to describe the insects and diseases to which it is liable. I cannot do better than finish up by giving a few extracts on that subject:—

"As an Orange-tree naturally requires a great deal of neatness, as well in its leaves as in its wood, you must, before you take it out, cleanse with small brushes all its boughs and leaves from the eggs of insects, spiders webs, and other filth, which is very essential to their preservation.

"'Tis not sufficient to have guarded against the cold and winds, which hurt Orange-trees, unless we show the ways of securing them against those insects that attack them, and do them considerable mischief, such as Bugs, Psyllides, and Earwigs.

"Bugs of themselves do no great injury to Orange-trees, but as they make them slovenly by the nests of eggs which they lay in Autumn. These look at first like small red spots, but, coming in the Spring-time to the

bigness of a lentil, they are hatched, and so multiply to great numbers, which again lay other eggs.

"Ants or Pismires are drawn to Orange-trees by nothing but the nests of bugs eggs; so if these are carefully destroyed you are secured from the persecution of those insects, which is the best remedy. Ants eat the Orange-flowers, and leave heaps of nastiness on the leaves.

"Ear-wigs are the most difficult things to destroy, and often peck and gnaw all the leaves of an Orange-tree. They are taken in coffins of paper placed about several parts of the tree. Some make small round vessels of two pieces, which meet together about the stem of the tree, so as to clip it and leave no space between. These they fill with water, and when the Ear-wig, who is naturally afraid of water, comes near it, he goes away as he came without doing any hurt. The distempers of Orange-trees proceed from a bad Green-house, a defective recasing, or an exhausted earth; from some rotten roots, too much heat, too much cold, or too much water; from bad pruning; from insects and vermin that strip them; or, lastly, from winds and hail, that break their boughs and blast their leaves.

"There is no other remedy against a bad Green-house but to build another. As to recasing, no time should be lost in putting it into a new case.

"The earth is the chiefest thing to be examined, as the foundation of all. In taking the tree out of the case you should mind the roots, and if you find any of them dead or rotten cut them off to the quick.

"The nastiness of the branches, and their being pestered with insects and vermin, are evident marks of the ignorance of him who looks after them."

Having given instructions as to cutting back sickly trees, equalizing the top in proportion to the foot, as he calls it, it is added, "Above all, you should take care to keep the new branches very clean from all filth and insects, to take off the flowers, and to suffer no fruit to knit upon them. What can we require of trees that are sickly more than wood and leaves? 'Tis enough if they answer the pains we take about them. In the recovery of these sick trees I advise you to have patience: an Orange-tree is sometimes two or three years without roots or branches, though carefully managed, new cased with good earth, and its case neither too big nor too little."

The writer had evidently a good knowledge of the effect that filth and insects produced upon plants; and there is no doubt about it that the two combined prove the root of all evil in respect to the cultivation of plants, especially under glass. Disease also is generated in plants by excesses of heat or cold, drought or wet, light or shade; and when an excess of cold and wet, or heat and drought, is a condition in which plants are kept, disease and death will soon put an end to their existence. Darkness and light bear a most important part in plant growing. How very many plant houses do we find in the country where it might truly be said of them that there is no remedy for them but to build others!

Knap Hill,

GEORGE THOMSON.

SALVIAS FOR THE GARDEN AND CONSERVATORY.

By J. C. CLARKE.

SALVIAS for the summer decoration of the flower garden are still limited to a few varieties, of which *S. patens* and its white form are still the best. Although not grown very generally, they are sometimes to be met with in gardens where their value is known. The blue form is in most favour, and when arranged in conjunction with other suitable plants it produces a very pleasing effect. I remember seeing it once in the garden of John Marshall, Esq., of Belmont, Taunton, planted in a narrow border against a low wall facing south. The salvia was next the wall, with lines of *Iresine Lindeni* and variegated *pelargoniums* in front, and the arrangement made an impression I shall not soon forget. The brilliant blue of the salvia in contrast with the dark colour of the *iresine* and the white variegation of the *pelargonium* was very pleasing. As a bedding plant *S. patens* looks best perhaps when planted in the centre of a bed, and surrounded with some plant having white flowers or leaves with white variegation. A yellow or scarlet flowered plant next to it would probably be too strong in colour to bring out the salvia in its true character. Both the white and blue forms of this salvia are well adapted for the mixed border if the soil is made rich. *S. patens* may be increased from seed, but the process is rather a slow one. If the seed is sown early in the spring and the young plants nursed on in heat, they may be had large enough to flower the first year; but it will probably be late in the season before they are large enough to make a display. Cuttings strike freely in the autumn from the young shoots, and these will make good plants for bedding out the next year if they are potted off in March, and each root placed in a six-inch pot, and grown on in a warm greenhouse until the beginning of May, and then dealt with in the same way as the other bedding plants. Any one having old examples may put them now in pots or boxes and place them in a warm house. They will soon start into growth and furnish a good supply of cuttings. The cuttings will readily strike if inserted in fine sandy soil and the pots placed on a hotbed. This salvia makes tubers very similar to those of dahlias, and they should be lifted in the autumn and preserved from frost. It is a good plan to place the roots in shallow boxes and cover with dry sand.

The new *S. splendens Bruanti* promises to be a useful bedder, and its distinct foliage enhances its value. *S. gesneriflora* is an old kind with scarlet flowers, and useful for flowering late in the summer. The mixed border is its proper place. There is a variegated variety of the last named which is very suitable for large beds. I have seen it used effectively in isolated beds. The central block of the bed consisted of a good mass of the variegated salvia, and this was surrounded with *Perilla nankinensis*, and the bed had an edging of *Tagetes signata pumila*.

There have been during the last few years some valuable additions to the list of salvias for the decoration of the conservatory, the best in my opinion being *S. Pitcheri*. This has a herbaceous habit, and is said to be hardy. Whether that is the case or not, it is most useful for autumn flowering. It has a neat growth, and produces spikes of flowers

of a most pleasing shade of blue. It is also easily grown. The young shoots strike quickly if inserted in sandy soil and the pots plunged in a hotbed. If grown in pots all the summer in a suitable compost the plants will flower freely in October. I find it best to grow them in a sheltered position out of doors, and if the growth is supported by neat sticks the wind will do them no harm. Those who have old plants may take them out of their pots now. Shake off all the soil from the roots and repot them again. But I find I obtain much the best spikes of flowers from plants raised from cuttings early in the spring.

For early winter flowering *S. splendens* and *S. splendens Bruanti* are the two best with red flowers. The cuttings should be struck in March, and as soon as they are rooted they must be potted off and grown in four-inch pots until the first week in June, when they should be planted out in a sheltered border where the soil is not too rich. This is the easiest way of growing them for those who require plants from three to four feet high; but if neat examples are wanted about two feet high they had better be grown altogether in pots. The planting-out system has much to recommend it, as the plants will make a better growth with less trouble and produce larger spikes of flowers. When so grown the plants should be potted up not later than the third week in September. They must be lifted carefully with a fork, and when they come with large balls of earth the balls should be reduced so that the largest can be put in nine-inch pots. I may remark here that while the salvias are in flower a very little artificial heat suffices for them. They require a light position, with a moderate circulation of air and a dry atmosphere.

The recently-introduced *S. Hoveyi* is rather a strong grower, but it is useful on account of its colour, which is a dark purple. It flowers at the same time as *S. splendens*, but it does not continue in bloom so long. *S. Betheli* is of a much neater habit than the last-named variety, and is very useful for flowering early in the winter, but it requires from 6 deg. to 8 deg. more heat than an ordinary greenhouse affords to induce the flower spikes to open properly. It has rose-coloured flowers and distinct foliage, and does much better when planted out in the summer than when grown in pots.

Messrs. Cannell, of Swanley, grow, I believe, several other salvias for winter flowering, but with the exception of *S. Heeri*, which is not new, I am not acquainted with them. I must not close these remarks without saying that *S. Heeri* is the best late-flowering kind that has come under my notice, and those who require bright flowers in winter are advised to grow it. But it may be well to state that it is better adapted for large conservatories than small ones. When grown as large specimens from four to five feet high they are highly effective, but small plants only give a faint idea of its real merits. The colour of the flowers is light scarlet, and the spikes are produced freely on large plants. They are admirably adapted for cutting for the decoration of large vases. It commences to flower soon after Christmas, and in a temperature of from 50 to 55 deg. it will last in good condition for two months. To secure flowering plants for next season the cuttings must be struck early in the spring, and as soon as rooted be potted off into single pots, and early in June the plants must be put out in rather good soil, and in the autumn be potted up and placed in the greenhouse until they begin to flower.

WINTER RAMBLES.—Going slowly along the footpath—indeed, you cannot go fast in moist February—it is a good time to select the places and map them out where herbs and flowers will most likely come first. All the autumn lies prone on the ground. Dead dark leaves, some mashed to their woody frames, short grey stalks, some few decayed hulls of hedge fruit, and among these the mars or stocks of the plants that do not die away, but lie as it were on the surface waiting. Here the strong teal will presently stand high; here the ground ivy will dot the mound with bluish purple. But it will be necessary to walk slowly to find the ground-ivy bushes under the lappet of briars. These bushes will be a likely place for a blackbird's nest; this thick close hawthorn for a bullfinch; these bramble thickets with remnants of old nettle stalks will be frequented by the white throats after awhile. The hedge is now but a lattice work, which before long will be hung with green. Now it can be seen through, and now is the time to arrange for future discovery. In May everything will be hidden, and unless the most promising places are selected beforehand, it will not be easy to search them out. The broad ditch will be arched over, the plants rising on the mound will meet the green boughs drooping, and all the vacancy will be filled. But having observed the spot in winter, you can almost make certain of success in spring. It is this previous knowledge which invests those who are always on the spot, those who work much in the fields, or have the care of woods, with their apparent presence. They lead the new-comer to a hedge, or the corner of a copse, or a bend by the brook, announcing beforehand that they feel assured that something will be found there; and so it is. This, too, is one reason why a fixed observer usually sees more than one who rambles a great deal and covers ten times the space. The fixed observer, who hardly goes a mile from home, is like the man who sits still by the edge of a crowd, and by-and-by his lost companion returns to him. To walk about in search of any one in a crowd is known to be the worst way of recovering them. Sit still, and they will often come by. In a far more certain manner this is the case with the birds and animals. They all come back. During a twelvemonth, probably every creature would pass a given locality—every creature that is not confined to certain places. The whole army of the woods and hedges marches across a single farm in twelve months. A single tree—especially an old tree—is visited by four-fifths of the birds that ever perch during that period. Every year too brings something fresh, and adds new visitors to the list. Even the wild sea birds are found inland, and some that scarcely seem able to fly at all, are cast far ashore by the gales. It is difficult to believe that one would not see more by extending the journey, but, in fact, experience proves that the longer a single locality is studied the more will be found in it. But you should know the places in winter as well as in summer, when song and shade and colour attract every one to the field.—THE AUTHOR OF "GAME-KEEPER AT HOME," in *Good Words*.

HYBRID NARCISSI.

To a very considerable proportion of those who possess collections of narcissi it will be in the nature of news to learn that they produce seed freely, but are somewhat eccentric in the manner of it. Many who read this will be ready to say that after years of watching amongst narcissi of many sorts and shapes, they cannot remember to have seen a single pod of seed swell off properly, although there is often a sham show of so doing on the stems of the single flowers. As for the double ones, we dismiss them from present consideration as a matter of course; but as regards the singles there is something to be explained in connexion with their *present* reluctance to produce seed. By putting the word "*present*" in italics the reader is advertised of its importance. Three hundred years ago the case was different, for Gerarde and Parkinson speak of the seeding of several sorts as a matter of no special interest. Of our *Narcissus poeticus*, which is No. 1 of Gerarde ("Herbal," 1597, p. 108), he says, after the flowers "there followeth a thicke knobbe or button wherein is contained blacke round seed." Parkinson ("Paradisus," 1629) described the seed of our *Incomparabilis* (p. 68), our white *Tazetta* (p. 80), our *Dubius* (p. 91), our *Triandrus* (p. 92), our *Pseudo-narcissus* (p. 99), our *Moschatus* (p. 100), and others. I take it that Parkinson's

freely, but I never saw a pod of seed on one of them. They were in a heavy soil, facing bleak open grass land partially shaded by trees, and the position suited them to all appearance perfectly. Nevertheless, the leading kinds appear to be as ready to seed as any plants in our gardens; in some places naturally, and everywhere when aided by the skill of the hybridist. We shall shortly have before us a demonstration of the capabilities of the narcissi in this respect; but it must not be spoken of as a novelty, although in its way it is at once unique, interesting, and encouraging, and by no means destitute as yet of the charm of novelty. The daffodil collector foresees that I have in my mind's eye the collection at Tooting that Mr. Peter Barr has so assiduously studied, and to which, in the pleasant spring time, he invites the lovers of such things to make notes for themselves on the characters and values of his grand lot of hybrid and cross-bred narcissi. We shall meet from day to day in that interesting daffodil garden, and some day doubtless a new enthusiast will take fire there, and seek by watching and working to surpass the accomplishments of Mr. Backhouse and Mr. Leeds, whose flowers, long since established as historical, are now becoming popular as proper adornments of the hardy garden.

The two groups known respectively as the Wearsdale and Longford Bridge seedlings, from the places in which they originated, differ very



NARCISSUS LEEDSI AMABILIS.

"Hispanicus flore albo," &c. (page 100), is the cernuus of the modern daffodil garden. Of this he says, "From the seed of these have sprung much variety." Philip Miller ("Gard. Dict." for 1733) speaks of the seed in a general way as coming freely enough when the plants have been established three years, and he laments that few persons would take the trouble to raise daffodils from seed, preferring to obtain bulbs from Holland, where, in his time, the raising of stock from seed was a matter of ordinary business.

The experiences of the old masters agree pretty nearly with those recorded by Dean Herbert in his "Amaryllidaceæ" (1837). He describes the seed of *Ajax* (*Pseudo-narcissus*), *Jonquilla*, and *Poeticus*, but of some others he states that he has not seen the seed, and can only speak of offsets as the means of increasing them.

The precise state of the case appears to be involved in some obscurity. Whether fertilization depends on the agency of an insect or insects having a local distribution, and therefore while perhaps common to one garden uncommon in another, there does not appear to be any evidence forthcoming. I watched a large collection during some twelve years. All the sorts gave the corbularias and the jonquils, grew freely and flowered

considerably in general complexion, and relationships. The first contains representatives of *Ajax* and *Poeticus*, and in some of these the special peculiarities of the species are intensified. Thus in *Emperor*, *Empress*, *Volutus*, *J. B. M. Camm*, *Shirley Hibberd*, and *Milneri*, we have *Pseudo-narcissus* repeated with the most splendid and remarkable variations. Dean Herbert had firm faith in the production of forms more or less identical with *Incomparabilis* as the result of crossing *Ajax* or *Pseudo-narcissus* with *Poeticus*, and that faith appears to be amply justified by these seedlings, which, in common with narcissi in general, show a tendency to arrange themselves in a regular gradation. The more remote they are from *Ajax*, the nearer are they, as a rule, to *Poeticus*, and a distinct section, with longer trumpet than *Poeticus*, has been named *Barri*, that it may the more conveniently rank as a species. Another section of the group comes still nearer to *Poeticus*, and these rank under the specific name *Burbidgei*. It is convenient to regard these new and striking types as species, for it simplifies the classification, and in no way fetters the evolutionist, whose aim and hope is to know the beginning and end of everything. He at least has no right to complain if species are created by the hybridist whilst he stands looking on,

for he has but to regard the hybridist as one of the "circumstances" that determine the progress of organic forms.

The Lengford Bridge group may in a rough way be said to consist of modifications of *Incomparabilis*. They represent forty years' work, and their prodigious number tells of free seeding as the result of skilled manipulation. One section of these, named *Nelsoni*, have been described as "shortened bicolors." Mr. Barr is of opinion that *Bicolor* and *Maclei* were the parents of this section; but they open with a brilliant scarlet corona, which he avers can only come from *Poeticus poetarum*. On that point, of course, our learned friend may be wrong, and experts in hybridizing will tell us that colour is no sure key to parentage anywhere.

Another of the Longford Bridge groups is named *Leedsii*, all of which at first glance remind us of *Incomparabilis*, but when minutely inspected suggest with equal force *Galanthoides* as one of the parents. These are the least distinctive, but perhaps the most useful of the whole collection, for they grow freely, flower abundantly, are showy, lasting, and well adapted to supply cut flowers in glorious variety. Mr. Barr has named about two dozen of the *Leedsii* section, and might perhaps name fifty more if they were wanted.

Last on the list stands *Humei*, which brings us back towards *Ajax*,

PEAS IN SMALL GARDENS.

In gardens of very small size peas cannot be very profitably cultivated, but in those in which a rood or so can be devoted to vegetables a few rows will, under a judicious course of management, afford a satisfactory return. To ensure a full degree of success it is necessary to use more than ordinary care in the selection of varieties and to adopt high-class culture. There must be no desire to obtain supplies considerably in advance of the crops in neighbouring gardens, and no attempt should be made to prolong the season until late in the autumn. Early peas are decidedly unprofitable and can be purchased, in town districts more particularly, at a much lower cost than they can be grown, and the risks are so great of the late sowings not affording a profitable yield that they ought not to be made by those who have a limited area only at their disposal.

Proceeding on the assumption that the gardens are limited in extent, yet large enough to afford room for from four to six rows of thirty feet in length, or their equivalent, I would suggest that two sowings be made, the first at once and the second towards the end of the month. These will give as long a supply as can be well maintained in gardens that can be fairly considered of small size. The same varieties should be selected



NARCISSI NELSONI.

and, strange to say, may be described as *Ajax* spoiled, the form being uncouth; but the colours are very delicate, and again suggestive of *Galanthoides*.

From these hasty notes, made on the ground in the midst of the flowers, the lesson may be deduced, by those who happen to want a lesson, that there is yet a great field for the exercise of patience and ingenuity in the hybridizing of narcissi. It may seem that the land is ploughed out, but the fact that the manipulator may ensure crosses, and see the first fruits of his labours within three years, should be set against that seeming, for of variation there is no end when there are diverse forms properly related and sufficiently fertile to afford a fair basis of operations.

S. H.

THE BOUQUET OF RHINE WINE.—Von Babe, in *Biedermann's Centralblatt für Agricultur-Chimie*, states that the peculiar bouquet of the best Rhine wine, for which the Riesling grape is chiefly used, is due to the frosting of the grapes, and that analogous results are produced by frosting in other varieties.

for both sowings, and as the purchase of sticks is a serious matter when considered in relation to the value of the crop, sorts that can be grown without them should be selected. In gardens or on estates whence a supply of sticks can be obtained for the cutting, peas of tall or of medium height are the most profitable; but when the sticks have to be bought at prices ranging from ninepence to a shilling a bundle the crop must be very heavy to pay for them, that is, if we take a commercial view of the matter. I should certainly advise the cultivation of sorts that do not require sticks, and of those *Carters' Stratagem* and *Suttons' President* *Garfield* are unquestionably the best. The first-mentioned ranges from eighteen inches to two feet in height, and the other is six or nine inches high. They are both very heavy croppers, and produce immense pods closely packed with large peas, which in colour and flavour when upon the table are quite unsurpassed. As yet they are higher in price than others of previous introduction; but, as a very small quantity will suffice to sow a length of rows mentioned above, this point is not of much importance, considering the immense superiority in bulk and quality of the supplies. If it is desired to grow cheaper kinds, *Princess Royal* and *Challenger* may be selected. Dr. Maclean and G. F. Wilson are two

first-class peas, but they attain a height ranging from three to four feet and really require sticks, although they are sometimes grown without them.

As so much has been written on the importance of deep digging and liberal manuring in the cultivation of peas, it will not be necessary to dwell at any length upon these points, but it must be distinctly stated that it is not possible to obtain really good crops from soils that are poor and have not been dug over the full depth of an ordinary spade. Where the digging and manuring has not been already done it must have attention at once. The first step will be to apply a liberal dressing of good stable or farmyard manure, and, to make myself as clearly understood as possible, I would add that the surface should be covered to a depth of three or four inches. When this has been done, dig the ground over with a spade or fork and keep the manure well in the bottom of the trench. In dealing with most soils that were not turned over in the autumn, it is at this season of the year a capital plan to bastard trench it. This, briefly stated, consists in first opening out a trench to a depth of ten or twelve inches and a width of two feet, as in the case of ordinary trenching. The soil in the bottom of the trench is then forked over, and the top spit of a trench of the same width and depth as the first is thrown upon it and the bottom spit in the second is in its turn stirred with the fork. This process is repeated until the quarter has been turned over. It differs simply from the ordinary trenching, which must not now be thought of, in the soil of the second spit being left in the bottom of the trench instead of being brought to the surface. Very often considerable difficulty is experienced in small gardens in obtaining manure from the stable or farmyard, and when that is the case a very efficient substitute may be found in Clay's Fertilizer, which, according to my experience, is the most efficient and economical artificial manure for peas that is manufactured. I have used it largely in the kitchen garden for several years past for green crops generally with the most satisfactory results, and my usual rate for applying it is one and a half cwt. to a rood or quarter of an acre. When the rows of peas are to be some distance apart, with other crops between them, and it is not desired to enrich the intervening spaces so liberally, the rows may be marked out about two spades in width and a liberal quantity of either of the manures mentioned dug in. Clay's may be sprinkled along the drills when the peas are sown, but it is not so good a practice as more thoroughly mixing it with the soil in such a way that the plants will be able to derive assistance from it when they are coming into bearing.

It is not necessary, as in the case of the tall sorts, to have the rows far enough apart for other crops to be grown between. For the kinds mentioned a space of two feet six inches between the rows will suffice on light soils and three feet on those of a heavy character, and these spaces may be utilized in the cultivation of such things as radishes, lettuces, and spinach, which will come off quickly and not draw the ground much. As far as possible, advantage should be taken of a dry state of the surface soil for sowing the peas, particularly if the staple is naturally heavy, and the drills should be drawn to a depth of three or four inches, and a width of about four inches at the bottom. It is too much the practice to draw drills for peas shallow and very narrow, and in consequence the plants are so crowded at first that it is quite impossible for them to acquire a full degree of strength at the base and branch freely. Narrow trenches marked out with the corner of the hoe are particularly objectionable for robust free-branching sorts such as are here recommended. The bottom of the trench should be quite level as well as four inches in width, and the peas be sown rather thinly. About one pint of peas will be required for every fifty feet run of row. The trenches must be filled in carefully with fine soil drawn from the sides, and any lumps immediately over the rows should be broken down. Birds are often very destructive to peas when just pushing through the ground, particularly in suburban districts, and will sometimes almost annihilate the crop if protective measures are not resorted to. There is nothing to equal the wire protectors, but, although comparatively cheap, they are beyond the means of many owners of gardens of limited size, and something else is required. I have found a few lines of crochet cotton, and a string to which strips of paper have been attached, stretched along the rows effectual in keeping off the sparrows. They however soon become used to anything that may be employed for frightening them and treat it with contempt, and it is in consequence necessary to frequently make a change.

The after management consists chiefly in keeping the intervening spaces well stirred with the hoe to keep down weeds and maintain the surface soil in a loose state. A little soil should be drawn to each side of the rows when the peas are three or four inches in height. In hoeing the ground after the haulm is of a sufficient height to fall over, care must be taken to disturb it as little as possible, for when bent backwards and forwards the stems are seriously injured, and the chances of a heavy crop are considerably lessened. In dry and hot seasons the crop will be much benefited by the spaces between the rows being covered with some loose material, and a few thorough soakings of water will be of considerable assistance. Mere surface waterings will do more harm than good, and unless sufficient water can be applied to moisten the soil to some depth none whatever should be given. It is of special importance to keep the soil well stirred with the Dutch or draw hoe when no mulching materials are employed, and the watering can be brought into requisition, as the surface so soon becomes hard and baked, a condition by no means favourable to the well-being of the crop.

ENTERPRISING AMATEUR.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—"JAMES EPPS AND CO., Homoeopathic Chemists, London."—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

The House, Garden, and Poultry Yard.

THE THRUSH'S NEST.

WITHIN a thick and spreading hawthorn bush,
That overhung a molchill large and round,
I heard from morn to morn a merry thrush
Sing hymns to sunrise, and I drank the sound
With joy; and, often an intruding guest,
I watched her secret toils from day to day,
How true she warped the moss to form a nest,
And modelled it within with wood and clay;
And by-and-by, like heath-bells gilt with dew,
There lay her shining eggs as bright as flowers,
Ink-spotted-over shells of greeny blue;
And there I witnessed in the sunny hours
A brood of nature's minstrels chirp and fly,
Glad as that sunshine and the laughing sky.

JOHN CLARE.

THE HOUSE.

CANARIES, goldfinches, and other small birds in captivity should, as the season opens out, and the weather becomes genial, enjoy a breath of fresh air daily. It may perhaps be well to state for the information of those who are not well versed in the management of cage birds that placing them in draughts is so injurious that it must be guarded against, and that they ought not to be subjected to full exposure when the keen easterly winds are blowing. A rather liberal supply of food is now necessary, and, as at other seasons of the year, canary seed ought to form the staple. A little rape and millet may be added, and birds put up for breeding should have in addition a little bruised hemp or poppy seed occasionally, the former being the best of the two. A daily supply of fresh water must be provided, and instead of adding a little water to that in the glasses, the latter should be entirely emptied and rinsed out previous to being refilled. A little additional green food may now be given the birds, and water-cresses, lettuce leaves, and the tender tops of the radishes raised in the frames are the most suitable.

THE GARDEN.

ANNUALS, hardy and otherwise, will soon require attention, and purchases of seed and other preparations should be made with as little delay as possible. In the case of the hardy kinds to be raised in the borders in which they are to bloom, sow thin, cover with a very light coat of fine dry earth—the smallest seeds needing but a mere dusting to cover them—and, from the first keep the plants thinned sufficiently to prevent overcrowding, which weakens them and tends to a poor instead of bountiful bloom. The soil into which they are transplanted for blooming should be deeply dug and well broken up, and if at all poor should be liberally manured. Spring-sown annuals are worthy of a better soil than they usually have allotted them, as well as more careful treatment. The most important matter in the after culture is to keep the clumps well thinned, for not only will the bloom of crowded plants be comparatively poor and brief, but by early and bold practice in thinning the plants will become so robust, and cover such large spaces of ground with their ample leafage and well-developed flowers, as really to astonish even those people who think they know all about annuals.

BEDDING PLANTS.—Cuttings put in now will bear more heat than those put in a month ago, as vegetation is more active with the advance of the season. There is plenty of time now to raise stock of *Alternantheras*, *Verbenas*, *Petunias*, *Fuchsias*, and *Lobelias*, and they will bear a moist temperature of 75 deg. to advantage.

Box EDGINGS made now will do far better than in autumn. If the weather is dry after planting keep newly-planted box well watered, as if a few plants die the unsightly gaps are not easily mended in the height of summer.

CAMELLIAS out of bloom to have a higher temperature and a moist atmosphere to promote the new growth. Any that seriously want a shift may have it now, but the general shifting is best delayed till the wood is ripe or ripening.

CELERY sown early will now require to be pricked out into boxes on a slight hotbed. Sow now for the main crop.

CHRYSANTHEMUMS for decorative purposes to be propagated now in quantity. Those who neglected to strike cuttings in November for specimen plants have now not a moment to lose.

BORECOLES to be thoroughly profitable require a long period of growth, and a good deep well-manured soil. Sow at once and plant out at every opportunity as soon as the plants are large enough, allowing full three feet between the rows, and two and a half feet between the plants.

FRENCH BEANS in the forcing house must be kept very near the light and have a brisk temperature. Give air early on fine mornings while the plants are moderately dry to promote the setting of the fruit.

PEAS AND BEANS to be earthen up as needful. If slugs abound strow wood-ashes or soot along the rows. Sow now for main crops the best of the marrows, selecting tall, medium, or dwarf varieties, according to the space at disposal, or the facilities with which sticks can be obtained. Take care to put them on the best seed-bed that can be made, and allow sufficient room between the taller sorts for half a dozen rows of Cabbage or Broccoli. A crowded quarter of peas is never properly productive; for they smother each other, and the shaded parts of the haulm produce next to nothing.

PELARGONIUMS for exhibition require constant attention to keep the foliage in perfect health, and to tie out and train as needful. Give plenty of air to strong plants, and liquid manure, rather weak, every five or six days.

POTATOES may be planted for main crops. The sets should be hard, dark green; the sprouts short and purple; the soil in a dry state and quite pulverulent; the sets trenched in. Cover from four to six inches. In preparing the soil for potatoes it should be remembered that the root is rich in phosphates and potash salts, and therefore requires to be well fed by suitable manuring. In a general way, there is no manure to equal good stable dung for the potato, and immense quantities of the early sorts are grown for the markets by farmers, who make it a practice to put the manure in the trenches and lay the sets on the manure, and cover with the pulverized soil that has been acted on by frost and snow. Where there is not sufficient

available manure, the best artificial for a poor sandy soil is dissolved bones applied at the rate of 5 cwt. per acre. The best dressing for clay soils is burnt earth or wood-ashes mixed with lime and chalk, and if a little bone manure be added all the better. For peat soils a good dressing of lime mixed with any garden soil of a loamy nature and some bone manure will be found the best. Stable and artificial manure may be supplemented in ordinary garden cultivation with lime rubbish and vegetable refuse.

SUCCULENTS are usually kept dry all winter, and have supplies of water in very small quantities as they commence their seasonal growth. Though easily kept in windows and ordinary greenhouses, they rarely flower unless they have some special care at this time of year. If any of them want larger pots they should now be shifted, and the soil used should be a mixture of lime rubbish, broken bricks, turfy loam, and a little cow-dung, with plenty of drainage.

VINES to be thinned of their superfluous bunches as soon as the berries are fairly set, and the thinning to be done with a bold hand, for any larger crop than the vines can bring to perfection without severely taxing their strength will entail weakness of constitution. Thin the shoots, always ensuring the natural shade of leaves for the bunches. Inside borders to be kept warm, and be liberally watered.

THE POULTRY YARD

Demands extra attention now. Where the supply of eggs has been considerable there will be broody hens and a chance of chickens. If it can be done, you cannot be too soon in putting eggs under birds that are ready for them, but it is a fact that on warm and cold soils alike there is great risk in the business until the month of April, and then, if things are about fairly right, you may almost reckon your chickens before they are hatched. We do not pretend to advise old stagers, but it is proper to warn beginners that all through February and March there is considerable difficulty in raising chickens, but it is easy work from April to June—that is, generally speaking. We have seen 150 eggs wasted, with all the extra trouble of tending the birds, and not a single chicken reared; and yet in the very same yard, as soon as March was out, the same number of eggs would produce at least 120 chickens. One reason no doubt is that the early eggs are not fertile; but even when they prove to be so a week or two of bitter weather will endanger the lives of the newly-hatched broods, and at the same time intensify the hunger of the rats, the worst foes generally of the poultry yard. Those poultry keepers do best who do the least, provided they are not really neglectful. By taking nature for our guide we can scarcely go wrong, and yet there are those who will go wrong, notwithstanding they may obtain teaching for nothing if they will but observe. When a hen steals away and makes a nest in a hedge, she is pretty sure to bring out fifteen strong chicks. The eggs are laid on the damp earth, the bird goes on and off as suits her inclination, and she does not have to submit to handling of any kind. It follows that snug dark nooks are the best places for the nests, and that they should be on the ground, or very near it. When the nest is made in a basket the bird is likely to break the eggs in getting in and out, and she is likely to eat the eggs broken, and thus acquiring a relish for forbidden fruit the remainder are likely to go the same way, and a good bird becomes a bad one through being located in a way she would never have located herself.

BIGNONIAS.

This fine group of plants, which include upwards of sixty species, was named in memory of Abbé Mignon, librarian to Louis XIV. The larger portion are climbing plants of acknowledged beauty, having a most extensive geographical range; the East and West Indies, Mexico, and South America being the native home of many of our stove kinds, while Northern America has supplied us with others to adorn our conservatories and out-of-door walls.

Notwithstanding this great range of country, the species soon become assimilated in the required treatment, and nearly any or all of them may be grown even together in an intermediate house or cool stove. Their fine pinnate, ternate, or conjugate foliage, and large handsome flowers in panicles of red, blue, yellow, or white, render them eminently beautiful objects for covering the pillars or roof of a plant stove or conservatory. In the latter the majority of the species luxuriate with a degree of splendour seldom witnessed in other genera; this kind of structure seems peculiarly suited to them, first because of the genial temperately warm atmosphere maintained, and accession of fresh air, and also because of the freedom which may be allowed to their rapidly extending shoots in the growing season.

We proceed to enumerate a few of the most ornamental, premising however that some of them will be found placed as suitable for a lower temperature than is generally considered necessary, because an excess of heat is conducive to the production of wood alone, a paucity of flowers frequently following this unnecessary stimulation of the plant.

B. alba is a fine evergreen climber, brought from Guiana in 1823. A sunny situation in the conservatory should be chosen for this, where its lovely white scented flowers will be seen to much advantage.

B. capreolata is sufficiently hardy to withstand our ordinary winters in the open air, even without protection; still it is the safer plan to plant it against a wall having a southern aspect, and to adopt the usual precautionary method of covering with mats in severe weather; a warm situation such as described is necessary to enable the plant to produce its fine scarlet flowers. This plant is described as having a most beautiful appearance when seen in its native haunts, the rocks and forests of North America.

B. grandifolia.—This is another extremely fine conservatory species, readily extending over a large space; it seems to require age alone to enable it to flower well: the colours of the flowers are an indescribable mixture of orange and purple. There are several species which, like this one, require to attain a certain age before they put forth flowers in any quantity; nor will any known treatment induce them to a precocious development, so that many really fine and desirable kinds have been absurdly condemned and destroyed before they have had a fair chance of displaying their proper characters; this should be borne in mind by those who cultivate bignonias.

B. jasminifolia and *B. jasminoides* are both beautiful, the first a white flowering species of rather smaller habit, requiring the stove to produce it

in perfection; and the latter, having purple flowers, will succeed very well in a common greenhouse.

B. picta is supposed to be a native of Buenos Ayres. Produces freely its fine lilac and purple striped flowers. They are borne in pairs on nearly all parts of the plant, standing forward from among the foliage on short lateral branches. The habit of the plant is of a less rambling character than is usual among the species, being compact, neat, and interesting, too large for a moveable trellis, but particularly adapted to the bottom of the rafters or front of the house.

Besides the climbing kinds there are one or two species which assume a more arborescent character and are worth attention. The first of them, *B. leucocylon*, is a stove evergreen tree, producing large pink trumpet-shaped flowers.

B. serratifolia, another fine shrub-like species, has very handsome yellow flowers, which contrast prettily with its bright green serrated foliage. This too requires a stove treatment.

B. suberosa is an interesting plant, attaining a considerable size; the flowers are white, agreeably scented, and produced copiously when the plant is allowed a sufficient degree of heat. Being a native of the East Indies, it requires the warmest part of the plant stove; this perhaps, and the large space it occupies when grown well, have been the principal causes for rejecting it from the generality of collections; still, where room can be allowed, it is desirable.

The general management of bignonias is extremely simple and uniform; all the species, whether climbers or not, delight in rich fibrous loam, with which a small portion of heath-mould may be mixed in order to preserve it open and permeable to the roots. The climbing species grow most luxuriantly, and consequently arrive at a flowering state earlier, when planted in the borders of the house which they are intended to ornament. They should be pruned annually, the best season for which is September and October, when all unripe or immature wood should be cut away, so that the remaining portion may have the full influence of light and air, as it frequently happens that when the branches are left in a crowded state mildew attacks them, and the growth of the succeeding year is weak and unfruitful. The management of arborescent kinds differs in no respect from that usual for other stove plants, while the treatment of the hardy and deciduous species may be assimilated correctly with that usual for the grape vine.

AMARYLLIS AULICA.

ALTHOUGH this amaryllis was introduced into this country many years since, and was offered by the trade at a reasonable price, I believe it is very little grown, if known, by a great many gardeners; but when well grown and flowered I do not know of anything to surpass it for lighting up the conservatory at this dull time of the year, especially if associated with a few good specimens of *Eucharis amazonica* and forced azaleas. With a sufficient stock it may be had in bloom all the year round. I have a specimen under my charge in an eleven-inch pot, the produce of one bulb brought from Malta, which has been greatly admired. It has sixteen scapes from eighteen inches to two and a half feet high, thirteen flowering at the same time. The three others are not quite so forward, and have six flowers on nearly every scape. On Christmas morning I counted thirty flowers open at the same time; since then there have been as many as forty-two open together, each flower being about four and a half inches in diameter. They are of a purplish crimson colour with a white stripe down each segment, some of which are also splashed and blotched with white.

I herewith send a few brief notes on its management, trusting they may be useful to some of your numerous readers. The specimen in question came under my charge at the end of May, 1880. It was then producing two scapes, one bearing three, the other four flowers. It flowered again in February and March of the year following, when it produced seven scapes, five or six flowers on each. It flowered again at the end of December, 1881, and had sixteen scapes. After flowering in each year it was grown on in stove heat, with plenty of water, and when growing freely it received weak liquid manure, which was continued until the leaves were fully grown, which can be seen by the tips of the leaves changing colour. Afterwards we gradually lessened the supplies of water and exposed it fully to sunshine in a position nearly close to the glass. This is done to assist the ripening of the bulbs, for on this depends in a great measure its flowering well. The leaves gradually die back to the bulbs, and when this is the case the water should be withheld altogether, and the pots laid on their sides anywhere under the stage where they will not be exposed to frost. The resting of the bulbs depends on the time they are wanted to flower, but it would be well to give them from six weeks' to two months' rest.

About six weeks before wanted in flower introduce them to a temperature ranging from 55 deg. to 65 deg., and they will soon begin to move. When they have grown an inch or so turn them out of their pots, and see if the drainage is perfect. If the plants are too much crowded with roots shift to pots of the next size, and use turfy loam and rotten cow-dung with some charcoal broken to the size of beans. Press the compost firm round the sides of the pot with a potting stick. The plants should not be overpotted. My plants when turned out of their pots had the appearance of being one mass of roots, with scarcely any soil visible, and were potted in the next size pot each year. The bulbs are the size of large Giant Rocca onions, throwing up about three scapes each.

In penning the above remarks I am not presumptuous enough to think its culture is not generally understood by gardeners, but trust they may be of service to some of your amateur readers.

Coedriglan Gardens.

W. M.

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its natural, and consequently healthy, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Householders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

Notes of Observation.

PLANTING POTATOES.

NOTICING your remarks upon the sprouting of seed potatoes, I beg to advise you that, finding my Ashleaf and Early Rose unmanageable in store, I took the bull by the horns and planted them on January 26, much to the surprise, and I think disgust, of my gardener. It was that or rubbing off, and I chose the former method. I planted rather deeper, and manured the surface, and when they appear this will be gathered over the crowns to protect from wind and frosts. I followed much the same plan with autumn planting thirty years since; the potatoes as taken up and picked for size being immediately replanted behind the plough without the slightest weathering (an important item in autumn planting), and when frost was sufficient to admit of manure being put on, and spread without consolidating, a heavy dressing was applied. I have no statistics, but I had no reason to regret the practice.

W. THURTELL.

AGATHEA CELESTIS.

The exhibition of flowers of this herbaceous plant by Messrs. Cannell and Sons will be of service to those who are looking for a change of flowers for the decoration of the flower garden, as it can be used for that purpose if desired. No doubt its proper place is the greenhouse stage, as it certainly is not a brilliant bedder; but I remember its being employed as a bedder on more than one occasion. In the year 1855 I remember the head gardener under whom I then served bringing me a list of bedding plants that would be required, and the agathaea was down on the list for 200 plants. I had but a very limited stock to raise them from, but the number was obtained at the right time, and I remember that it did fairly well in a light rich soil. The young growth strikes as freely as the shoots of verbenas. Its growth is neat and about nine inches high, and it bears a single flower of a light blue colour on a wiry stem. There is also a variegated variety.

J. C. CLARKE.

THE SEASON.

The season, so far as it has gone, is rather perplexing in its relative earliness, when we take into consideration the long prevalence of mild weather we have experienced, and the present condition of flowering plants, trees, and vegetable crops. Like most other people, we have had in the gardens here a few early flowers on different plants. The roses at this date (February 25) are bristling with young growth, and some trees are producing a few buds earlier than usual; but the majority of our garden plants are not a day earlier than they have been in seasons before, when we have had much colder weather than we have experienced up to the present time. There is no need to cover up our apricot trees at present, for there are no signs of a single bloom opening for another week at the least. I have it recorded in my garden diary that on one of the same trees which we still have fruit was set on March 1 in 1869. Rhubarb plants in the open ground gave us a full supply in the third week in March, but at the time of writing there is not the least signs of any growth. In 1869 we also cut splendid young full-hearted cabbages early in April; but to do so this season there must be a rapid alteration in the condition of the crop. *Magnolia conspicua* was in the same season in full bloom on an east wall on March 8, but I see no chance of its being in that condition this year. All points considered, it seems to me that, in spite of the mild weather, our trees and flowers and all other plants are having their usual season of rest.

J. C. CLARKE.

LILY OF THE VALLEY.

There can scarcely be any diversity of opinion as to the merits of this most chaste, graceful, and highly fragrant flower. The forcing of a few plants in pots for the house, conservatory, and other places has become an almost indispensable operation, even in small establishments. Its culture in pots has been most ably described in back numbers of the GARDENERS' MAGAZINE; therefore it is not necessary to allude to it here further than stating that most growers have an aversion to gathering flowers from pot plants for the furnishing of glasses or other receptacles. To be able to gather the spikes over as long a period as possible should be the aim of the cultivator. Where good established beds of strong crowns exist, or imported ones can be procured, the flowering season may be greatly prolonged by planting during January or February a quantity in a frame facing south. The frame, which should be placed upon a brick at each corner, will afford space for leaves and long stable litter to give bottom heat. Fill to within a few inches of the top, and if well trodden the heat will not be so violent and the danger of sinking unduly will be reduced. On this bed place six inches of good garden soil or thoroughly-decomposed vegetable refuse, with a small proportion of good turfy loam. The tufts or crowns should be spread evenly over the surface, care being taken that only strong ones are used, and some finely-sifted soil be spread over them. A liberal watering will settle the soil between the roots, and no more water will be required until growth commences. Water must be given and air admitted according to the requirements of the plants and the state of the weather. The frame must be raised before the growth reaches the glass, and some protection afforded on the approach of frosts. After flowering the frames may be removed, and turf or soil packed round to preserve the roots from the influence of the weather. By proceeding as here described the flowering season will be greatly extended, provided there are outdoor beds to follow in succession.

D. B.

CAMELLIAS IN SMALL POTS.

The answers kindly given to my query about camellias do not make the matter quite so clear as I would wish. Your correspondents do not say if plants of the size mentioned bloom freely. I have plants of *Mathotiana*, *Imbricata*, *Nobleana*, *Elegans*, and various other varieties in six-inch pots that bloom well, bearing from ten to twenty flowers. The plants of *Alba plena* and *Fimbriata* look equally healthy, and the bloom buds set as well as the other varieties, but seldom more than three or four open. The others fall off. I may say that ours are well looked after in watering and general attention. I am anxious to grow them in small pots, because they just fit vases in the dwelling house. I have conversed with several gardeners on the matter, who all say it is a failing general with small plants of these two varieties.

Cheshire

W. M.

ANEMONE HONORINE JOBERT.

Your correspondent is quite correct in his statement, at page 98, that *Anemone Honorine Jobert* should be cultivated extensively. For the last two seasons I have had the pleasure of seeing well-established patches blooming freely around some shrubby borders. More especially did it make itself conspicuous during the heavy rains of last autumn. Although the flowers are pure white, the rain does not mar their beauty as soon as it does many white flowers that are double, and as they are produced on stalks two feet or more in height, grit and other dirty matter does not reach them. This anemone thrives well in a heavy soil annually enriched with a dressing of manure or vegetable refuse. Unlike most things, it seems to prefer being left in the same position for several years; but it can be increased by dividing and planting pieces or crowns in the spring.

D. B.

CROWN IMPERIALS IN THE CONSERVATORY.

When potting the hyacinths, tulips, narcissi, and other bulbs last autumn, I determined to pot up a few Crown Imperials for forcing. I had not seen any potted and employed for decorative purposes under glass, but I was quite sure that if they succeeded they would make a very pleasing addition to the other bulbs. I am very glad to say that they force very well indeed, and are very effective judiciously arranged with the other occupants of the conservatory stage. The only drawback is the objectionable odour, which is so strong as to render them unsuitable for the embellishment of indoor apartments.

Cheshire.

W. M.

TROPEOLUM SPECIOSUM.

A brief record of my experience with *Tropæolum speciosum* will perhaps be both interesting and useful, as so many persons have failed to grow it successfully. Much has been already written with reference to it, for large numbers of visitors to Scotland have been enraptured by the splendid appearance it presents during August and September. In Stirlingshire and Perthshire, which are much frequented by tourists, it appears to grow vigorously and bloom abundantly. It indeed clothes the sides of houses so densely with foliage and flowers, and presents such a brilliant appearance, as to well merit the name of "Flame Plant," by which it is commonly known. Much disappointment has been experienced by those who, after enjoying the splendid displays produced in the north, have attempted the cultivation of the plant in the sunny south. My friend Mr. Banting told me some time since that he had attempted its acclimatization at Bonchurch, Isle of Wight, but had failed. This statement will not surprise those who are acquainted with the peculiarities of the plant in the matter of climate. Some eight or nine years since, when living near Croydon, I had charge of some roots that had been brought from Taymouth, where I believe it grows luxuriantly. For some time I could not induce them to grow so freely as could be wished. Naturally, the first impulse is to plant this *tropæolum* in the most conspicuous positions, and most frequently the southern front of the residence and the south aspect of a wall are considered the best positions that could be selected; hence many of the failures that occur. I planted one portion of my stock against a south-west wall and the other on the north side of a house, and I soon found that the plants in the coolest position were making the most satisfactory progress. As I had vacant a moist position against the north side of a wall at the back of an herbaceous border, it occurred to me to prepare a station specially for the *tropæolum*, and this in due course was done. The ordinary garden soil was taken out to a depth of about twelve inches, and replaced with a mixture consisting of good well-rotted turf, leaf-mould, cow-dung, and sharp sand, which were well incorporated. The strip of border thus prepared at the foot of the wall was enclosed with ordinary red roofing tiles, which were thrust into the soil to a depth of three or four inches to keep the fleshy roots within bounds. About the end of February I moved the plants from the south-west wall to the new position. By the growth made during the first season it was not difficult to see that they were at home in it. To support the growth we made a trellis with iron rods and thin wire, which was fixed about three inches from the surface of the wall. We fixed the rods horizontally, one near the top and the other near the bottom, and then strained the wire perpendicularly from one to the other at a distance of about eight inches apart. When the plants began to grow I found that the shoots required a little regulating and some assistance in reaching the wires; but after a fair start had been made they were able to take care of themselves. I was perfectly satisfied with the progress made by the plants, which in the second year reached a height of about ten feet, produced a good display of flowers, and ripened several seeds. It is quite certain that it requires an abundance of moisture, and that to ensure success this condition must be complied with.

Kingston-on-Thames.

C. ORCHARD.

MEASURING A TREE.—My friend Captain Mayne Reid kindly sends me this extract from a letter written to him by an American correspondent, on the subject of the largest tree in the world:—"At my reception of Friday evening last we discussed that grizzly giant, the grandest tree known in the world—the *Sequoia sempervirens gigantea*. While in the Mariposa Grove, California, I had carefully run a cord round its trunk in three places—at the base, four feet above, and also eleven—and put the cord in my pocket, marked, but without being measured at the time. On Friday evening it was submitted to my friends for measurement. General C., and B., the Greek Consul-General here, undertaking the duty; each guest having first written his estimate of its circumference on a card. The guesses varied greatly, ranging from 35 to 450 feet! Bierstadt, who knows the tree well, made it 111; my own estimate being 90 feet. It proved to be—at the ground 93 feet 7 inches in girth; four feet above the ground, 87; and at the height of eleven, 65 feet 5 inches. The bark has been nearly all burnt or broken off. Were it not for this, the tree's girth at the base would be about 130 feet, as the bark itself is 2 feet in thickness." By this measurement, boards might be sawed from this tree nearly 30 feet in width, and of indefinite length. Fancy a board big enough to lay the floor of a large ball-room!—*Illustrated Sporting and Dramatic News.*

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and is taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any other earthy matter calculated to produce gall-stones or gout deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

Exhibitions and Meetings.

ROYAL BOTANIC SOCIETY.—MESSRS. W. PAUL AND SON'S EXHIBITION OF CAMELLIAS AND HYACINTHS.

THE exhibition of camellias and hyacinths now being held by Messrs. W. Paul and Son in the gardens of the Royal Botanic Society is remarkable, not less for its extent than for the splendid quality of the individual specimens, and it admirably illustrates the resources of the well-known establishment at Waltham Cross. The subjects forming the exhibition are arranged in the corridor leading from the north entrance to the conservatory, and this structure they completely fill. The camellias, which consist of splendidly-flowered bushes ranging from two to six feet in height, are placed on the north side, and form a broad bank extending the whole length of the corridor. On the table on the opposite side are the hyacinths and numerous stands of camellia flowers and rose blooms, which are backed up by dwarf camellias bearing about half a dozen well-developed flowers each. The colours of the hyacinths and camellias are very tastefully contrasted and the general effect is exceedingly good.

The camellias, from the large size and superb development of the several specimens, undoubtedly form one of the very finest displays of these flowers that has yet been produced in the metropolis, and, owing to the large number of varieties represented and the exceptional condition of the plants, the exhibition will be found especially interesting to cultivators. From the varieties exhibited, which, by the way, form but a small part of the Waltham Cross collection, the following were selected for their high-class quality:—*Adelina Benvenuti*, blush flaked and spotted with crimson; *Adriana*, rosy crimson, the petals large and smooth; *Alba plena*, still the best of the white varieties; *Augustina superba*, bright pink, very pleasing; *Beali*, crimson, very free and fine; *Belle Jeannette*, crimson, the petals marked with a white band down the centre; *Benneyi*, bright red, the flowers large and of superb form; *Bonomiana*, white flaked with crimson, very striking and desirable; *C. H. Hovey*, dark crimson, large, and of the finest form; *C. M. Hovey*, bright red-crimson, a remarkably well-made flower of the most brilliant shade of colour; *Chandleri*, rosy crimson, a very free-flowering and attractive variety; *Conspicua*, bright rose, a bold semi-double flower of a most attractive character; *Contessa de Hainaut*, bright peach shading to delicate blush; *Corallina*, very dark red, semi-double, but useful for its colour; *Countess of Derby*, white, richly flaked with rosy red, a finely-formed flower of a most pleasing character; *Cup of Beauty*, blush feathered with rose-crimson; *Elegans*, rose-pink, a large and showy flower of good quality; *Eugène Massina*, rosy crimson, the petals margined with white, very distinct and pleasing; *Fimbriata*, white, the petals elegantly fringed; *Imbricata*, rosy red, a useful well-known variety; *Lecanea superba*, crimson, free and good; *Mathotiana*, dark crimson, large and fine; *Montironi*, white, very beautiful; *Prince Albert*, white blotched and flaked with red, one of the best of the striped varieties; *Rubens*, rosy red, the petals banded with white; *Sarah Frost*, rosy red; *Targioni*, flesh colour with white margin; *Tricolor*, blush-pink striped crimson, semi-double, but valuable for its effective colouring; and *Tricolor imbricata*, white flaked with red.

The hyacinths consist exclusively of specimens bearing large massive spikes, and the most noteworthy varieties are, *Cavaignac*, *Charles Dickens*, *Fabiola*, *Howard*, *Macaulay*, *Pelissier*, *Prince of Wales*, *Solfaterre*, *Von Schiller*, and *Vuurbaak*, of the single red varieties; *Alba maxima*, *Grand Vainqueur*, *Grandeur à Merveille*, *La Grandesse*, *La Neige*, *Queen Victoria*, and *Snowball*, of the white varieties; *Blondin*, *Charles Dickens*, *King of the Blues*, *Lord Byron*, *Lord Derby*, *Lothair*, *Mr. Gladstone*, and *Princess Mary* of Cambridge, of the single blue varieties; *Masterpiece*, a superb new variety with purplish black flowers, is also admirably represented by several fine specimens.

The exhibition will remain open until the 18th instant, and those of our readers who are interested in either of the two classes of flowers represented may be strongly advised to take advantage of whatever opportunities they may possess for visiting it. It is not often that so good an opportunity occurs for becoming acquainted with such a large number of the finest camellias as is afforded by this display.

The Household.

A VALUABLE REMEDY IN ALL HOUSEHOLDS.

WE would speak from long experience, and with unceasing gratefulness, in favour of a remedy which should never be absent from any home. It is now many years since that we read in some paper a letter addressed to the Editor, in which was mentioned the value of permanganate of potash. The writer stated that he had travelled through Africa, and had never drunk any water without first dropping a weak solution of permanganate of potash into it, and that his escape from fever and malaria he believed he entirely owed to this practice, notwithstanding that the water he drank he had occasionally to dip from places abounding in organic matter—that is to say, in matter that had once been alive and was now decomposed. Also, that on coming to Madeira he found his stock of permanganate exhausted, and after a vain inquiry at a pharmacy he ended by describing it as resembling “chips of garnet-coloured glass.”

“I know it then,” was the reply. “It has been here a very long time; we did not understand its use.” It was not long before the inquirer related some, at least, of its virtues; and moreover said that a traveller could carry enough of the permanganate in a pill box, placed in his waistcoat pocket, to last him for daily use for a twelvemonth.

Now, although at this time Mr. Bollman Condry, in 1862, had introduced the article to us by sending a bottle of “Condry's Fluid,” we did not, or cared not, to use it; passed by one of the best gifts without heeding it; did not even understand that Condry's Fluid and permanganate of potash were identical; in fact, did not read the book which accompanied the fluid. This omission we have often since regretted. After some time we found that permanganate of potash acted as a purifying agent on meat and fish that had become tainted from hot weather or from a thunderstorm; also, that if diluted and thrown a short room or passage it would directly, almost in an instant, destroy evil odours; but as to its remedial properties we were ignorant, and discovered them accidentally, for instance, in

BURNS AND SCALDS.—Some permanganate had been poured into a pan of cold water for the purpose of purifying some suddenly-tainted fish, which (in kitchen parlance) “went off in an hour.” The cook suddenly cried out that she had burned her hand with a hot poker which had been laid across the fire, and as suddenly she plunged it into the permanganate water, but ignorant of its value. In a moment all pain had ceased, though the skin was burned and there was a deep scar.

After this, the permanganate, properly diluted, was successfully used for cuts, burns, and scratches, no matter how severe; all pains and soreness ceased after its use. We once saw two hands burned with undiluted carbolic acid; as soon as possible after the accident each hand was plunged into a basin of permanganate and water and as soon as the water became yellow fresh basins were prepared in the same manner, and the hands taken out and put into the fresh supply. In the course of two hours, thus frequently changing the permanganated water, the hands were cured. Another instance out of many we could mention as to the curative effects of the permanganate when used for burns: with a gas stove, a young and inexperienced cook was so frequently burning her hands that, at last, before using the stove, she prepared a basin of permanganate and water to dip in her hands at the moment of the injury; the consequence was, although the flesh was deeply marked with scars, there was no soreness, no pain, no inflammation.

Why we quote so many instances where instantaneous relief has been obtained is, that in cases of severe burning or scalding of the person, a bath of permanganate of potash and water should be instantly got, and the sufferer be covered with it, excepting the face and head, and these should be bathed with it.

BRUISES.—A lady of our acquaintance fell off a flight of steps, and was thrown with her face against a high closed gate, and here she remained powerless to call for help, till accidentally discovered, her face bleeding and swollen; it was not long after our discovery of the use of permanganate of potash in burns, that we thought it might be of avail in this instance; salvolatile was administered, and after revival she cried that the pain was agony; then a bowl of permanganate and water was prepared, and with a soft rag the face and forehead were liberally bathed with it; the utter and instant cessation of all pain followed, and a speedy cure. Repeatedly we have seen its marvellous effect on bruises, and in other cases also. For instance, sore throat, a weak gargle allays the pain; bad breath, arising from decayed teeth, is inoffensive after gargling the mouth with it—the discoloration which the permanganate causes to the teeth vanishes with diluted citric acid and water, or lemon juice and water.

As a test for the quality of water it is most reliable; and, in fact, as we heard a gentleman remark, “The very inventor of permanganate of potash himself does not, I believe, know half its value.”

Our gratification was great on reading in a daily paper the following account of a further use of permanganate of potash:—

“Our doctors and men of science will be sadly remiss if they do not follow up the very promising experiments recently made by M. de Lacerda in the direction of a cure for snake-bite. He has found that permanganate of potash positively counteracts the poison of serpents. In a first series of experiments, a solution of the poison was injected into the tissues of dogs, and its effects were, as usual, swellings, abscesses, loss of substance, and destruction of tissues. When however one per cent. solution of permanganate of potash had been injected two minutes after the poison these local injuries were quite obviated; there was merely a slight swelling where the syringe-point entered. Injection into the veins was then tried, and the permanganate again succeeded perfectly. In only two cases out of thirty did failure occur, the particular animals being young and badly fed; also the antidote was given at too long an interval after the poison, when the heart was already tending to stop. The permanganate, in one series of cases, was introduced half a minute after a solution of venom, and the dog showed no suffering at all beyond agitation and acceleration of the heart for a few minutes. In another series the characteristic mischief caused by the poison was allowed to manifest itself before the antidote was given. After two or three minutes, always in five, every trouble disappeared; a slight general prostration followed for fifteen to twenty-five minutes, after which the animal would walk, and even run about, and resume its normal aspect. Other dogs poisoned similarly, but not receiving the antidote, died more or less quickly. Here is proof, well-nigh positive, that Condry's Fluid which contains the permanganate, might save countless lives in India and other snake-haunted lands. The reason seems suggested in M. Pasteur's late experiments—the poison-germs are oxygenated into harmlessness. Why, then, might not hydrophobia also yield up its terrible secret to this simple method? It ought to be tried; but, at all events, no time should be lost by Indian doctors in repeating the process adopted by M. Lacerda with his dogs upon the victims of serpent-bite.”

Mr. Bollman Condry, on October 30, 1881, addressed a letter respecting permanganate of potash to the Editor of the *Times*. In this he refers to a pamphlet published by him in 1862.

The pamphlet to which Mr. Condry alludes is in our possession, and it would be highly beneficial if he could be induced to republish it; in this, at page 43, he recommends the use of the permanganate as an “Antidote to all organic poisons;” “For cleansing foul sores, poisoned wounds and bites;” “Removing taint from meat, fish, and poultry;” “Washing butter, and removing rancidity and bad flavour;” “Removing bad breath and the odour of tobacco;” “A remedy for tender and perspiring feet;” “Purifying drinking and other water;” “Maintaining the health of plants in pots and conservatories.”

The permanganate bought in grains is not expensive, forty grains to half a pint of distilled or boiled water (cold), then bottled, and of this use a proportionate quantity, from half a teaspoonful to a tablespoonful, according to its intended purpose—whether for cleansing or purifying. As a curative agent we should, from long and varied experience, term it a true destroyer of pain, as far as exterior wounds, cuts, bruises, and burns are concerned.—Abridged from the March number of the *Ladies' Treasury*, edited by Mrs. WARREN.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, & Manufactured by BOUTON and PAUL, Norwich. Illustrated Catalogues sent free post.—(ADVT.)

Replies to Queries.

Names of Plants.—Amateur.—As you have not attached numbers or distinctive letters to the specimens we are unable to give you the names. C. B.—No. 1, *Azalea Iveyana*; 2, A. Mrs. Turner; 3, A. Criterion; 4, much shrivelled and cannot be identified; 5, *Gymnogramma ochracea*.

Gas Stove.—R. Powis.—The Syphon Condensing Stove, reported on at page 101, was supplied by Mr. B. Warhurst, of 33, Highgate Road, London, N.W. It is made to burn either gas or oil, and in several patterns and sizes. In ordering one you should give the dimensions of the apartment to be heated by it, and also state whether you intend to burn gas or any particular kind of oil. In the case of oil, of whatever kind, the smell usually produced is entirely destroyed by the condensation of the vapours.

Puzzled.—We cannot of course give any opinion on what you have purchased or grown; but the two names you mention belong to one and the same variety, and that was originally brought forward as *Shelburne*, making three names in all. Between *Kidneys* and *Rounds* it is not always possible to draw a sharp line. We use the terms that prevail because they are generally understood, but the classification might no doubt be improved upon.

Bedding Lobelias.—F. G.—You may in some degree make good your losses by raising a stock from seed. The sowing should be made at once, and the boxes or pans containing the seed be placed in the propagating pit or a cucumber house. As soon as the seedlings are of a suitable size prick them off into shallow boxes filled with a rich and friable compost, and in due course harden off in the usual way. Put the seedlings about two and a half inches apart each way, supply liberally with water from the time of their being well established, and stop the growth as often as may be necessary to prevent their flowering before they are planted in the flower beds.

Moles.—A. H.—As you say mole traps are of no use, we cannot well advise you on the riddance you wish to make. But we can advise you to consider a second time whether there is any great gain by the destruction of moles. We have had them run about the lawns and seed beds in the most extravagant manner, but we became reconciled to their disfigurements by finding that when they had devoured all the wireworms and other ground vermin they went away of their own accord, and the amount of disfigurement was but trifling and was easily repaired. But to return to the traps, we aver without hesitation that they are remarkably effectual when skillfully employed, and the trap we prefer is the common spring that a real countryman can manage with dexterity.

Correspondence.

SELECTING POTATOES.

MR. MCKINLAY'S contribution on "The Cultivation and Selection of Potatoes for Exhibition," which appeared in your issue for February 25, contains a great deal of useful information. The experience of so successful a grower and exhibitor must always command respect. Agreeing as I do in the main with his mode of cultivation, I must take exception to his selection.

Why recommend such sorts as *Model*, *Lye's Favourite*, and *Rector of Woodstock*? They are utterly worthless for the table, and generally too diminutive for exhibition purposes. I am aware that some judges have a great affection for small and pretty samples; and I have oftentimes been surprised to see a collection of fine handsome potatoes—potatoes creditable alike to the skill of the cultivator and the judgment of the exhibitor—passed over, and the palm given to a pretty lot of small ones. Now, to give prizes to small potatoes affords no encouragement to good cultivation. Anybody can grow small ones. I am not arguing in favour of monster potatoes for any purpose; but I do think that good medium-sized ones—robust if you like—give evidence of careful and intelligent cultivation, and have been too much slighted. Then look at their greater commercial value. At Manchester last autumn, in the collection of twenty-four varieties to which the judges awarded the second prize, there were some potatoes weighing only a trifle over 2½ ozs. each. Now I think a potato weighing less than 3 ozs. ought to possess extraordinary qualities to entitle it to appear upon any exhibition table. And why exclude from the selection such popular favourites as *Paterson's Victoria*, *Flukes*, and *Regents*? Granted that they are not so taking to the eye as some others. But there is another member of the body corporate whose judgment in this matter is of infinitely more importance than the eye, and that is the palate. Why, when *Model*, *Rector of Woodstock*, and *Lye's Favourite* are brought on the table the very sight of them puts one in a bad humour. You pour gravy on them, and it runs off like water down a leaden gutter. Apply the same process to *Paterson's Victoria*, *Regents*, and *Flukes*, and you will see their crackly and flaky sides absorb the crimson fluid, compelling the desire for a mouthful before touching the sirloin.

A COUNTRYMAN.

PROOF OF SPECIES IN THE LINNEAN SENSE.

I SHOULD not have sent note hereunder but for importance attached to it in the "Archives des Sciences Naturelles de Genève" (1879) as a rare and nearly unknown instance of PROOF of a species in the Linnean sense. Is it worth your notice? I have not Darwin at hand.

The writer, M. Vetter (in "Bull. de la Soc. Murithienne des Valais") states that he had in his garden at Aubonne a number of plants of *Capsella rubella*, Reut., intermixed with *Capsella bursa-pastoris*. In the spring of 1879 he noted a number of forms exactly intermediate between the parents growing among the latter. The intermediate forms, as is not unusual with hybrids, were taller than the parents. They were all sterile. Here was the proof.

Vetter, or his receiver in the Archives de Genève, suggests that disputation in cases of species or variety might be usefully replaced by practical experiments in hybridizing nearly-related forms, and testing their powers of reproduction, sterility being regarded as proof conclusive of specific distinction in the Linnean sense.

H. M. C.

Literature.

Household Boiler Explosions, their Cause and Prevention. By W. INGHAM. (Lockwood and Co.)—A very good engineer's statement of the case, with a proposal for a two-eistern arrangement to supply the house generally as well as the bath room, the boiler being as usual in the rear of the kitchen fire. It is of importance that builders should master the details of this pamphlet, and give the householders they provide for the advantage of safety with convenience.

Ladies' Gazette of Fashion. (4, Ave Maria Lane.)—This elegant work has always some feature that will continue to interest when the fashions it so ably represents have become obsolete. In the March number are admirable essays on marriages, home employments, and the progress of the arts. Of the fashion plates and the fashions we have nothing to say, and feel inclined to boast of our utter incompetency.

Obituary.

On the 21st. ult., Count KERCHOVE DE DENTERGHEM, many years Burgomaster of Ghent, and associated in various ways with agriculture and horticulture as a promoter of progress and a generous entertainer of the representatives of horticultural science and enterprise.

On the 25th ult., at his residence, Whalley Bank, near Manchester, SAMUEL SIMPSON, Esq., solicitor, of King Street, Manchester, aged 66 years. The deceased gentleman numbered among his friends many of the leading horticulturists, to whom his house was at all times a home wherein the heartiest hospitalities prevailed. As in early days he had attained distinction as a cultivator of orchids, and subsequently of pelargoniums, ericas, herbaceous calceolarias, and rhododendrons, so of late years his horticultural tastes became more universal, and he was a sound critic of horticultural matters generally, comprising men and things. He will long be remembered for his high principles in public life and his genial generosity in private life, wherein always he had the hearty sympathy and support of his wife and family.

Recently, at South Mimms, near Barnet, Mr. EDWIN FANCOURT, one of the most renowned plant propagators of modern times, a faculty he may be said to have inherited from his father, and to have improved upon as circumstances rendered necessary. His last engagement was in the nurseries of Messrs. James Dickson and Sons, Chester. His age was 57 years.

Markets.

COVENT GARDEN.

FRUIT.		
Apples.....	per ½ seive	2s. 0d. to 7s. 6d.
Grapes.....	per 100	3s. 6d. to 10s. 6d.
Lemons.....	per 100	4s. 0d. to 6s. 0d.
Oranges.....	per 100	4s. 0d. to 5s. 0d.
Pine-apples, Eng. .	per lb.	1s. 6d. to 2s. 6d.
Strawberries.....	per lb.	15s. 0d. to 25s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Asparagus, French, bun.	4s. 0d. to 6s. 0d.
Asparagus, English, bun.	7s. 6d. to 10s. 6d.
Asparagus, Sprue, per bun.	1s. 0d. to 1s. 3d.
Barbe de Capucin.....	0s. 6d. to 0s. 9d.
Beans, French.....	1s. 6d. to 3s. 6d.
Beet.....	per dozen 1s. 0d. to 2s. 0d.
Cabbages.....	per doz. 1s. 0d. to 2s. 0d.
Carrots.....	per bunch 0s. 4d. to 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. to 3s. 0d.
Celery.....	per bundle 1s. 6d. to 2s. 6d.
Cucumbers.....	each 1s. 6d. to 2s. 6d.
Endive.....	per doz. 1s. 6d. to 2s. 6d.
Garlic.....	per lb. 0s. 10d. to 0s. 12d.
Herbs.....	per bunch 0s. 2d. to 0s. 4d.
Horse-radish, per bundle	3s. 3d. to 4s. 0d.
Leeks.....	per bunch 0s. 3d. to 0s. 6d.
Lettuces, Cabbage, per dz.	0s. 6d. to 1s. 6d.
Lettuces, Cos.....	2s. 6d. to 3s. 0d.
Mint, Green.....	per bunch 0s. 9d. to 1s. 0d.
Mushrooms.....	per basket 1s. 6d. to 2s. 0d.
Onions.....	per bushel 4s. 0d. to 5s. 0d.
Onions, Spring, per bunch	0s. 4d. to 0s. 6d.
Parsley.....	per bunch 1s. 0d. to 1s. 6d.
Parsnips.....	per doz. 1s. 0d. to 1s. 3d.
Peas.....	per lb. 0s. 4d. to 0s. 6d.
Potatoes, New.....	per lb. 0s. 2d. to 0s. 6d.
Radishes.....	per bunch 0s. 6d. to 0s. 9d.
Rhubarb.....	per bun. 1s. 6d. to 2s. 0d.
Salsify.....	per bundle 0s. 6d. to 2s. 6d.
Seakale.....	per pun. 0s. 3d. to 0s. 4d.
Small Salad.....	per pun. 0s. 3d. to 0s. 4d.
Spinach.....	per bushel 3s. 0d. to 4s. 0d.
Tomatoes.....	per lb. 1s. 0d. to 1s. 6d.
Turnips.....	per bunch 0s. 4d. to 0s. 8d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Azalea.....	per doz. sprays 0s. 0d. to 1s. 0d.
Bouvardias.....	per bunch 1s. 0d. to 1s. 6d.
Camellias.....	per doz. 3s. 0d. to 6s. 0d.
Carolinias.....	per doz. blms. 1s. 0d. to 2s. 0d.
Cinerarias.....	per doz. bun. 7s. 6d. to 10s. 6d.
Cyclamens.....	per doz. blms. 0s. 3d. to 0s. 6d.
Deutzias.....	per doz. bun. 5s. 0d. to 10s. 0d.
Eucharis.....	per doz. 4s. 0d. to 6s. 0d.
Gardenias, per doz. blooms	10s. 0d. to 21s. 0d.
Hyacinths.....	spikes 0s. 6d. to 1s. 0d.
Heliotropiums.....	spikes 5s. 0d. to 8s. 0d.
Lapagerias, per doz. blooms	1s. 0d. to 6s. 0d.
Lilac, French, per bunch	5s. 0d. to 8s. 0d.
Lily of the Valley, per doz.	spikes 1s. 0d. to 2s. 0d.
Marguerites, per doz. bun.	4s. 0d. to 6s. 0d.
Mignonettes.....	4s. 0d. to 8s. 0d.
Pelargoniums, Zonal, per	doz. trusses 0s. 9d. to 1s. 6d.
Pelargoniums.....	1s. 0d. to 1s. 6d.
Primroses.....	per doz. bun. 0s. 9d. to 1s. 0d.
Primulas, double, per bun.	1s. 0d. to 1s. 6d.

FLOWERS—Continued.

Primulas, Single, dz. bun.	6s. 0d. to 9s. 0d.
Roses.....	per doz. 3s. 0d. to 7s. 6d.
Roses, Tea.....	2s. 0d. to 3s. 0d.
Tropaeolum, per doz. bun.	1s. 0d. to 3s. 0d.
Violets.....	per doz. bun. 1s. 0d. to 2s. 0d.
Violets, French, per bun.	2s. 0d. to 7s. 6d.

CORN.—MARK LANE.

Wheat, Red, new.....	per qr. 35s. to 50s.
Wheat, White, new.....	35s. to 53s.
Flour, town-made whites, per	sack of 230lbs. 40s. to 47s.
Flour, household.....	38s. to 39s.
Flour, country households, best	makes 35s. to 41s.
Flour, Norfolk and other seconds	32s. to 34s.
Barley, Malt.....	30s. to 53s.
Barley, Grinding.....	per qr. 20s. to 30s.
Malt, English.....	35s. to 50s.
Malt, Scotch.....	40s. to 46s.
Malt, old.....	38s. to 44s.
Malt, brown.....	30s. to 34s.
Oats, English.....	22s. to 30s.
Oats, Irish.....	22s. to 28s.
Oats, Scotch.....	22s. to 30s.
Rye.....	42s. to 45s.
Beans, English, Mazagan.....	36s. to 40s.
Beans, Tick.....	38s. to 44s.
Peas, Winter.....	89s. to 44s.
Peas, Grey.....	30s. to 36s.
Peas, Maple.....	40s. to 45s.
Peas, White.....	36s. to 44s.

SEEDS.

Mustard, brown, per bush.	9s. to 16s. 0d.
Mustard, white.....	5s. to 14s. 0d.
Canary, per quarter.....	45s. to 50s. 0d.
Caury, fine.....	52s. to 58s. 0d.
Cloverseed, red, old, per cwt.	40s. to 70s. 0d.
Cloverseed, red, new.....	60s. to 120s. 0d.
Coriander, per cwt.....	23s. to 26s. 0d.
Hempseed, small, per 336 lb.	35s. to 36s. 0d.
Hempseed, Dutch.....	36s. to 37s. 0d.
Tares, winter, new, per bush.	6s. 6d. to 8s. 6d.
Trefoil, per cwt.....	18s. to 23s. 0d.
Trefoil, new, per cwt.....	25s. to 35s. 0d.
Ryegrass, Italian, per qr.....	24s. to 31s. 0d.
Linseed, sowing, per quarter	64s. to 68s. 0d.
Rapeseed, new, per quarter.....	54s. to 62s. 0d.
Caraway, Calcutta, per cwt.	27s. to 30s. 0d.
Alsike, per cwt.....	50s. to 90s. 0d.

COAL MARKET.

Wallsend Hetton.....	15s. 0d.
" Hetton Lyons.....	13s. 6d.
" Hawthorns.....	13s. 9d.
" Lambton.....	14s. 6d.
" Wear.....	13s. 6d.
" South Hetton.....	15s. 0d.
" Toss.....	14s. 9d.

MONEY MARKET.

Consols, 3 per cent.....	100½ to 100½
Reduced 3 per cent.....	99½ to 99½

TRADE CATALOGUES.

JAMES DICKSON AND SONS, 108, EASTGATE STREET, CHESTER.—Farm Seeds, 1882.

LONDON WARMING AND VENTILATING COMPANY, 23, ABINGDON STREET, WESTMINSTER.—Descriptions of Gurney Stove and Woodcock's Improved Battery S Stove.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avrg of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; o, Greenhouse; s, Stove.	Day of Yr.	
			Rises.	Souths after Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
19	S	4th Sunday in Lent. ● New Moon.	6 7	7 52	6 10	5 37	6 37	1 25	1 50	10 50	11 15	43 0	Arabis blepharophylla, H.....	Blush.	72
20	M	Sir Isaac Newton died, 1727. [oh. 17m. after.	6 5	7 34	6 11	6 5	8 1	2 10	2 32	11 35	11 57	43 2	Cydonia japonica alba, H.....	White.	79
21	Tu	St. Benedict.	6 3	7 16	6 12	6 33	9 22	2 53	3 15	—	0 18	43 4	Persica vulgaris fl. pl., H.....	Red.	80
22	W	William I. of Prussia born, 1797.	6 1	6 58	6 14	7 5	10 39	3 37	3 55	0 40	1 2	43 5	Monochætum sericeum multifl., s.	Rose.	81
23	Th	National Gallery founded, 1824.	5 59	6 40	6 15	7 41	11 47	4 18	4 38	1 20	1 43	43 7	Oncidium leucochilum, S.....	Yellow.	82
24	F	H.M.S. Eurydice capsized off Dunnose, Isle	5 57	6 21	6 17	8 26	Morn.	5 0	5 20	2 3	2 25	43 9	Oncidium Rogerst. s.	Yellow.	83
25	S	Annunciation. Lady Day. [of Wight, 1873.	5 54	6 3	6 18	9 17	0 46	5 40	6 3	2 45	3 5	44 1	Rhododendron Prince of Wales, G.	Orange.	84

The Gardeners' Magazine.

SATURDAY, MARCH 18, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (28 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, MARCH 21, to THURSDAY, MARCH 23.—EAST LONDON FLORICULTURAL SOCIETY.—Spring Exhibition.

WEDNESDAY, MARCH 22.—EALING DISTRICT GARDENERS' SOCIETY.—Exhibition of Spring Flowers.

Auction Sales for the Ensuing Week.

MONDAY, MARCH 20, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Liliun auratum.

WEDNESDAY, MARCH 22, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Standard and Dwarf Roses, &c.

THURSDAY, MARCH 23, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, MARCH 25, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THE LENT LILIES are flowering somewhat in advance of their usual season, but less early than might have been expected, seeing that since the early days of December last flowers of some sort have been common in gardens. It is however proper in one sense that Lent Lilies should be earlier than is their wont, because the season of Lent is earlier than the average, although but slightly so. It is evident however to all observers that a very large proportion of our outdoor vegetation is as yet but slightly affected by the unaccustomed mildness of the weather, and from all that appears the general opening of the spring will be but little in advance of the usual time. The more excitable forms of vegetation—say, for example, primulas and roses—have been on the move all the winter through, but the forest trees, the fruit trees, the majority of miscellaneous garden trees and shrubs, and the daffodils of all kinds (including the Lent Lilies) appear to wait for their season according to the almanac, being but slightly affected by the comparatively high temperature that for more than three months has prevailed. At the first opening of certain crocuses we concluded the present season to be about twenty-three days in advance of the two preceding. Since then some slight frosts have occurred, the winds of March have been heard to pipe, and the general temperature has been lower than for two months past. It is therefore probable that the spring is now not more than fourteen days in advance of the two or three years preceding, and it is also probable that when the 1st of May arrives we shall find the state of nature nearly in agreement with average experiences, the gains of the winter being swallowed up in the losses of the spring. The Lent Lilies illustrate the constancy to time of the more substantial forms of vegetation, and suggest to us that they are indigenous, or have been for many long ages established in the land. The common form of *Narcissus pseudo-narcissus* is so abundantly scattered about the country that no one can doubt its place in the British flora. Wherever it occurs it behaves as a rude usurper, pushing aside all the ordinary herbage of the pasture, and spreading abroad in great solid sheets. Wordsworth reminds us of this characteristic of the common Lent Lily—

I wander'd lonely as a cloud
That floats on high o'er vales and hills,
When all at once I saw a crowd,
A host of golden daffodils
Beside the lake beneath the trees,
Fluttering and dancing in the breeze.

The earliest writers agree with the latest in regard to the plant as a native at least of England, if it is not truly so in Scotland or

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Ireland. Turner describes it as our "comen daffodil." Parkinson calls it the "English wilde bastard Daffodil," and describes it as "common in all England, both in copses, woods, and orchards;" and he further speaks of it as producing seed in plenty. All the current books accept it as indigenous beyond a doubt, and their general sense may be summed up in the words of Bentham, who describes it as "abundant in many parts of England, but in several instances only as an escape from cultivation." In Watson's "Cybele Britannica" it is labelled "Native," and the region of its distribution is from lat. 50 to 60, that is to say, from the Land's End to the Firth of Forth.

Amongst the many native plants that attract attention by their individual characters and their relationships, there is probably not one that surpasses in interest the common Lent Lily or bastard daffodil. It may perhaps claim to be the archetype of all the daffodils, for it does at least appear possible that from it all the sorts may be obtained. The head-quarters of the genus *Narcissus*



NARCISSUS TRYDIMUS.

are undoubtedly on the European coast of the Mediterranean. From Italy, Spain, and the South of France we have derived the nobler forms of this fine genus, and from the western coasts of France and Portugal, as well as from the north of Africa and the western shores of Asia Minor, the more delicate of the Corbularia section have been derived. It will be observed that the geographical area of the race is sufficiently continuous: it is not interrupted by any strong dividing lines: from Edinburgh to Smyrna the transitions are easy as we follow in the line of the distribution of these plants, and in fact the only barrier to interfere with their diffusion, as climates and soils may suit them, is the sea, which they evidently love for its humidity, its equalization of temperature, and its low level. They are for the most part fat-land, moist-air, and mild-climate plants, but very hardy, as we understand the term hardy, and *Narcissus pseudo-narcissus* is not unlikely the parent of the entire race.

It is particularly worthy of notice that within the memory of men living the noble South European forms of the Lent Lily have been surpassed in nobleness by products of the English garden. Amongst the seedlings of the late Mr. Backhouse, of Walsingham, occur forms that equal the finest products of Italy, and the ancient *Incomparabilis* has been reproduced in a thousand forms and in all possible gradations by the labours of Mr. Edward Leeds, of Manchester.

It is a peculiarity of the genus *Narcissus* that, like the region it inhabits as a wilding, it has no sharp dividing lines. The varieties necessarily range around the species, but the species no less radiate like the spokes of a wheel from the central generic type. The tendency to coalesce, to invade each other's domains, and to resist all attempts at classification, will furnish a subject for the biologist that he will be in no danger of exhausting. Mr. Baker has handled them in a masterly manner, and the result is the best classification hitherto accomplished. Future workers in this field will probably reduce Mr. Baker's species, as he reduced his predecessors'. Mr. Hibberd's classification in accordance with the number of flowers on a stem is damaged by the fact that here, as elsewhere, the so-called species will go out of their way occasionally, and exhibit characters that at once ally them with species we had supposed to be far removed. Thus Parkinson records two-flowered examples of several that should—to satisfy the numerical system—produce one-flowered stems only, and Mr. Barr has outraged propriety and knocked the "Uniflos" of Mr. Hibberd's scheme "into a cocked hat"—whatever that may be—by producing a pseudo-narcissus with the ridiculous number of three flowers on a stem. We took care to sketch this monster while the bloom was fresh, and here is the figure for the admiration or disgust of our readers.

The evolutionist will be bound to study the *Narcissus* some day. So far, it appears, Mr. Darwin has given no attention to the subject. It is however tempting beyond all ordinary precedent. Look at it geologically, and how forcibly does our "bastard daffodil" illustrate the theory of the true relation of these British Isles to the continent of Europe. Of such illustrations we have many in our wild plants, but they are mostly the plants of the mountain that push us into the consideration. Here however is a plant of the plain, a half amphibious thing, that fable represents as springing from the ooze in which the lovely youth *Narcissus* perished as the penalty of self-admiration, and which our common experience tells us loves moisture above and below, and the hypothetical history of which undoubtedly carries us back—if we can submit to be carried back—to the time when Britain was part of the European continent, and there were no rolling seas between. There occurred a subsidence and the sea rushed in, and thus the northernmost form of the great family of daffodils was cut off from its kindred, and the Lent Lily cast in its lot with the new-made islanders, and holds its own as a true compatriot to this happy day. Our native alpine plants have been long since recognized as indicating a former continuity of land between the Alps, the Pyrennees, the mountains of Wales and Scotland, the tremendous mountain ranges of Norway, and the uncomfortable shores of the Arctic ocean. It is time the lowland plants were allowed to throw their own share of light upon the wondrous story, and the Lent Lily may be allowed to carry us back to the ages preceding the glacial epoch.

BATH FLORAL FETES are dated May 10 and September 6 and 7.

LEE, BLACKHEATH, AND LEWISHAM HORTICULTURAL SOCIETY.—The summer exhibition will be held June 28 and 29.

OXFORDSHIRE CHRYSANTHEMUM SOCIETY will hold its twentieth annual exhibition in the Corn Exchange, Oxford, on Tuesday, Nov. 21.

BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—The next exhibition will be held in the Royal Aquarium, Westminster, November 15 and 16.

WITNEY HORTICULTURAL SOCIETY will hold its next annual exhibition on Tuesday, August 15, when prizes, open to all England, will be offered for nine stove and greenhouse plants, viz., 1st, £10; 2nd, £5. Schedules and particulars of Mr. R. B. Hobbs, High Street, Witney, Oxon.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The collection for the Pension Augmentation Fund will be resumed in the forthcoming autumn. The funded property of the institution has been augmented by the Arthur Veitch Memorial Fund amounting to £800, and the collection for the Augmentation Fund amounting to £500, the total amount invested at the present time being £15,350. The governors will not be able to raise the pensions at the rate of £4 per annum each until they have secured a further sum of £4,650.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—At the first show for this season (June 15) valuable prizes for stove and greenhouse plants, heaths, polargoniums, and cut roses will be competed for in classes open to all England. In addition, Messrs. Webb and Sons, Stourbridge, offer special prizes for collections of vegetables. At the second show (August 2) Messrs. Sutton and Sons, Reading, and James Carter and Co., High Holborn, offer valuable prizes for collections of vegetable grown from their seeds.

THE INCLOSURE COMMISSION.—The annual report of the Inclosure Commissioners for 1882 just issued states that the applications for provisional orders under the Commons Act, 1876, recorded in their last report were 77, of which 21 were for regulation and 56 for inclosure, embracing 96,747 acres. The applications since received relate to 3,399 acres, making a total of 100,146 acres. The inclosure of 19,257 acres, and the regulation of 20,395 acres has been sanctioned by Parliament. The applications relating to 56,142 acres have been declined by the Commissioners or withdrawn. With respect to the remaining 4,352 acres, proceedings are either in progress or under consideration.

New Plants, Flowers, and Fruits.

AGAVE HOOKERI (*B. M.*, 6,589).—A giant agave of the *Americana* group. It flowered for the first time at Kew last year, and for the six winter months was one of the principal attractions of the Palm House.

CAMPANULA TOMMASINIANA (*B. M.*, 6,590).—A distinct and striking species, though somewhat of a miniature. The leaves are lanceolate, the flowers cylindrical, pale blue.

DENDROBIUM TREACHERIANUM (*B. M.*, 6,591).—A curious species, native of the Malay peninsula. The growth is dwarf, the flowers lilac or pink, unattractive.

OLEARIA HAASTI (*B. M.*, 6,592).—A pretty hardy New Zealand shrub with neat foliage and white flowers. It was introduced some years since by Messrs. Veitch, and is now in general cultivation.

INCARVILLEA KOOPMANNI (*B. M.*, 6,593).—A pleasing bignoniad, with pinnate leafage and pale pink flowers.

CLEMATIS COCCINEA (*B. M.*, 6,594).—An attractive North-American species with contracted bell-shaped flowers of a lively red colour.

SALVIA COLUMBARIÆ (*B. M.*, 6,595).—A common Californian annual with lobed leaves like those of an oak, and round heads of azure-blue flowers.

ALOE PERRYI (*B. M.*, 6,596).—The aloe of Socotra, a bold plant with showy spikes of flowers, red and yellow.

CALCEOLARIA SINCLARI (*B. M.*, 6,597).—A New Zealand plant of distinct character; the leaves ovate; the flowers white with purple spots; the habit herbaceous.

PITTOSPATHA INSIGNIS (*B. M.*, 6,598).—A peculiar aroid of dwarf growth, native of Borneo.

ESCALLONIA RUBRA, *v.* PUNCTATA (*B. M.*, 6,599).—A beautiful plant with elegant leafage and extremely pretty flowers of a deep sanguineous red colour.

PITCAIRNIA CORALLINA (*B. M.*, 6,600).—A grand bromeliad with bold but elegant leafage, and a rich flower spike of a fiery crimson colour.

ABELIA SPATHULATA (*B. M.*, 6,601).—A beautiful hardy shrub from Japan, the leafage elegant, the flowers white and red.

LESPEDEZA BICOLOR (*B. M.*, 6,602).—A very beautiful hardy shrub with trifoliate leafage and small pea-shaped flowers of a deep crimson colour.

SAXIFRAGA DIVERSIFOLIA (*B. M.*, 6,603).—A large bold species, in growth like a *Parnassia*, the flowers yellow.

CAMBESSEDESIA PARAGUAYENSIS (*B. M.*, 6,604).—A fine melastomad with handsome heads of rosy purple flowers.

ZEPHYRANTHUS CITRINA (*B. M.*, 6,605).—A pretty amaryllid, very daffodil like; the leaves narrow and channelled; the flowers orange yellow.

PITCAIRNIA ALTA (*B. M.*, 6,606).—A very fine bromeliad of stately habit, the inflorescence a rich crimson colour.

SELENIA AUREA (*B. M.*, 6,607).—A pretty and peculiar crucifer, the leafage much divided, the flowers yellow.

STERCULIA (BRACHYCHITON) DISCOLOR (*B. M.*, 6,608).—A handsome species with three-lobed leaves and dull purplish flowers.

PARNASSIA NUBICOLA (*B. M.*, 6,609).—A large and scarcely handsome species from the Himalaya; the flowers are yellowish white.

SEMPERVIVUM MOGGRIDGI (*B. M.*, 6,610).—This comes nearest to *S. arachnoideum*; the flowers are pink.

ALOCASIA PUTZEYSI (*Illustr. Hort.*, 459).—A very fine aroid with prolonged shield-shaped leaves superbly marked with grey bands and lines on a ground of rich deep green.

NECTARINE PEACH (*J. H.*, 440).—A smooth-skinned peach raised by the late Mr. Thomas Rivers, of Sawbridgeworth. It is extremely handsome.

HIBISCUS ROSA-SINENSIS, *v.* LUCIUS LINDEN (*J. H.*, 441).—A handsome double-flowered variety; the colours deep red and buff-yellow.

ANOPLOPHYTUM INCANUM (*Belg. Hort.*, 1881, *pl.* xi).—A bold but scarcely attractive bromeliad, otherwise known as *Tillandsia incana*.

ECHMEA GLAZIOVA (*Belg. Hort.*, 1881, *pl.* xiii).—A noble species with somewhat rigid leafage and inflorescence of a brilliant carmine-rose colour.

MONTERETIA CROCOSMIÆFLORA (*Belg. Hort.*, 1881, *pl.* xiv).—A hybrid of much value, one of its parents being the well-known *Tritonia aurea*.

EXTRAORDINARY TITHES.—The date fixed by Mr. Inderwick's Bill for abolishing the extraordinary tithe rent-charge, which is leviable on hop grounds, orchards, fruit plantations, and market gardens, is the 1st of April, 1884. The mode which he proposes to adopt for compensating the persons at present entitled to these tithes is as follows:—The Tithe Commissioners are directed to determine the capital value of the extraordinary charge on the whole of each district assigned for the purpose of the charge, and also on the land of each landowner within the district. To estimate the annual value of the charge on each district, the gross amount is to be taken of extraordinary charge that is payable by each landowner on an average of the seven years ending next 1st of October, 25 per cent. being deducted from the amount so ascertained, as representing the expenses of collection and outgoings. To estimate the capital value of the charge in each district, the commissioners are directed to take into consideration, with respect to the whole of the district, the length of time during which the charge has been paid, the prospect of the continuance or discontinuance of the special cultivation in respect of which the charge is imposed, the value of the land, and any other special circumstances applicable to the district. Titheowners and landowners can however come to an agreement as to the amount to be certified as the capital value in any case. The compensation allowed by the Bill is that land which at its passing may be subject to extraordinary tithe is to be charged with the payment of an annual rentcharge equal to 4 per cent. on the capital value thus ascertained; and this rentcharge is to have priority over all existing and future estates and interests whatsoever. Provision is of course made for enabling the redemption of the new charge. Where a tenant has already contracted to pay the extraordinary tithe he is still to pay this rentcharge. In other cases it is, as between landlord and tenant, to be paid by the former, notwithstanding any agreement to the contrary. The Bill is backed by Mr. Duckham, Sir Edmund Filmer, Mr. E. A. Leatham, Mr. A. Pendarves Vivian, and Mr. Walter.

CONSTRUCTION OF HORTICULTURAL BUILDINGS.

By F. A. FAWKES, F.R.H.S., Author of "Horticultural Buildings Illustrated."

Second of a series of Lectures delivered before the Crystal Palace Schools of Landscape Gardening and Practical Horticulture.

You will remember that last week we discussed some of the astronomical facts upon which the efficiency of houses depends, passed in rapid review the various forms of growing houses, touched upon some modes of levelling, explained the reasons for different pitches of roof, dwelt upon the constructional treatment of roofs, and introduced some details connected with the framework of houses.

The first point we shall take up now is the glass and how it is to be fixed.

For all ordinary horticultural purposes you will be safe in using English sheet, 21 oz. to the square foot. I know it has frequently been the custom to use a thinner glass, 15 oz., or (as it is sometimes called) 16 oz. to the square foot, but it is more liable to be damaged by hail and to scorch the plants than 21 oz. glass. Belgian sheet glass is sometimes used, as it is

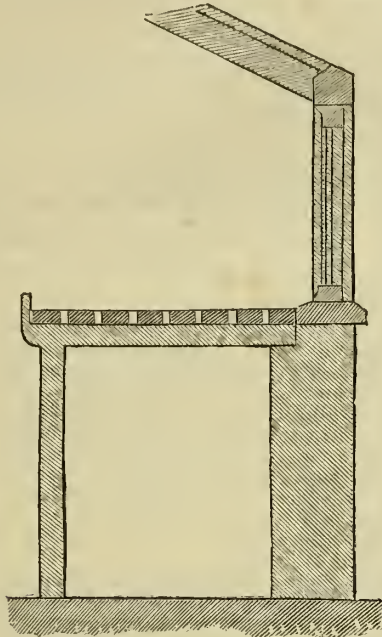


FIG. 25.—LATTICE WOOD STAGE.

cheaper than the English, but it is more speckled and wavy than English sheet, consequently is more liable to damage the plants by scorching, the irregularities in the glass concentrating the sun's rays.

When a permanent shading or screening by a semi-obscure glass is necessary, you cannot do better than employ what is known as Hartley's rolled plate, varying from $\frac{1}{8}$ inch to $\frac{1}{4}$ inch thick. As you will see, the obscurity is due to corrugations on one side of the glass. There have also been cases in which experiments have been carried out with various coloured, or rather tinted glass, with the view of arresting some of the excessive heat rays of the sun, and yet allowing a sufficient proportion of the light rays and chemical rays to pass through for the purposes of cultivation; but as it does not appear that the use of such glass has passed from the experimental to the practical stage, I will say nothing further regarding it.

It is very easy to decide what glass we shall employ, but not nearly so easy a matter to determine how we shall fix it. As you are aware, there are a great many different methods of fixing glass in roofs without having recourse to putty. Now putty glazing is by no means perfect: the putty is apt to peel off, crack, form crevices for the retention of moisture, and cause the woodwork to rot. Then it is troublesome to renew glass when necessary, as well as to put it in in the first instance. There can be no doubt

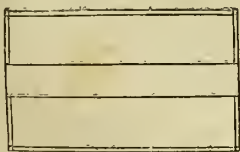


FIG. 26.—PLAN OF STAGES FOR NARROW SPAN HOUSES.

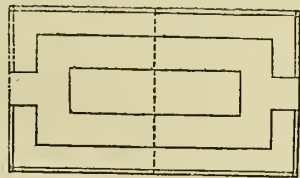


FIG. 27.—PLAN OF STAGES FOR WIDE SPAN HOUSES.

that putty glazing is crude and unmechanical, and that horticulturists generally would welcome any advantageous method of superseding putty glazing; but there can equally be no doubt that for purely growing horticultural purposes no system hitherto invented has proved a successful rival to putty glazing. I have personally taken a great deal of trouble to investigate the merits of various systems of mechanical glazing, and I will briefly run over the chief features in them, and try and show you how it is that I cannot conscientiously recommend any of them for growing purposes.

In some cases the glass is held in its place by metallic clips, in others by compressible metallic bars, in others between strips of vulcanite or other elastic substances, the glass and such substance held in their position by wood or metallic capping and screws; in others the glass drops into grooves prepared to receive it. Now in all of them the glass comes in contact with either a metallic or an elastic substance. In the former case there must be a sufficient amount of "play," or the glass will certainly break; in the latter case, the moisture and other atmospheric influences will cause the elastic substance to rapidly decompose, when there is far more trouble

and expense to replace such substance than to reputty a house. Of course, if there be any "play" between the glass and whatever it touches hot air, has abundant opportunity for escape. Such a house cannot be properly fumigated; crevices for the retention of water by capillary attraction abound; subsequent freezing of this water and constant breakage of the glass are liable; and the same crevices which hold the water will harbour insects. I need not tell you that these disadvantages would be fatal to proper cultivation, and that a puttied roof with all its defects is the safest to trust to.

For other than strictly growing horticultural buildings mechanical glazing may frequently be employed with benefit. If putty is used however there is no reason why it should not be used in the best possible manner. When putty cracks it is because it gets too hard. This may be avoided by adding a little tallow to it when made. Say nine parts

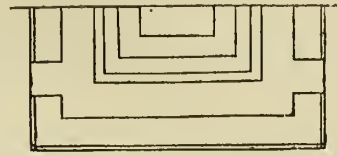


FIG. 28.—PLAN OF STAGES FOR LEAN-TO HOUSE.

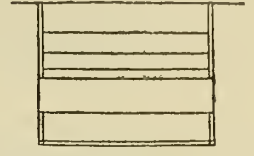


FIG. 29.—PLAN OF STAGES FOR SHORT LEAN-TO HOUSE.

of good boiled linseed oil and one part tallow mixed with whiting to the required consistency. This will set sufficiently hard for all practical purposes, and yet will not have such a tendency to crack.

It is frequently recommended to employ bottom putty only, that is to say, imbed the glass in putty, sprigging it at the top with copper tacks. This of course will obviate all trouble connected with putty peeling from the top. There is no practical objection to it, but it is certainly not so slightly as when top putty is employed. In any case, if top putty is employed, it should not be allowed to cover a large area of the glass, but the side of the putty next the glass should slope well, so that moisture may not be so liable to be retained upon it.

The glass should be cut with a lap of not more than about $\frac{1}{4}$ inch; if more than this, the water held in the laps by capillary attraction will have greater facilities for being retained; freezing and breaking the glass. Besides this, with wider laps than $\frac{1}{4}$ inch, dirt may be held between the two surfaces of the glass, and not only be unsightly but obstruct the rays of light. Never putty laps. The sashbars may be 10 inches to 12 inches apart in the roof of an ordinary house, and the panes may be about 2 feet to 2 feet 6 inches long. These panes should be of a rectangular shape, and should not,

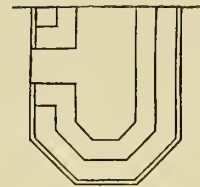


FIG. 30.—PLAN OF CONSERVATORY STAGES.

as is sometimes recommended, have the lower edge cut in circular form, as in this case irregular capillary attraction will be almost certain to cause breakage of glass.

There are two descriptions of roof of which I have not yet spoken, the "curvilinear" and the "ridge and furrow." I can recommend neither of these for ordinary growing houses, for the following reasons:—

In a curvilinear roof the construction is more costly and troublesome, lateral thrust is not so easily overcome, training wires are not always so easily fixed, ventilators are not so easily adapted, as in a straight roof. But more important still is the objection that if bent glass be used it is much more liable to break with variations of temperature than straight glass; and if straight glass be used the panes must be short and in different planes, or they will not follow the curve of the roof; an unsightly appearance is the result, and heat is more liable to be lost and rain to drift in than when the panes are in the same plane, as in a straight roof.

By a "ridge and furrow" roof I mean a roof composed of a number of small spans, each not more than about 5 feet wide. The chief objections to such a roof as this are: It has a number of valley gutters, and these are always a source of difficulty in keeping watertight; such a number of valleys

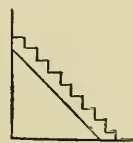


FIG. 31.—Narrow Steps.



FIG. 32.—Wide Steps.

SECTIONS OF SUPPORTS FOR TIERED STAGES.

and ridges in proportion to the area, and the constructions necessary to support those valleys and ridges, form unnecessary obstructions to the light; and really under no conditions is it a necessity to have a ridge and furrow roof to cover ordinary growing houses.

In all the remarks that I have made regarding the construction and details of span roofs, it may be taken for granted that lean-to and three-quarter span houses are equally applicable.

In discussing the details of growing houses the question of stages or stands for plants, &c., must not be omitted. The objects of a stage or stand are, that it shall bring the plants nearer the glass; shall place them in such a position that they are more easily attended to; shall raise them away from any obstruction, such as hot-water pipes, &c., and shall afford a means

of easily draining them from superfluous moisture. For all usual purposes the ordinary lattice wood stage is very suitable: it may be made of deal laths, say 3 in. by 1 in., having a space of three-quarters of an inch between them, carried on bearers at short intervals, these bearers supported by legs or brickwork (Fig. 25). Sometimes it is considered advisable to have a solid stage, when stone, slabs of concrete, or more usually slate, is employed. Such stages, having a raised margin, and provided with drainage holes at intervals, are useful when really a shallow box is required; when it is necessary that pots or plants shall rest on a damp bed of sand, moss, &c.; or in a house requiring moist heat, when wood stages would be liable to rot. Slate stages however are much more expensive than wood. A cheap form of solid stage may be constructed by taking an ordinary lattice wood stage, such as shown in Fig. 25, fixing a fillet on the edge, so as to make a raised margin, and then line the interior with zinc (say No. 20, B. W. G.), of course taking care to provide drainage for the shallow watertight box thus made. Iron stages are seldom if ever required or used in growing houses; of their use in show houses I will speak later on. Iron stages are nothing more than panels of perforated, and usually ornamental, castings, supported horizontally by a framework and legs of iron, or by a brick or other support.

In planning stages for growing houses be careful to study economy of space and convenience. A well-planned stage often means the success of a house, when a badly-planned stage means failure. In filling your house with stages never have two paths where one will suffice; at the same time never let the stages be inaccessible. Look well to the distance of your stages from the glass, and let this be taken in conjunction with the height and size of the plants, &c., which will be placed upon the stages. Well-planned stages will cover the maximum space, will be accessible in every part, will present a neat uniform appearance, and will exactly suit the plants which they are intended to support.

The proper height for the top of a usual flat stage is about 2 ft. 6 in.: if lower a good deal of stooping is required to attend to the plants; if higher, they are not only rendered less accessible, but they look very awkward.

Fig. 26 shows the most suitable form of stages for a narrow span house up to 12 or 13 feet wide. In all these diagrams I show a path 2 ft. 9 in. wide. This, with 4½ in. on each side, occupied by woodwork, allows for a 13 ft. house, 4 ft. 9 in. width of stage on each side of the path. Market gardeners as a rule prefer such houses about 11 ft. wide; this allows stages on each side to be 3 ft. 9 in. wide, and this width is easily accessible, not only for the plants, but for reaching the ventilators when necessary.

For anything more than 13 feet wide a span house should have the staging disposed in the manner shown in Fig. 27.

Where one plant house succeeds another, or there is a division required to be placed in a wide span house, it is better not to allow the two paths to converge into one at the point of division, but to let them be continuous, as shown by the dotted line on the diagram; this will obviate all waste of space. There will also be plenty of head room for the two doors at this division, as there is, or ought to be, head room in the paths. This question of head room in the paths will also regulate the width of your side stages. If you find, after showing the side stages a certain width, you have not sufficient head room, and you do not wish to make your house higher, you can easily overcome the difficulty by making the side stages wider, or the eaves higher. The centre stage may be either flat or tiered, depending of course on the width of this stage, the plants to be grown on it, and the distance from the glass.

In lean-to or three-quarter span plant house of a moderate width and not too short, the mode of arranging the staging, as shown in Fig. 28, is a very suitable one.

If a house is too short to admit of a stage of this description, the return ends may be omitted, as in Fig. 29.

A good arrangement of the stages in the conservatory is shown in Fig. 30.

A great diversity of opinion exists as to the width which each step of a tiered stage shall be. Without laying down any hard and fast rules for the width of steps (which depends so much upon the plants to be grown), it may generally be remarked that a great number of very narrow steps are not so advisable from an economical point of view as a smaller number of wider steps (Figs. 31 and 32). For instance: A centre tiered stage 4 ft. 9 in. wide may consist of two 9 in. steps carried round, and a central 21 in. stage. A 3 ft. 9 in. stage, one 12 in. step carried round, and a central 21 in. stage. So much for stages.

(To be continued.)

LIFE HISTORY OF A CROCUS.—At a recent meeting of the Linnean Society Mr. G. Maw read a paper "On the Life History of a Crocus and Classification and Distribution of the Genus." He says the corm tunic is the only permanent record of perennial existence, and even this in the living state lasts but a year. Minute papillae stud the surface of the corm, and their increase as bud-growth ultimately secures the life cycle; the new corm is implanted on and finally absorbs the parent. The tunics are homologous with leaves, and their fibrous net-like structure has so many ornamental patterns that by a fragment a species can be determined. Certain croci are constant in colour, others are exceedingly variable, and still others change in tint, as found from east to west, *C. cancellatus* being purple in Asia Minor, lilac in Greece, and white in the Ionian Islands. The stigmata are so variable that Mr. Maw thinks that Mr. Baker's threefold classification based thereon fails. Grouping of the genus is necessarily to be founded on a combination of characters, for the overlapping and interlacing of single ones militate against a natural sequence of species. A modification of Dean Herbert's classification is preferred by the author to those promulgated by Haworth and Baker. The crocuses are geographically confined to the Old World and to the northern hemisphere, their chief area of distribution being around the Mediterranean and Black Sea. Mr. Maw divides their region of occupation into nine sub-districts. *C. biflorus* has the widest range of longitude, and extends from Italy into Georgia, and *C. sativus* follows, ranging from Italy to Kurdistan. Certain Mediterranean islands, on the other hand, present curious examples of quite a local distribution. The author expresses doubts of the existence of wild hybrids, and he points out the great tendency to morphosis of nearly every part of the plant.

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DESCRIPTIVE LIST OF EXHIBITION DAHLIAS.

By MAX DEEGEN, Dahlienzüchter, Kstritz, Thuringia, Germany.

THE varieties with the date prefixed are of my own raising, and have been or will be sent out for the first time in the year stated. Those without dates were raised by other growers.

Madame la Maréchale de MacMahon.—Blush-white flamed with pinkish lilac and tipped with white. The largest existing variety of French Giant Dahlias, having blooms 8 inches in diameter. Ugly shape and habit. Height 44 inches.

Dahlienrose (1881).—Carmine-red. The most important acquisition yet made as regards form among rosiform dahlias. Height 40 inches.

Stadthaupt. A. Gobel (1879).—Brownish purple tipped with white. Height 40 inches.

Vielchenblau (1874).—Bluish violet, the best of all blue-shaded sorts. Height 44 inches.

H. Carstens (1878).—Lilac-rose flamed with purple at the tips. Height 44 inches.

Consul Lemus (1879).—Golden-yellow flamed with bright red, brilliant colour. Altogether extra. Height 44 inches.

Rud. Klee (1879).—Purple-red, rosiform. Height 44 inches.

Sieh mich an (1875).—Delicate lilac passing into white at the centre and tips. Flowers regularly shaped. Matador. Height 40 inches.

Adolph Deegen (1879).—Fine purple, richly streaked and banded with gold. Height 44 inches.

Franz Dewoty's Wwe (1879).—Pale yellow, flamed with purple at centre tips. Rosiform Matador. Height 42 inches.

Ritter Gutsbesitzer Rudolphi (1879).—Bluish lilac with bold yellow tips. A novelty in colour. Height 46 inches.

Deutsche Pfundrose.—Silver-lilac with lilac buds; gigantic bloom. Height 52 inches.

Sehenswerthe (1875).—Clear white, richly flamed and pencilled at the margins with purple. Height 40 inches.

Fantasie (1875).—Bright golden yellow richly pencilled with red, white, and light yellow, with bold white tips, or bicoloured intermixed with pure white petals, or striped with gold and red. Brilliant colour; large finely-shaped blooms. Height 44 inches.

Moritz Winkler (1874).—Fine lilac-rose, lighter at tips, magnificent flowers of enormous size; very effective. Height 44 inches.

Deutsches Liebesmutterrose.—Ground wax-yellow, margins and tips edged with carmine; grand colour. Height 52 inches.

Bauernmädchen (1875).—Fiery red boldly tipped with white, a very effective flower. Height 44 inches.

L. Rathsack (1879).—Blush-white beautifully flamed with purple at the tips. Matador. Height 44 inches.

Karl Kriegel (1875).—Brownish carmine, fine colour, good form. Height 40 inches.

Frau Emma Deegen (1875).—Pure white, unsurpassable in delicacy and purity, shaded with lilac at centre, petals of an elongated pearl shape. Height 40 inches.

C. F. Heinemann (1875).—Intense flesh-pink shade of lilac, with greenish aciculate tips to petals, very effective in colour and form. Matador. Height 40 inches.

Mohr von Rothwasser.—Dark brown, dusty centre. Height 48 inches.

Constantin Alexander Rouso (1879).—Fiery red with golden-edged tips. A splendid Matador. Height 48 inches.

Adolph Krauthan (1875).—Pure brown-red, large flowers, fine colour. Height 44 inches.

Rother Riese (1875).—Pure red, gigantic flowers, dazzling colour. Height 48 inches.

W. Meyer (1879).—Bluish purple. Height 48 inches.

Joh. Hordemann (1879).—Light red, tips flamed with gold. Extra quality Matador. Height 48 inches.

Nimm mich nicht (1875).—Warm dark purple with bright red-edged tips; the best dark dahlia of the globular rosiform type of flower. A very free-blooming Matador. Height 40 inches.

Gärtendirektor Jülke.—Ruby-red with silvery margins. Height 44 in.

C. Böhnerl (1876).—Pure white, cell-shaped. Height 48 in.

Advocat Paul Skeerst (1880).—Beautiful golden yellow with streaks and punctuations of brightest scarlet, the most distinctly marked of the streaked varieties; extra. Height 40 in.

Max Deegen's Zögling (1880).—Brilliant pure saffron-yellow with large white flecks and beautifully clear lilac-pink tips, the blooms 3 in. across, of conchiform rose type. Undoubtedly the queen among the multicoloured varieties. Height 44 in.

Huldgöttin (1876).—Deep orange-amber inside, the outside of the petals a delicate violet, a new and beautiful colour. Height 40 in.

Adolph Pfefferkorn (1881).—Tan-yellow, often richly striped with purple. A fine open flower. Height 52 in.

J. G. Deinhardt (1881).—Lilac-rose, fine colour. Height 48 in.

A. Wehrens-Müller (1881).—Light purple boldly tipped with white. Height 44 in.

General Feldmarschall von Herwarth (1876).—Beautiful deep rose, sometimes richly streaked with purple. Matador. Height 44 inches.

Ludwig Frisnette (1881).—Bronzo-maroon outside, fine colour. Height 44 inches.

Margarethe Hesse (1881).—Milk-white, centre lilac, model rose shape, very double. Height 44 inches.

Königin Auguste von Preussen.—Yellow, with beautiful carmine flaming at tips and silver-grey margins. Very fine colour, good form. Extra quality. Height 44 inches.

Bundeskanzler von Bismarck.—Bronzed roddish yellow, with coppery maroon outsides. A highly interesting variety of colour in large flowers. Extra. Height 46 inches.

Wachtmeister Teichert (1881).—Bright brick-red. Height 44 inches.

Julius Helbig (1876).—Violet inside next the centre, outside of quilled petals a fine rose colour. Extra. Height 40 inches.

Paul Naumann (1881).—Crimson, good rose shape. Height 40 inches.

Jer. K. Poznanski (1881).—Golden, with bright maroon backs to petals. New bicoloured Matador, splendid colour. Height 40 inches.

August Deltz (1881).—Light yellowish lilac, beautiful. Height 44 inches.

Wilhelm Deltz (1881).—Beautiful dark velvety purple. Height 40 inches.

Goldjubilär Christian Deegen (1876).—Purest buff, passing into a lighter shade at the tips. A Matador deserving a high place for beauty of colour and symmetry of form. Height 43 inches.

Franz Deegen (1881).—Bright lively brown edged with gold at the tips, fine colour, rosiform. Matador. Height 44 inches.

Edwin Uhrlandt (1876).—Deep lilac-rose. Extra. Height 44 inches.

Heinrich Pfeifer (1881).—Bright fiery red with golden variegation. Height 44 inches.

Lehrer Carl Sachse (1876).—Intense vermilion-scarlet, broadly edged with gold at the tips. Matador. Height 48 inches.

H. Girod (1881).—Red; gigantic blooms. Height 44 inches.

Carl G. Deegen (1881).—Beautiful flesh colour, violet outside. A Matador of finest class in form and colour. Height 40 inches.

Antonius Wiczorkowski (1881).—Fine brown-yellow flamed with carnelian-red. Height 44 inches.

G. Muske (1881).—Purplish black, large flowers. Height 44 inches.

Stolze von Zerbst.—Fine deep blood-red. Height 52 inches.

Pfarrer Schnitz.—Cerise with white tips, flat rose shape. Height 44 inches.

Deutsches Kaiserin.—Golden yellow, with a few white petals, rosiform, free-blooming. Height 44 inches.

E. Christiani.—Dark crimson on a deep brown ground. Conchiform pyramid. Height 44 inches.

Elizabeth Niewerska (1881).—Pale lilac edged with silver, splendid flowers. Height 40 inches.

Gruss an Unterösterreich.—Vermilion-carmine, often with lighter middles and whitish tips. A fine free-blooming Matador. Height 44 inches.

Frau Bigot (1881).—Light golden striped with carmine. Height 44 in.

Juliane Hesse (1881).—Fine lilac shade with pink; brilliant large blooms. Height 44 inches.

G. Eichler (1881).—Deep purplish scarlet. Extra. Height 44 inches.

Graf Pourtales (1881).—Golden yellow, beautifully flamed with scarlet. Height 52 inches.

Anna Loose (1881).—White, fine form, and abundant bloom. Height 40 inches.

Aurantia splendidissima.—Fiery orange. Height 40 inches.

Edler Mohr.—Deep black-brown, quilled. Height 40 inches.

Ernst von Bandel.—Cerise-brown, pink outside. Height 44 inches.

Zoila.—Deep blackish brown, quilled. Height 40 in.

Fr. Romer (1876).—Milk-white shaded with pale lilac. Matador. Height 44 inches.

Ernst Kreibitz (1882).—White, the margins flamed with rose. Height 44 inches.

H. C. Sohenk, jun. (1882).—Pure red. Height 44 inches.

Wilh. Hoyoll (1882).—Delicate pale sulphur-yellow tipped with white. Height 40 inches.

F. Thol (1882).—Buffish lilac, rosiform. Height 40 inches.

Franz Baumann (1882).—Beautiful silver-yellow with carmine stripes. Height 44 inches.

Johann Merz (1882).—Deep rose, carmine stripes, fine. Height 44 inches.

Heinrich W. Melchers (1877).—Dark crimson-purple shaded with black, fine large flowers. Height 46 inches.

A. H. Kerstens (1882).—Cerise-pink tipped with yellow; splendid flowers. Height 48 inches.

Joseph Kremer (1882).—Lilac-white, rich, streaked with purplish violet. Height 44 inches.

Ju. Schneider (1877).—Pure rose, white centre, quilled; extra quality. Height 44 inches.

Katharina von Kapunowsky (1877).—Delicate silver-lilac with very rich purple and violet markings. Fine showy Matador. Height 50 inches.

Ed. Schultze (1882).—Black-purple, large flowers. Height 48 inches.

F. Koeppe (1882).—Beautiful pure yellow, fine conchiform type. Height 50 inches.

Th. Nietner (1882).—Fine pure white, conchiform rose. Height 44 inches.

Hermann Bieber (1877).—Fiery red shaded with dark brown. Height 52 inches.

Karl Tanz (1882).—Blood-red, fine conchiform rose. Height 44 inches.

Dr. Jos. Ritter von Mitscha (1882).—Lilac, white centre. Height 46 inches.

J. G. Werkmeister (1882).—Pea-yellow with violet margins and centre. Height 44 inches.

Samuel G. Stone (1882).—Lilac, fine, shaded deep violet; a peculiar and effective colour. Height 44 inches.

Waldemar Gratscheff (1882).—Silver-lilac edged with violet; very large fine blooms of conchiform type. Height 44 inches.

Hellschlieferblau (1882).—Pale slate-blue, very large blooms, the latest novelty in "blues." Height 44 inches.

J. Brautinger (1882).—Carmine-purple, fine form. Height 44 inches.

Gebr. Schulte (1882).—Lilac, violet outside. Height 44 inches.

L. Kurbach (1882).—Yellowish red ground streaked with violet-purple. Extra. Height 44 inches.

Ernst Bahlsen (1882).—Light Bismarck brown, carnelian-red outside. Splendid coloured Matador. Height 44 inches.

Chr. Lorenz (1882).—Yellow ground shaded with violet. A splendid Matador. Height 44 inches.

E. Fehring (1877).—Snow-white. Height 48 inches.

Gärteninspector Schondorf (1877).—Dark velvety purple with blackish centre, fine shape. Height 40 inches.

Gustav Herold (1878).—Pure white, conchiform. Extra. Height 44 inches.

Gluthauge (1878).—Cochineal-red, fine bold blooms. Extra. Height 44 inches.

Herzblättchen (1878).—Crimson-purple tipped with white; splendid flower. Height 46 inches.

Edelknabe (1878).—Lilac flamed and banded with brilliant purple. A very showy Matador. Height 44 inches.

Blumenfürstin (1878).—Canary-yellow edged with brown and tipped with white. An exceptionally fine, free blooming, and most brilliant Matador. Height 44 inches.

Selbstleuchte (1878).—Bright intense orange-yellow, very showy colour. Bouquet, Matador. Height 46 inches.

Wild. Enkelstroth (1878).—Snow-white. Extra. Height 42 inches.

Purpurmantel (1878).—Purple. Height 44 inches.

G. Wieprecht und Hauschild (1878).—Citron-yellow, very free bloomer. Extra quality. Height 44 inches.

Heinrich Graf Attems.—Carnelian-red with rose-coloured tips; fine. Height 40 inches.

Madame de Chambray.—Fiery orange-scarlet. Height 44 inches.

Präsident Broignard.—Dull gold shaded with vermilion and edged with gold. Magnificent giant blooms. Extra quality. Height 52 inches.

Virginalis.—Pure white, well-formed giant blooms. A very effective variety for planting singly or in groups. Height 44 inches.

Phedre.—Pure lilac with well-defined violet markings. Height 52 inches.

La Père Celeste.—Fine rosy-lilac richly marked with blood-red. Giant blooms of the most perfect shape. Extra quality. Height 52 inches.

Vulkain.—Velvety blood-red, fine large blooms. Height 44 inches.

Victor Duflet.—Carmine-violet, giant flowers, well-formed, a free bloomer. Height 52 inches.

Roundhead.—Brown-red, one of the very best of the varieties with giant blooms. A Matador which for its general beauty and excellence is admirably adapted for planting singly or in groups. Height 50 inches.

Mandarin.—Canary-yellow striped with violet. A Matador which for size and beauty of its blooms and general excellence is admirably suited for planting singly or in the centre of a group. Height 50 inches.

Leah.—Golden colour, giant blooms. Extra quality. Height 44 inches.

Prince of Wales.—Gold colour striped with carmine, large blooms. Extra quality. Height 44 inches.

Elizabeth.—Dark purplish brown with violet; aster shape. Height 46 inches.

Viridiflora.—Green-flowered dahlia. Excellent as a green flower in nosegays. Develops at first a number of pale leaf-green sepals producing the effect of a green flower, which is followed by a further development of red petals. Height 40 inches.

Reine des Panchées.—Pale red blooms, the green leaves broadly margined with white. Height 40 inches.

ANTIRRHINUMS.

Who that has ever enjoyed the romantic pleasure of a stroll amid the ruins of some old monastic edifice, or strayed over the grass-grown ramparts, or climbed the almost inaccessible keep of a decayed baronial residence—once the castle of some "Lawless Lord," now, like its owner, crumbling to dust—but has beheld, with mingled feelings of serious sadness and delight, the curious appearance of these plants intermixed with wall-flowers and stonecrop, jutting out from among the joints of the stoutest masonry—heighening the evidence of the instability of human efforts, by the striking contrast presented in the freshness of nature flourishing on the decay of art? Seen thus among the imposing relics of past grandeur, in a state of native wildness, the mind, for relief, is led to compare them with their own progeny when taken into the care of the culturist, and the difference visible in the two stations is most flattering to the assiduous, patient, and persevering endeavours that distinguish the latter: a brilliancy and variety of colouring, together with an increase of size and vigour both in the flowers and the plant itself, is perceptible enough to render it a matter somewhat difficult of conception to the common observer that flowers like those portrayed should spring from so diminutive a stock; yet such is their origin!

It has beyond question taken a number of years to obtain what florists term a "strain" of flowers likely to lead to great results; and in all probability *A. majus*, the largest of the indigenous species, has been the original parent of many present varieties. These by judicious crossing and much care have again produced other and better varieties, until now we may select a very considerable number of distinct and beautiful kinds. The value of such plants, in a gardening view, is easily conceived and generally acknowledged: they are ornaments suitable for almost every situation out of doors; the beds of the flower garden, the borders of the shrubbery, vases, rock-work, ruins, or even old walls, may alike be made verdant at all times, and truly beautiful through the autumnal months: nor are they more particular in the choice of soil than of situation, only requiring that it be not excessively wet, and their management may be entrusted to the merest tyro with a certainty of success.

There are a few of the choicer sorts that from very high breeding have engendered a somewhat delicate constitution; these require to be planted on drier soil, or to be protected from excessive cold and moisture through the winter, otherwise the majority are sufficiently robust to withstand uninjured the severest weather. They may be multiplied indefinitely by cuttings, taken from the parent plant in the beginning of autumn, choosing for the purpose shoots of a medium size; these, after trimming in the usual manner, should be planted under a hand-glass, and in three weeks they will have rooted sufficiently strong to be potted; for the first winter it will be well to preserve them in a common frame, or some may possibly be injured by frost so as to spoil their blooming, and then in spring, about the middle of March, they should be planted into the places they are intended to occupy when flowering: here they soon attain strength, and in August, September, and October will make a display amply rewarding the little trouble occasioned. Established plants may remain three or four consecutive years in the same situations, or indeed until they become too large, with no further care than cutting off the old flower stems, and spreading a little mulch about their roots when the borders are dug.

Seed offers another easy mode of increasing their numbers; and when pains are taken to intermingle the pollen of various sorts, raising seedlings is highly interesting, from the production of new varieties: it should be sown in March, in light rich earth; and, with the benefit of a slight bottom heat, such as is afforded by a gentle hotbed, the plants soon make their appearance, when, after a week or two's nursing, they may be inured to the air, and as soon as they are large enough be removed to their appointed stations. No further care is necessary, except an occasional watering, or the aid of a stick, as may be found requisite: they will produce flowers in September of the same year, and have an advantage over cuttings, as they do not require protection; in short, antirrhinums are any body's flowers who will give them room to grow.

NOTES ON FUCHSIAS.—No. VIII.

FUCHSIA RADICANS.

Not many of the finest fuchsias can surpass *F. radicans* in beauty when well grown and abundantly dressed with its elegant and richly-coloured flowers. It is the "rooting" fuchsia, and in this respect unique. It was found by Mr. Miers in the Organ Mountains of Brazil in 1829. It there grows in the manner of some ferns and a few species of *Ficus*. It is a trailing shrub, branching freely, and it clings to trees for support, and when favourably situated for climbing it proceeds upwards to almost any height, resting, as it were, on its way and throwing out roots, which attach themselves to the bark as our ivy does, and these rooted seats become the bases of stoloniferous shoots that carry the plant with ease a

The stems and leaf-stalks are red or purple; the leaves ovate, of a delicate green; the flowers are characterized by the large size of the sepal segments and their brilliant crimson colour, which displays the bluish purple corolla advantageously. It was raised from seeds at Chichester by Mr. Silverlock fully half a century ago, and soon became a favourite in gardens, on account of its hardiness and the splendour of its flowering. It is often to be seen in gardens in the south and west; and, although sometimes correctly labelled, is not unseldom confounded with *F. virgata*, *F. coccinea*, and *F. gracilis*, from each of which it differs very decisively.

Fuchsia macrostema globosa, in its proper typical form, is figured in *Paxton's Magazine of Botany*, 1836, p. 75; in Sweet's "British Flower Garden," 216; and in *GARDENERS' MAGAZINE*, 1881, p. 661. *F. elegans* is reputed to be a hybrid of *F. conica*, but the raiser could never give an exact account of its origin. It is in recognition of its distinct character and peculiar hardiness that we regard it as a species. When



FUCHSIA RADICANS

stage or two higher. In its foliage this plant is very rich, the mature leafage displaying various tints of pink, crimson, purple, and bronze, all tending to heighten the effect of the fine deep crimson and purple colours of the flowers.

This fine fuchsia appears to have been first flowered in the celebrated nurseries of Messrs. Young, of Epsom. It has been described in the *Botanical Register*, and there is a good figure and lengthened description of it in *Paxton's Magazine of Botany*, IX., 27. It is a somewhat tender-habited plant, and at all events is not hardy enough to hold its own in the open border.

FUCHSIA ELEGANS.

This plant is sometimes catalogued under *Fuchsia macrostema globosa* of Don, a hybrid of *F. conica*, raised by Mr. Bunney. But this is in all its characters diminutive, and its flowers are sub-globose, the sepals curving around the broad cup-shaped corolla in a very distinctive manner. The plant before us is of bold habit, and has the characters of a species.

planted out in a rich, deep, well-drained soil it makes rapid growth and increases in size from year to year, until in the moist climates of the west it acquires gigantic proportions and corresponding splendour of appearance.

THE "CALIFORNIA APICULTURIST" is a new paper devoted to bee-keeping, and addressed, as the title implies, to the apiarians of the Far West. It is published monthly at Los Angeles, California, under the editorship of Mr. N. Levering.

ROSE CULTURE.—Mr. J. C. Geiselbrecht, a member of the Society of Arts, writes to the Society's Journal that the "Attar," commonly called "Otto of Roses," is sold in London at less than in Paris; the wholesale price ranging at present from £20 to £28 per lb., according to quality. The Kezanlik Valley, which is one vast rosery, is situated south of the Balkans, in that part of the old Turkish province of Roumelia which is now merged in the principality of Bulgaria.

BEAUTIFUL SUMMER FLOWERS FROM SEED.

By W. BRADBURY.

For the information of those who have not at their command the conveniences for wintering large stocks of zonal pelargoniums and other bodders, I have prepared a few notes on some of the most beautiful summer-flowering annuals of which stocks can be readily raised from seed in the spring. The notes will probably prove useful also to amateurs who are desirous of having as great a diversity in their flower gardens as they can without a very heavy expenditure of either time or money. The

second for the back of the borders, and six varieties of each type will suffice for all ordinary purposes. For small gardens a packet of mixed seed of each will answer every purpose. The sowing should be made in pans, and the seedlings be pricked off into boxes filled with light rich soil as soon as they are of a suitable size. Harden off and plant out at a comparatively early stage, for antirrhinums are by no means tender in constitution, and in filling beds put them eight or nine inches apart. In arranging them in borders groups of three or four plants are preferable. A rich soil is not necessary, but the seed pods should, as far as practicable, be removed as fast as they are formed, because of the check they give to the growth.



FUCHSIA ELEGANS.

several subjects named are all free and continuous in flowering, and under ordinary circumstances will produce a good display throughout the season. An efficiently-heated pit or a brisk hotbed will be the best place in which to raise the seedlings, but they may be raised without difficulty in a close pit or a warm greenhouse. In any case the seed should be procured and sown without unnecessary delay, as it is essential the plants should have sufficient time to be grown to a suitable size without being pushed on in a high temperature after passing the first stage of their existence.

ANTIRRHINIUMS afford several pleasing shades of colour, and good strains of dwarf and tall growing varieties are remarkably effective. Both dwarf and tall forms should be grown, the first for the front and the

LOBELIAS of the speciosa and pumila types are generally raised from cuttings, and for arrangements in which a uniformity of growth is essential plants so propagated are preferable; but for broad bands to beds and borders, and for clumps of three or four plants, seedlings answer every purpose. The chief point is to obtain seed that has been saved with a due amount of care. It is not necessary to put lobelias in pots at any stage, and the cultivator will avoid much unnecessary labour by pricking off the seedlings into shallow boxes. The soil should be rather rich and the plants be put about two inches apart each way, and be stopped two or three times to promote the production of side shoots and prevent their flowering until they are put into their summer quarters. Cobalt-Blue, Emperor William, and Speciosa afford three of

the most effective shades of blue, and specially-saved seed of each variety can be obtained of many of the seedsmen.

LANUMS are remarkable for their elegant habit, and *L. grandiflorum rubrum* has flowers of great brilliancy. It attains a height of about eighteen inches, produces in great profusion flowers of a brilliant scarlet colour, and when planted in blocks along the front of the mixed border it produces a striking effect. It is indeed so good that it should be planted largely, the mixed border being the best place for it. The seedlings may be put singly in small pots, or be pricked off into boxes, but the best practice is to put them in five-inch pots, four in each, and then plant them out without dividing. They make a strong growth, much labour in watering is avoided, and no check is received when they are transferred to their summer quarters. The most satisfactory display of bloom will be obtained by planting in rather rich soil and a sunny position.

LUPINES do not continue in bloom for so long a period as some few other subjects, but they flower freely in their season and are not wanting in effectiveness. They can be readily raised by sowing the seed in the open border at the end of March or early in the month following. When the plants are raised in the border, circles about nine inches in diameter should be struck out at a distance of three or four feet apart, and six seeds be sown in each. When the plants are two inches in height two or three can be removed to allow those remaining space for their full development. Lupines transplant well, and when they are raised under glass the seedlings should be pricked off into boxes and be put out early in May. *Lupinus Hartwegi*, blue and white; *L. hybridus atrocoeruleus*, red and white; *L. hybridus nigrescens*, dark blue; *L. nanus*, blue; *L. subcarneus*, blue, are the best. As they range from two to three feet in height, they should be put in the second or third rows of the border.

MARIGOLDS have a decidedly unpleasant odour, but they are so readily raised in quantities and so effective in colouring that they are well worthy of general cultivation. The *Tall African* and *Tall French* varieties range from eighteen to twenty-four inches in height, and are very effective in large beds and in the back rows of borders. The *Dwarf African* and the *Miniature French* are twelve and six inches high respectively, and are most valuable for small beds and the front lines of the border. As they require a long season of growth previous to flowering, they should be raised in heat, and have the assistance of a genial temperature until they are established in the pots or boxes in which they are put. During the time they are indoors they must have a position near the glass. A rather poor soil is the most suitable for marigolds intended simply for garden decoration and a sunny position should, when practicable, be assigned them.

NASTURTIUMS of the Tom Thumb section form a group of bedders of immense value, more especially to amateurs who are partial to brilliant colouring and are unable to grow large stocks of scarlet zonals. The most valuable are *King of Tom Thumbs*, scarlet; *Ruby King*, ruby-red; *King Theodore*, maroon-crimson; *Yellow Tom Thumb*, yellow; and these will suffice for the majority of gardens. They should be raised under glass to ensure an early display of flowers, and the seeds may be sown in pans and the seedlings be put singly in three-inch pots, or pricked off into boxes. It is not of any consequence which course is taken, as they suffer but little when planted out of boxes, even if the weather is hot and dry at the time. Tropaeolums must have a sunny position and be planted in rather poor soil, or they will grow with an excess of vigour and produce but few flowers. Sometimes the removal of the leaves is recommended for the purpose of promoting the production of flowers, but there is very little, if any, advantage in divesting the plants of foliage; and if the precaution is taken to plant them in soil that is not very rich, and in a position where they will be fully exposed to sunlight, there will be no lack of bloom. When grown in the mixed border the best effect is produced by planting them in groups of three plants, each group to consist of the same variety.

PETUNIAS are unrivalled in effectiveness when grown under conditions favourable to their flowering freely: these conditions are an open sunny position and a rather light and poor soil; but the soil ought not to be quite so poor as for the nasturtiums. Seed that has been saved from a good strain should be procured and sown at once, and the seed pans be placed in a structure in which a brisk temperature is maintained. The young plants may be pricked off into boxes as advised for the other subjects; but the best course is to put them singly in three-inch pots, as when the roots are somewhat confined they make a firmer growth and usually bloom earlier. The stock should be grown under glass until about the second week in May, and be then hardened off and transferred to the beds. The points of the shoots will require nipping off two or three times during the time they are under glass.

PHLOX DRUMMONDI, of which there are now several distinct groups and a great number of varieties, is of the highest possible value for the decoration of the flower garden. The most desirable for general decorations are perhaps the *Grandiflora* varieties, which attain a height ranging from twelve to fifteen inches, are free branching, and bloom most abundantly: their chief superiority to the ordinary variety consists in the large size and fine shape of the flower. The most generally useful are, *Alba*, white; *Black Warrior*, dark crimson; *Coccinea*, scarlet; *Splendens*, crimson with white eye; *Violacea alba oculata*, purple-violet with white eye. *P. Drummondii hortensisiflora* is a fine dense-growing variety attaining a height of about eight inches, and producing large bright rose-coloured flowers. *P. Drummondii Victoria* is a rather new and expensive variety, bearing large flowers of the most dazzling crimson. There is also a type known as the *Dwarf Compact*: this consists of varieties which form dense cushions about five inches high and eight inches in diameter, and bear large finely-formed flowers. They are particularly useful for the formation of edges to beds filled with the stronger-growing phloxes and other subjects; and for the front lines of borders the most effective colours are, *Chamois Rose*, delicate rosy salmon; *Carminea*, carmine-red; *Cinnabarina*, bright orange-red; *Fireball*, scarlet; *Rosea*, dark rose, and

Snowball, pure white. The whole of the foregoing types may be had in mixture at a very cheap rate. The annual phloxes may be sown thinly in boxes, and the seedlings be planted direct from them into the beds, or the seed may be sown in three-inch pots, two seeds in each, and be put out without the removal of either of the plants, should both seeds germinate. There is yet a third course, and that is to sow in pans and pot off singly. In either case a light and rather rich compost should be employed, and the shoots have the points nipped out once or twice during the time they are in the pots or boxes. An open position is the best place for them during the summer, and the soil must be rich and friable. A distance of from six to eight inches apart is a good distance at which to put them, and if the time can be spared the seed pods should be removed at intervals, for seed-bearing checks the growth and materially shortens the flowering season.

SALPIGLOSSIS are remarkably attractive and simply invaluable for furnishing cut flowers, and it is surprising that they are so seldom grown. They should be raised and grown under precisely the same conditions as the annual phloxes. A good mixture is preferable to separate colours.

SAFONARIA CALABRICA is a useful pink-flowered bedder on rather moist soils, but on those light and rather poor it is of but short duration. The most simple course, and the one recommended for general adoption, is to sow the seed in the beds and borders early in April, and to thin to a distance of five or six inches apart when the plants are of a suitable size.

TAGETES SIGNATA PUMILA is one of the most useful yellow-flowered bedders we have for dry hot soils. But it is not suitable for those that are heavy and rich, because of its tendency to grow luxuriantly and produce but few flowers when the soil is rich and moist. The seed should be sown not later than the end of March, and the plants be pricked off into boxes as soon as sufficiently advanced. For filling the boxes use a light sandy soil. The average height is twelve inches, and the plants require to be six inches apart.

ZINNIAS are distinct in character and attractive in appearance when grown with a fair measure of success. There are a dwarf and a tall type of double-flowered varieties, and of each there are about six distinct colours. The most effective shades are the scarlet and the yellow, and if separate colours are purchased they should have the preference. But good mixtures will be in every way suitable for most purposes. The single varieties are nearly, if not quite, as attractive as those bearing double flowers. The seed must be sown at once, and in much the same way as advised for the petunias. They do not differ materially in their cultural requirements from these flowers, excepting that they require a richer soil.

BALSAMS.

As I am a successful exhibitor of balsams, I have ventured to prepare a few notes of their culture which will probably prove useful at the present moment.

A very important point in the cultivation of these eminently attractive flowers is to obtain the best seed money can buy, for very little satisfaction will be derived from devoting time and labour to the growth of plants that in the end produce flowers of inferior quality. There is no dearth of seed saved from first-class strains, and if the intending cultivator is careful to order from his seedsman a collection of "the best," he will in all probability secure a strain of which the flowers will be large in size, pleasing in colour, and of high-class quality. My practice in the sowing of balsam seed differs materially from that of many growers. Instead of sowing in large pots, or in pans, and then potting off separately, I sow the seed in thumbs, and thus avoid any check to the young plants. As many thumb pots as may be thought necessary are prepared by being filled with a mixture of loam, leaf-mould, and sand. Two or three nice plump seeds are placed in the centre of each, and the pots are put in a frame in which a rather brisk temperature is maintained. As soon as the seedlings are up they are removed to the back of the frame and placed near the glass; to more fully expose them to light and air and prevent their becoming drawn. In a few days after their removal to the position indicated, they are subjected to a close examination, and all but the strongest plant is carefully drawn out of each pot.

Immediately the roots begin to run round the sides of the pots the plants are shifted into others five inches in diameter, and returned to the frame to assist them to quickly become established in the new soil. In about a fortnight they have usually made sufficient progress to render a second shift necessary. This is invariably into seven-inch pots. For the second repotting I use a rather stronger compost than before, and to the loam and leaf-mould add a little well-rotted manure and a small quantity of dissolved bones. They are again returned to the frame, where they remain until well established, when they have their final shift into pots nine inches in diameter. It is necessary to put them rather low in the pots at each shift, and when they have their final repotting the seed leaves, or cotyledons, should almost rest upon the surface. After the third shift, instead of returning them to the frame they are put into a molon pit, and as near the glass as possible. A moderate temperature is maintained, and air is admitted as freely as the state of the weather will permit. On the pots in which they are to bloom being well filled with roots they have supplies of liquid manure alternately with clear water.

From the foregoing remarks it will be seen that I do not check the roots or pinch their tops. On the contrary, I grow them on as freely as possible, and take such precautions as may be necessary to secure growth that is stout, firm, and short-jointed. I may add that my plants are usually sufficiently advanced for the exhibition table or the conservatory stage in three months from the date of sowing the seed.

Bishop's Tawton, North Devon.

J. T. PUGSLEY.

CULTIVATION OF THE DAHLIA.

By JAMES DOUGLAS.

SEVERAL varieties of florists' flowers, such as the auricula, carnation, pelargonium, &c., have been brought into prominent notice during the last few years by means of special exhibitions promoted in their interests. While this has been taking place growers and admirers of the dahlia have not been satisfied with the manner in which their favourite flower has been treated, and have resolved that a great exhibition shall be held this year. The Crystal Palace Company, with their usual liberality, entered heartily into the scheme, and in September an exhibition will be held there; and, so far as we may judge, it will be of greater extent, and more varied in character, than any other exhibition of its kind yet held. Thirty years ago, when dahlia shows were in their glory, and when crowds of visitors were pleased to admire the large well-formed flowers, there was nothing like the variety we have now. There were no pompones, no cactus dahlias, and the single forms were ruthlessly trodden under foot; now the single forms will no doubt form a very prominent and pleasing feature of the exhibition. Prizes will be offered for them to be exhibited in bunches, and there will be similar prizes for pompones. It would have also formed an interesting part of the exhibition if prizes could have been offered for distinct species of the dahlia; then some of the pretty single forms might have been exhibited which will probably not be found there. One may safely predict that in the stands for single blooms the original species will not find a place, but rather the large, richly-coloured, and showy forms of *D. variabilis*. If stands of different species were exhibited, *D. imperialis* might be in; then there is *D. gracilis*, a very charming plant, and perhaps the best of all; the little *D. glabra* would do well to supply a bunch of its pretty lilac flowers to place in the front row; also *D. coccinea* and *D. lutea* for variety. The experienced exhibitor need not be told to get the ground ready for his plants, because he will have done so months ago; it has no doubt been trenched and well manured, and during fine weather in winter it will have been occasionally forked over to thoroughly expose it to the action of the air. Those who have not prepared their ground may yet do so, but it must not be forgotten that the dahlia, like the hollyhock, is a very gross feeder, and good blooms will not be produced unless the ground is deeply trenched and some rich manure has been well incorporated with it.

I do not know whether the preparation of the plants or the ground is the most important, but perhaps the plants require most attention. Now is the time to place the tubers in a forcing house, where they will soon start into growth, and when the shoots are an inch or more in length they may be taken off and planted in fine sandy soil, placing one cutting in the centre of a small pot: "Long Toms" are generally used for this purpose. They may then be placed close together, either in a heated bed in the forcing house or in a cold frame. The dahlia is easily propagated from cuttings: they soon form roots, and make rapid growth in moderate heat. It is best to pot them off into four or five inch pots before the roots have turned themselves too much round the sides of the small pots. When they have been potted off they may be kept rather warm for a week or so, and ultimately, as the season advances, the plants should be put out into a cold frame, from which the lights can be removed entirely during fine weather, shutting the frames up only when there is danger of frost. While the plants are under glass care must be taken not to let them get drawn up in any way; a compact sturdy growth should be encouraged from the first.

The best time to plant out the dahlia is about the first week in June, as by that time danger of injury from frosts will be over. The ground by frequent stirring in fine weather will be in good condition. When the plants are first put out they will require a stake to be placed to each, and to save trouble I like to use the stout permanent ones to begin with, and they are driven into the ground first, afterwards putting out the plants against them, and in doing so dig out a spit or two of soil in front of the stick, replacing it with a compost of two parts rotten turfy loam chopped up, one part of rotten manure, and one of leaf-mould. The plants will more readily become established in this compost than they will in the ordinary soil of the garden. When the planting is completed and the surface of the ground lightly stirred, to make the whole neat and tidy, some rotten stable manure should be placed round the roots of each plant to prevent evaporation. After two or three weeks, if the weather is fine, the plants will make rapid growth, and future attention will consist in thinning out superfluous growths with the finger and thumb, rather than allowing them to grow so much that they require a knife to remove them. As growth progresses, the side branches will require stakes to be placed to them. The growers for exhibition usually place four round each plant, attaching a stout side growth to each, so that we have the main stem and four lateral ones, all the others being removed. The flowers must also be thinned out, and this requires some experience before the cultivator can ascertain to what extent the thinning out should be carried, and as each variety requires different treatment in this respect a novice cannot be expected to master all the details of it either in one or two seasons; nor will he be able to do it at all unless his work is interesting to him. As a general rule, the large open flowers do not require much thinning out, and the medium-sized compact flowers with smaller petals and close centres cannot be thinned out too much. The light-coloured flowers are much improved by being closely shaded, while the rich colours—scarlet, maroon, &c.—ought not to be shaded, except so much as would keep heavy rains from injuring them. There are other details of culture which will become apparent as the plants progress in growth, such as watering over the roots in dry weather, as well as syringing or watering the leaves of the plants on the evenings of hot days; the main object being to keep the plants growing steadily from the time the cuttings are struck. They may easily receive a check, either by taking them from a warm house or hotbed too suddenly into a cold frame, or they may be checked by inattention to the watering; but the ardent cultivator who takes a special interest in his plants—and he must take special interest in them if he means to be a successful exhibitor—

will be continually on the alert to see that they want for nothing that may be required to bring them to perfection, and that no earwigs or other pests will be permitted to injure the flowers, either while they are in bud or fully developed.

Correspondence.

SELECTING POTATOES.

IN the GARDENERS' MAGAZINE of last week, "A Countryman" takes exception to the selection of potatoes which I recommended to be grown for exhibition purposes, and refers specially to three of the varieties. The three sorts he mentions are Rector of Woodstock, Model, and Lye's Favourite, and these he describes as utterly worthless for the table and too small for exhibition. It is quite possible that they are not adapted for the soil in which "A Countryman" grows his potatoes; for, as is so well known, many varieties of potatoes that are of excellent quality on some soils are only fit for the pig trough on others. I have grown the three sorts named of good quality. The Rector of Woodstock is almost universally of the most excellent flavour; but the other two sorts have varied according to the season, but on an average they have been fairly good. I quite agree with your correspondent, that potatoes placed upon the exhibition table should be of good size, and if equal in other respects the larger tubers should carry off the palm. At the present moment I have the weights of my winning collections before me, and these show that I have attached some importance to size. I find that in the first prize collection of twenty-four dishes exhibited in 1877 the average weight of the tubers was 8½ ozs. each. In this collection, two of the varieties to which "A Countryman" has taken exception were prominent. These were Rector of Woodstock, the average weight of which was 6½ ozs., and Model, the tubers of which averaged 8½ ozs. Lye's Favourite was not then in commerce, but in the year following I had a few tubers of it sent to me for trial purposes, and at the International Exhibition I staged a dish averaging 6 ozs. per tuber. When cooked it was quite of an average quality, but not first-class. I am well aware that the Victoria, the Fluke, and the Regent are in certain parts of the country grown as the main crops; but they have seldom done well with me. Of course that is no reason why they should not do well in soils that suit them. As showing the influence of soil upon the quality of potatoes, the following fact is not without interest:—About ten years ago I was dining with a friend in Norfolk, and the potatoes served up were as fine as one could wish to have; they were indeed so good that I asked for the name of the variety. This my friend was not able to give me, but he offered to let me have a sack, an offer which I accepted. From the sack I selected some for planting, and I had a good crop; but the fine quality which had attracted my attention was gone, and the potatoes were only fit for the pigs. I tried the variety again with the same result, and since then I have had many similar cases. Knowing what an important influence soils have upon the quality of potatoes, I do not condemn a variety because of its proving unsatisfactory on my soil. These remarks apply with equal force to cropping as to quality. The fifty selected sorts have done fairly well with me, and those who have not had much experience may plant them with but little misgiving as to the results. Their soil will suit the majority, and as regards those which do not succeed they must bear in mind that sometimes the season has much to do with the failure of varieties, and that some sorts which are unsatisfactory one year may be grown the next with great success. Growers who, like "A Countryman," have experience in potato growing will select for themselves, and be careful to leave out of their selection varieties they have tried and found wanting, and replace with others likely to succeed on their soil.

Penge.

PETER MCKINLAY.

Law.

SALE OF FRUIT BY AUCTION.

IN the case of MARKS v. ISAACS, as reported by the *City Press*, the plaintiff was a greengrocer and fruiterer in Rye Lane, Peckham, and the defendants were fruit brokers carrying on business in Monument Yard. Mr. G. M. Wetherfield, solicitor, who appeared for the plaintiff, said the action was brought to recover £6 damages sustained by his client through having a quantity of fruit sold to him by auction which proved to be rotten and unfit for consumption. There was a condition of sale to this effect, "All goods to be delivered to the purchaser from the warehouse with all faults and defects, without any allowance for inaccurate description of marks, quality, or condition;" but the learned gentleman did not think that that amounted to a protection for the defendants selling rotten things. His Honour: What about the case of beef in the Meat Market? Mr. Wetherfield: I think the two cases are distinguishable, because people do not buy beef from sample, as was done in this instance. His Honour: You do not say in your particulars that the fruit was not according to sample. Mr. Wetherfield: I shall ask your Honour to amend that. Instead of my client buying according to the sample, the defendants sold him a rotten article. A Jurymen: How were the samples taken out of the bulk—indiscriminately? Mr. Wetherfield: We do not know. His Honour: I will direct the jury that if people choose to buy a pig in a sack no Court can help them. (Laughter.) The sample will no doubt be proved to be an honest sample of the bulk. Defendants' Solicitor: I have witnesses to prove that it was a fair sample. His Honour: No doubt, and the plaintiff must show fraud to enable him to recover. If he can show that the sample was wilfully put out in order to induce him to buy unsound fruit then he would be entitled to recover in an action for deceit. Plaintiff was called, and deposed that he purchased Lot 200 at the salerooms on the day in question. It consisted of grapes, and the one pound sample turned out was very fair and fit to be eaten. When the box he bought was opened, however, it swarmed with worms and flies. He paid 3s. 9d. per barrel, and the highest price on this particular day was 8s. Cross-examined: He opened the barrels five days after the sale, but the fruit could not have gone rotten in that short time. Besides, the grapes could not have tampered with themselves; they could not have opened the barrels and put fresh dust in of their own accord. (Laughter.) He had not paid 30s. for grapes anywhere this season, and he was not aware that the samples in question sold for 1s. 6d. each. At this stage the jury stopped the case, and the learned Judge gave judgment for the defendants, with costs.

The House, Garden, and Apiary.

DAFFODIL.

GOLD tassel upon March's bugle-horn,
Whose blithe reveille blows from hill to hill
And every valley rings,—O Daffodil!
What promise for the season newly born?
Shall wave on wave of flow'rs, full tide of corn,
O'erflow the world, then fruited Autumn fill
Hedgerow and garth? Shall tempest, blight, or chill,
Turn all felicity to scatho and scorn?

Tantarrara! the joyous Book of Spring
Lies open, writ in blossoms; not a bird
Of evil augury is seen or heard:
Come now, like Pan's old crew we'll dance and sing,
Or Oberon's; for hill and valley ring
To March's bugle horn,—Earth's blood is stirr'd.
W. A., in the *Athenæum*.

THE HOUSE.

THE various spring-flowering bulbs, of which the hyacinths and tulips are the most important, are now plentiful. It may perhaps be well to suggest to those who take a special interest in the adornment of indoor apartments with floral ornaments that they are capable of forming the most charming combinations. The hyacinths and tulips can have the whole of the soil removed from about the roots, and be arranged in ornamental receptacles without suffering to an appreciable extent, and be made to present a much more attractive appearance than when in the pots in which they are grown. They can be arranged in any of the ornamental vases or stands usually employed for holding plants placed in apartments, but the best effects can perhaps be produced in neat wicker baskets of about six inches in depth, from ten to fifteen inches in diameter, and stained of a rich brown colour. In filling them the bottom and sides have to be lined with moss or some other loose material that will prevent the soil filtering through, and the soil for packing about the roots must be friable, and the refuse from the potting bench will do equally as well as the best possible compost. The arrangement of the flowers must be left to individual taste; but two or three ferns should have a place in each basket. The best ferns for this purpose are *Adiantum cuneatum* and *Pteris serrulata*, and thrifty examples in small sixties are the most suitable. Where indoor decorations are in request a stock of these two ferns should be grown specially in small pots, as they can be employed to great advantage in many arrangements other than those of spring bulbs. The soil must be pressed firm, and when it becomes dry the baskets should be dipped in a vessel of water.

THE GARDEN.

ASPARAGUS BEDS must be at once formed where new plantations are required. The ground should be well drained, deeply dug, and liberally manured, and an open sunny situation selected. The beds are generally made three feet wide, with two-foot alleys between, for an early supply; and five feet wide, with three-foot alleys, for the later and larger supply; the narrow beds invariably producing earliest. In the three-foot beds two rows of plants are required, and they should be a foot apart, and the plants at the same distance apart in the rows. In the five-foot beds there should be three rows—one in the centre, and one on each side of it, at a distance of eighteen inches from it. The quickest way to obtain a supply is to plant strong freshly-dug roots. It is advisable, however, at the same time, to raise a plantation by sowing seeds, as loss of time will in this case be ultimately compensated by the superior quality of the produce, beds raised from seed being in the end the best. Mark out shallow drills at the same distances as recommended for plants, and in these sow thinly and not too early; and when the seedlings are two inches high thin them to the proper distance apart, and thenceforward give them good culture. The current month is the best in which to plant roots, but seed should not be sown until April, and favourable weather must be chosen for both operations.

BEDDING PLANTS that have not made much growth must be kept warm and have but little air. We shall soon have bright weather, when they may be more freely ventilated, to harden the wood and check their growth. Let nothing remain in the cutting pans after forming roots, as every day beyond the proper time is a day wasted, to the injury of the plants.

CUCUMBERS in bearing to be kept in good health by very careful ventilation and a steady heat. During dull weather water very sparingly, so as to allow of keeping them rather close. Those coming into bloom to be regulated carefully, and the laterals stopped above the second joint.

DAHLIAS at work will require to be potted, and those not set to work should be placed on a hotbed at once, to ensure strong plants.

GREENHOUSE PLANTS are now in active growth, and require more than usual care. Green-fly and all other enemies will abound, and if not kept in check irreparable mischief will ensue. Be careful in giving air that there is no chill, and regulate watering and ventilating by the weather.

LEeks.—Sow the main crop in a very rich piece of well-prepared soil and plant out when of proper size.

LETTUCE.—Plant out and sow again in quantity. All the kinds may be sown now, but make sure of enough of the Paris White Cos, Tom Thumb Cabbage, and other summer sorts. Lettuce requires a deep free soil with plenty of manure.

MELONS begin to require considerable attention now in training the vines, thinning out the superabundant growth, and ventilating. The more fully developed leaves are better if evenly distributed, so as to have a fair share of light; leaves that are overlapped may be removed, and no side shoots should be allowed to push which are likely to crowd the vines and rob bearing laterals.

PINES.—Encourage fruiting plants with liberal supplies of liquid manure. Plants recently shifted require much care, especially to shade them during sudden bursts of hot sunshine, and beware of giving them too much water while they are making new roots.

STRAWBERRIES under glass require frequent and liberal supplies of water and liquid manure, and occasional syringings. Strawberries in the open ground may now be heavily mulched, if not done already.

VINES that have begun to swell their fruit will be much benefited by an abundance of atmospheric moisture if the heat is kept steady. The thermometer should not go below 65 deg. by night nor above 80 deg. on the brightest days; but 75 deg. may be considered a good day average. In houses where the vines are coming into bloom there must be less moisture. As the atmosphere is just now in a damp condition a little extra fire may be used, as stagnant moisture is most destructive to pollen.

THE APIARY.

THE bee-keeper must now be on the alert and carefully ascertain the condition of each hive, and take such steps as will place the bees in the best possible condition for taking advantage of every opportunity for gathering honey. It is most important that stocks short of food should at the present time be fed somewhat liberally. The bees are now becoming active, and naturally require more food than they did a few weeks back, and as yet their feeding ground is somewhat limited. Artificial feeding is not desirable for augmenting the supply of honey in the hive—if a mixture of sugar and water after being stored by the bees can be so designated—and it ought not to be resorted to for that purpose. But the supply of artificial food for the purpose of maintaining the strength of the stocks is perfectly legitimate, and can be strongly recommended. It is important some time during the month of March that the hives should be examined for the purpose of ascertaining their condition; and in the case of stocks that are weak an early opportunity should be taken advantage of for uniting two together, as one really strong stock is very much better than two weakly ones, as will be seen later on in the season.

Literature.

The Ladies' Treasury. Edited by MRS. WARREN. (Bamrose.)—The March number is full of good things, in addition to the fashion plates and the learned discourses on costumes and manners. There are two or three good stories, a treatise on cooking, a review of the Smoke Abatement Exhibition, and a paper on permanganate of potash that we shall have to notice again because of its hygienic and domestic importance.

The Gooseberry and Currant, their History, Cultivation, &c. By D. T. FISH. (Bazaar Office.)—A real mutton in parvo on the subject, which is one of some importance, although gooseberries do not rank with peaches. Mr. Fish is strictly orthodox in his practice and teachings, and he is decidedly clear and concise in his explanation of details. This little brochure will be useful to thousands of persons.

Composts for the Use of Gardeners and Amateurs. By H. M.—This is published by D. Hall, Shifnal, Salop. It is a kind of catalogue of plants and the compost they severally require, and they are classed as stove and greenhouse plants, ferns, and orchids. The composts are ordered in brief, and any one can understand and act upon the directions, wanting the materials only, which of course the author does not provide. Its form admits of its being inserted in the garden book or in any handy cover for convenience of use.

The Peoples of the World. By Dr. ROBERT BROWN, M.A., &c. (Cassell.)—This is a new serial work, founded on one formerly published under the title "The Races of Mankind." It is a very showy and entertaining work on ethnography, or, as it might be called, the objective aspects of anthropology. The subjects treated in the first part are the characteristics of the stone age, and the lake dwellings and other features of the bronze age. It will be a handsome and useful book.

Hardwicke's Science Gossip. (Bogue.)—This ever entertaining monthly retains its hold of public esteem in an admirable manner, its freshness and variety rendering it always attractive. One great reason doubtless for its popularity is that it makes people work, for it suggests from time to time where and how to find rare plants, neolithic implements, geological wonders, and the curiosities of animal life. To the microscopist it is a perpetual stimulant and text book.

SERIAL WORKS PUBLISHED BY MESSRS. WARD AND LOCK comprise in the parcel just received:—*Rollin's Ancient History*; *Haydn's Dictionary of Dates*; *Land, Sea, and Sky*; *Holy Thoughts on Holy Things*; *Scientific Recreations*; *Self-Culture for All*; *Hallam's Literature of Europe*; *Beeton's Book of Poetry*; *Illustrated History of the World*; *Episodes of History, a Book of Memorable days, &c.*; *Dr. Adam Clarke's Commentary*; *Household Medicine*; *Amateur Work*; *Disraeli's Curiosities of Literature*; *The Family Altar*; *Thrifty Book Sylvia's Journal, &c.*

Iconography of Indian Azaleas. By AUGUSTE VAN GEERT.—This work, published by A. Van Geert, nurseryman, of Ghent, is a handsome quarto, with illustrations in colour representing all the best of the named varieties of Indian azaleas, with descriptions in English. There are now six parts published, each containing three plates, beautifully produced, and indicating with sufficient emphasis that this will be a noble work when completed. There are French and German descriptions published, the author's object being to establish the work in all European libraries. The terms of subscription are 24s. per annum.

The Antiquary—The Bibliographer. (Elliot Stock.)—We bracket these two very choice monthlies because of their equal power of appeal to cultured minds. In the March number of the *Antiquary* are some very entertaining as well as learned papers on Lady-Day, Women's Names, Gleaston Castle, Books relating to Gypsies, Carchemish, Rude Stone Monuments, &c., &c. In the *Bibliographer* are papers on Ancient Needlework, Old Magazines, Engravers of the Netherlands, The Bishops' Bible, and Books on Local Government. Such monthlies as these are entitled to a place on every gentleman's table.

Hulme's Familiar Wild Flowers. (Cassell.)—The third series of this elegant work, in very gay binding, appears seasonably for the youthful botanists who are now making ready for expeditions, and the wild flowers are already inviting them to participate in the best of all the free exhibitions—those by the woodside and the sunny hedgerow. The first figure in the volume before us displays most happily Mr. Hulme's talent in combining delicate finish with delightful faithfulness to nature, the subject being the common sweet brier. There are forty portraits of wild flowers in the volume, all exquisitely touched with truth and beauty, and each is accompanied with a description that is neither technical nor tiresome, yet conveys a lot of useful and entertaining knowledge.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, MARCH 14.

On this occasion the subjects submitted to the Floral Committee were so numerous that they sufficed to fill the council room and the greater part of the vestibule, and formed a large and most attractive exhibition. Chief amongst the contributions were the large and fine collections of cyclamens and cinerarias from Henry Little, Esq., the group of specimen cinerarias from Messrs. H. Cannell and Sons, the large bank of cyclamens from Mr. H. B. Smith, the pot roses from Messrs Paul and Son, the fine seedling abutilons from Mr. George, and the new amaryllis and rhododendrons from Messrs. J. Veitch and Sons. Messrs. Paul and Son, Cheshunt, exhibited a large and attractive group of roses in pots, hardy azaleas, and seedling amaryllis. Amongst the roses were the pretty little Anna Maria de Mont-ravel, a free-blooming variety with small pure white flowers, and Mignonette, a charming variety of the current year, with delicate pink flowers. There were also fine examples of Anna Alexieff, Alba rosea, La France, Madame Lacharme, Madame de St.-Joseph, Princess Mary of Cambridge, Countess de Serenye, and other well-known varieties. Mr. Vertegans, Chad Valley Nurseries, Edgbaston, Birmingham, sent in specimens of *Nicotiana undulata*, a white-flowered species of the most attractive character, and a stand of blooms of twelve double cinerarias: of these the most noteworthy were Vortigern, rich magenta; Purple Perfection, rich purple-blue; Ajax, bright rose; Daisy, white tinted rose; Cobalt, deep cobalt-blue, and Ranunculus, white, the florets deeply tipped rose. Mr. James, The Gardens, Redlees, Isleworth, staged a stand of blooms of his splendid strain of cinerarias. Mr. J. J. Wheble, Bulnurs Court, Reading, contributed an attractive basket of rhododendron trusses cut from outdoor specimens; and from Mr. Odell, Gould's Green, Hillingdon, came a large and attractive collection of cinerarias and primulas.

Messrs. H. Cannell and Sons exhibited a large group of specimen cinerarias that admirably represented the Swanley strain, which is unquestionably one of the very finest in existence, the plants being compact, and the flowers of large size and the finest possible form. In the collection was a fine example of March Past, awarded a first-class certificate last year, and still regarded as the most perfect cineraria yet raised. The group also included several other most excellent varieties, on one of which a first-class certificate was conferred. A promising laced polyanthus under the name of James Douglas, and flowers of *Viola odoratissima*, the finest of the large single blue varieties, and of President Garfield and White Lady, two heliotropiums of great merit, were also shown by the firm.

Mr. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, staged a good specimen of *Anthurium Scherzerianum* album with proliferous spathes. J. C. Bowring, Esq., Forest Farm, Windsor, contributed an immense specimen of *Lycaste fulvescens*, bearing upwards of 250 of its pale dull-coloured flowers; a cultural commendation was awarded. Mr. Salter, Selborne, Streatham, sent a neat example of *Dendrobium Brymerianum*, which has yellow flowers with deeply-fringed labellum. Mr. Mill, gardener to Lord Rendlesham, Rendlesham Hall, Suffolk, sent a large well-flowered specimen of *Cymbidium eburneum*, for which he was awarded a cultural commendation. Mr. Todman, Tooting, contributed two new early-flowering azaleas bearing medium-sized flowers, which promise to be of great value for the conservatory and for supplying cut flowers early in the season.

Messrs. J. Veitch and Sons, Chelsea, staged a splendid group of new amaryllis, upon several of which first-class certificates were conferred; also numerous examples of the sweet-scented *Boronia megastigma*, and of the curious white-flowered *Loropetalum chinense*, two new rhododendrons, a few orchids, and several densely-flowered bushes of Early Gem rhododendron, a dwarf variety with rosy lilac flowers remarkable for its earliness and profusion of blooming. From Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Reigate, came a good pan of *Pleione humilis*, for which a cultural commendation was granted. H. Little, Esq., Hillingdon Place, near Uxbridge, exhibited very large and fine collections of cinerarias and cyclamens, for which he was awarded the silver gilt Flora medal. There were about 125 specimen cyclamens and nearly 100 cinerarias, and as they were superbly bloomed and the flowers of grand quality the effect produced was remarkably rich, and the collections forming, as they did, a bank extending almost the entire length of the room, attracted much attention from horticulturists and general visitors alike. The cyclamens included many of the fine dark forms in which Mr. Little's collection is so rich, and the cinerarias were part of the dwarf strain at which he is now steadily working. Cyclamens were also exceedingly well shown by Mr. H. B. Smith, Ealing Dean Nursery, Ealing. About 200 capital examples of the excellent strain in the hands of Mr. Smith were staged, and a silver Flora medal was awarded.

Mr. H. Bennett, Shepperton, Middlesex, staged examples of two pedigree or hybrid tea roses of great promise, named respectively Lady Mary Fitzwilliam and the Earl of Pembroke. The first-mentioned has flowers of nearly the same colour as La France, and the other is of a bright crimson hue. Mr. Bennett also exhibited a stand of blooms of seedling roses.

Mr. George, Putney Heath, contributed a large group of seedling abutilons, of which several were awarded first-class certificates. The chief characteristics of the several varieties are their compact habit, freedom of blooming, and the large size and fine quality of the flowers. In the group were several dwarf varieties, of which the average height is about seven inches.

Messrs. J. Carter and Co., High Holborn, contributed a fine bank of Royal Purple primula, a superb strain bearing flowers of large size and grand quality, and of a rich rose-purple colour. From Mr. B. S. Williams, Upper Holloway, came a group of cyclamens, which represented a remarkably fine strain; and Mr. R. Dean, Ealing and Bedfont, sent a box of blooms of hardy primulas, to which he has devoted much attention of late years.

There were but few subjects before the Fruit Committee, and the most important of these was a capital dish of D'Arcy Spice apple from Messrs. Saltmarsh and Son, Chelmsford, who state that it is much grown in the north-eastern division of Essex. Good dishes of apples were also shown by Mr. Gilbert, of Burghley, and Mr. Bennett, The Deepdene, Dorking.

First-class Certificates were granted as under:—

To Messrs. H. Cannell and Sons, Swanley, for *Cineraria Mr. Cullingford*.—A superb variety with large massive flowers, perfectly circular in form, very smooth, and of a rich crimson colour.

To Messrs. J. Veitch and Sons for *Amaryllis Duchess of Connaught*.—A fine variety with large handsome flowers of a pure white colour; the very best of the white amaryllis.

Amaryllis Charles Dickens.—A grand variety with flowers of immense size and superb form, the colour brilliant scarlet-crimson with white stripe down the centre of each segment.

Amaryllis Baron Schroder.—An effective variety with flowers of large size and a rich crimson colour.

Ceclogyne glandulosa.—An elegant little species, the flowers pure white, with small lemon-coloured blotch on the labellum.

Rhododendron Excelsior.—A superb variety bearing large tubular flowers of a bright nankin colour suffused with carmine in the throat. The flowers are borne in large globular trusses, and exceed in size those of previously-introduced flowers of the same type.

Rhododendron Monarch.—An effective variety with bright orange-coloured flowers, which are borne in bold trusses; one of the very finest of the tubular-flowered forms.

Oncidium fuscum album.—A pretty little variety, in the flowers of which the labellum is pure white marked with a rich purple blotch.

To Mr. Stevens, Trentham, for *Odontoglossum Alexandra Stevensi*.—A grand variety, remarkable for the large size and rich markings of the flowers.

To H. Little, Esq., for *Cyclamen White Gem*.—A superb variety with very large and beautifully-formed flowers of the purest white.

Cyclamen Crimson Gem.—An effectively-coloured variety of great merit; the flowers are of the largest size and of a rich ruby-crimson colour; one of the very finest of the dark cyclamens.

Cyclamen Rose Queen.—This had only a second-class certificate conferred upon it, although one of the very best varieties in the large collection. The plant has a remarkably compact habit, and the flowers are very large, of the finest possible quality, and of a rich pure rose colour.

To Mr. George, Putney Heath, for *Abutilon Cloth of Gold*.—An excellent variety; the flowers large, and of a rich golden yellow colour.

Abutilon Le Grand.—A fine distinct variety, with medium-sized flowers of a rich orange-red colour.

Other good abutilons shown by Mr. George were *Abutilon Dazzle*.—A superb variety; the flowers very large, perfect in form, and of a rich rosy red.

Abutilon Rosy Morn.—Distinct in colour and good in quality; the flowers very large, and the colour rich rosy purple.

Abutilon Emperor.—Deep crimson; an excellent variety, with flowers of extra large size and superb in form, the colour deep maroon-crimson.

MR. LITTLE'S CYCLAMENS, PRIMULAS, &c.

At the present moment the collection of cyclamens and primulas in the gardens of Hillingdon Place, near Uxbridge, the residence of H. Little, Esq., claim special attention, for they produce an effect of the most beautiful and striking character, and represent the highest degree of perfection to which these important classes of flowers have yet attained. To those who frequent the Tuesday meetings at South Kensington, and the spring exhibitions of the Royal Botanic Society, it is well known that, amongst those who have of late years been engaged in the improvement of the cyclamen and primula, Mr. Little deservedly occupies high a place, and that in this important work no one has laboured more assiduously or achieved a higher degree of success. As yet the eminently successful results of Mr. Little's labours in this direction are perhaps the most fully apparent in the cyclamens, upon which he has been longer engaged. But the remarkable progress he has already made with the primulas fully justifies the belief that in a very few years hence they will be not less remarkable in their way than the cyclamens. Already several varieties raised in these gardens have had certificates conferred upon them by the Royal Horticultural Society, and each one of these represents a quite new and effective colour and produces flowers of superb form. Cinerarias are also engaging attention, the amaryllis form perhaps the finest collection in the possession of a private gentleman, and the collection of show, fancy, and decorative pelargoniums is certainly unequalled.

The cyclamens occupy about one-half of an admirably-constructed and spacious lean-to nearly one hundred and fifty feet in length. They are arranged on a broad flat stage along the front of the house, and the appearance presented is so attractive that it is not likely to be soon forgotten by those who are fortunate enough to have a glimpse of the collection. The pots are stood upon a bed of coal-ashes, as cyclamens do much better when upon a cool and moist medium than when placed upon stages of lattice-work in accordance with the prevailing practice. There are perhaps between six and seven hundred plants in bloom, all of which are in their second year, and nearly a hundred are grandly-developed specimens, that will doubtless make their mark at the exhibitions later on. After enjoying the splendid display of colour it is impossible to avoid being struck by the large proportion of purples and crimsons, the high quality of the flowers, and the compact habit of the plants. It appears that when Mr. Little commenced the raising of cyclamens systematically he had two distinct objects in view. One was to raise a race of high-coloured varieties with flowers of large size, and the other to produce a strain bearing light flowers and of neat compact habit. Mr. Little holds, and properly so, that to the full enjoyment of a collection of cyclamens a diversity of colours is necessary, and that to make them thoroughly useful for the decoration of the conservatory and the embellishment of the drawing-room they should be dwarf enough to be grown without stick or tie. As regards the dark colours, the Hillingdon Place collection is unique, as nowhere else are to be found such splendid shades of ruby, crimson, and purple, the flowers of many of the dark varieties equalling in richness the flowers of the best known and most popular of the masdevallias. The flowers are also of full size, and as they rise in dense masses above compact cushions of rich green leafage, well-grown examples, such as here abound, produce a telling effect. In the pure white varieties, and those bearing white flowers with a crimson or purple base, we have

flowers of the largest size and finest quality yet seen; but their chief merit consists in their neatness of growth. Instead of the flowers being borne on stalks so long and sprawling as to require sticks for their support, they rise just high enough above the foliage to be shown to the best advantage, and on stalks so stiff and erect as to render sticks and ties quite unnecessary. So much importance is attached to the compactness of growth that in the work of cross fertilization and selection habit has been taken into consideration first. In consequence a much longer time has been occupied in working up the flowers to their present size than would have been the case had advantage been taken of the aid the forms of giganteum were so well able to afford. There are numerous exquisitely beautiful shades of rose-pink and blush, and some superb white varieties. There is a decided novelty with large flowers broadly striped white and rosy lilac. Every flower is regularly striped, and as this is the second year of the plant flowering it may be safely regarded as constant.

No seedlings were raised in the autumn of 1880 for flowering this year, but in one of the excellent frames manufactured by Messrs. Foster and Pearson we noticed a splendid stock of seedlings coming on from seed sown in August last. These, it need hardly be said, have been raised from seed saved with a view to definite results, and it is reasonable to anticipate the appearance of many exceptionally fine things amongst them. It may perhaps be useful to some cultivators to state that as seed-bearing so exhausts the plants Mr. Little does not allow more than two or three pods to remain on a plant, and that special importance is attached to the stock being well looked after when going out of flower.

Prominent amongst the primulas was Magenta Gem, a superb variety bearing very large flowers of a rich magenta colour, certificated at a recent meeting of the Floral Committee of the R.H.S. Equally good in its way was Rose Superb, a variety with large flowers, which when fully developed are of a rich rose-purple colour, a quite new and most effective shade; the flowers are of very large size and borne in massive trusses well above the foliage. Meteor, a very rich scarlet variety, was conspicuous by reason of its effective colour; and very noteworthy was an improved form of it bearing flowers even more brilliant in colour and several sizes larger. Mr. Little has also a very beautiful variety which as yet is known as Improved Ruby King; this has flowers similar in hue to Ruby King, but it is distinguished from that variety in producing its fine large trusses well above the foliage, as in the case of a good type of Rubra. Purple Gem is a splendid deep-coloured flower, and Carmine Gem is a good variety of the coccinea type. The white strain grown here is for its purity, large size and substance of the flowers, and the abundance with which they are produced, not to be lightly estimated. The several distinct colours to which reference has been made have, Mr. Little states, been obtained by systematically crossing the small high-coloured Continental forms with the finest English types, and they represent several years' work. Double primulas are also well grown, and abundantly testify to the skill of Mr. Wiggins, the head gardener.

Cinerarias have more recently engaged attention at Hillingdon Place than the primulas and cyclamens, but much has been done with them, and a most valuable strain has been already fixed. An effort is being made to obtain a strain consisting of dwarf plants bearing large heads of flowers of good quality and effective in colour. The majority of the plants are about ten inches in height, and without any stopping branch so freely as to produce very large convex heads of bloom. The flowers are of good size and quality, and some of the colours are of remarkable brilliancy, and chiefly have a black disc. Since the dwarf Continental type, upon which the strain has been founded, was taken in hand a few years ago immense improvements have been effected, for in size, substance, and colouring the flowers closely approach the best of the English strains, and the grey disc has been almost entirely eliminated without the height being materially increased. The work of increasing the size and quality of the flowers is steadily being persevered with, and, judging from what has been accomplished, it appears safe to predict the strain becoming in two or three years hence the most useful of all the types of cinerarias. Even now it would make the fortune of a grower for market.

The large collection of amaryllis, and the noble conifers with which the extensive and beautiful grounds are furnished, well deserve notice did time and space permit. But it must now suffice to say that the first are admirably grown, and comprise nearly all the best of the named varieties and several certificated seedlings, and that the latter add in no small degree to the attractions of one of the most charming gardens in Middlesex.

AUTUMN PLANTING OF POTATOES.

As the planting of potatoes late in the autumn is now occupying considerable attention, and has been much discussed, a brief record of my experience will not perhaps be without interest. In the autumn of 1880 we had in our nursery at Pinkhill, near Corstorphine, a piece of ground twenty-nine yards long by twelve yards wide, which was much overrun with bad weeds. To fork them out would have been a tedious and expensive operation; so I resolved to trench them down and plant the ground with potatoes. On November 3 I commenced operations. I first of all had a trench opened out to a width of three feet and a depth of twenty inches, then the top of a second space three feet wide was pared off to a depth of from four to six inches and laid in the trench green side downwards. Upon this was put enough soil to fill the trench to within nine inches of the top, and that was covered with a thin layer of half-rotted manure. Medium-sized whole tubers of the Regent were selected for planting and laid upon the manure, and they were covered with nine inches of soil, which of course was taken from the second trench. The other trenches were formed and planted in precisely the same manner. In three days from the completion of the planting a severe frost set in, and for a period of twelve weeks the surface soil was frozen as hard as it could well be. I expected, in common with others, that all our labour had been in vain. But no; when the season came round the potatoes were the first to push through the soil, and we had a most excellent crop of first-class tubers. Of course, as the sets were nine inches below the surface, the crop was not earthed up, but the hoe was plied freely between the rows to keep down the weeds. Last autumn we planted fully three times as large a breadth, and from it expect results equally satisfactory.

Edinburgh.

JOHN DOWNIE.

ROSE SYNONYMS.

To the *Journal des Roses* for the current month M. Joseph Schwartz, of Lyons, has contributed the following lists of roses, which he regards as synonymous.

TEA-SCENTED.

<i>Alba rosea</i>	same as	MADAME BRAVY.
<i>Adèle Pradel</i>	"	MADAME MORIN.
<i>Boiron</i>	"	GUILLLOT.
<i>Clothilde</i>	"	BOUGERE.
<i>Duchesse de Brabant</i>	"	COMTESSE DE LABARTHE.
<i>Gloire de Bordeaux</i>	"	BELLE DE BORDEAUX.
<i>L'Enfant Trouvé</i>	"	ELISA SAUVAGE.
<i>Lady Warrender</i>	"	CLARA SYLVAIN.
<i>Madame Denis</i>	"	MADAME MORIN.
<i>Madame Plantier</i>	"	ALBION.
<i>Madame Roussel</i>	"	EUGENIE JOVAIN.
<i>Madame Sertot</i>	"	MADAME BRAVY.
<i>Madame William</i>	"	ELISA SAUVAGE.
<i>Muthilde</i>	"	NIPHOTOS.
<i>President</i>	"	ADAM.
<i>Queen Victoria</i>	"	SOUVENIR D'UN AMI.
<i>Smith's Yellow</i>	"	SMITHY.
<i>Surabondant</i>	"	GUILLLOT.
<i>Triomphe de Orléans</i>	"	FAFAIT.

BENGAL.

<i>Agrippina</i>	same as	CRAMOISI SUPERIEUR.
<i>Comble de la Gloire</i>	"	GROS CHARLES.
<i>Marguerite Lar'ay</i> (Bourbon)	"	IMPERATRICE EUGENIE.
<i>Madame Lacharme</i> (Tea-scented)	"	VIRGINALE.

NOISETTES.

<i>Adélaïde Pavie</i>	same as	MADAME DES LONGCHAMPS.
<i>Beauty of Glazenwood</i>	"	FORTUNE'S YELLOW.
<i>Cloth of Gold</i>	"	CHROMATELLA.
<i>Comtesse de Beaumetz</i>	"	CHROMATELLA.
<i>Enfant de Lyon</i>	"	NARCISSE.
<i>Léslis</i>	"	CELINE FORESTIER.
<i>Madame de Chailonge</i>	"	LE PACTOLE.
<i>Maréchal</i> (Tea-scented)	"	LAMARQUE.

BOURBON.

<i>Alice Fontaine</i>	same as	EMOTION.
<i>Beauté de Versailles</i>	"	GEORGES CUVIER.
<i>Céline Gonod</i>	"	MODELE DE PERFECTION.
<i>Duc d'Estrées</i>	"	HENRI LECOQ.
<i>Eugénie Bréon</i>	"	VIRGINIE BREON.
<i>Gloire de Brotteau</i>	"	EDOUARD DESFOSSÉS.
<i>Isabelle Latour</i>	"	DUC DE RICHMOND.
<i>Madame Neumann</i>	"	HERMOSA.
<i>Madame de Stella</i>	"	LOUISE ODIER.
<i>Margat Jevne</i>	"	CHARLES SOUCHET.
<i>Mélanie Lamarie</i>	"	HERMOSA.
<i>Michel Bonnet</i>	"	CATHERINE GUILLLOT.
<i>Sappho</i> (Tea-scented)	"	MRS. BOSANQUET.
<i>Souv. de la Malmaison à fleurs roses</i>	"	LEVESON GOWER.

PORTLAND.

<i>Rose du Roi à fleurs blanches</i>	same as	CELINE DUBOS.
<i>Rose du Roi à fleurs pourpres</i>	"	MOGADOR.

ROSA RUGOSA.

<i>Himalayensis</i>	same as	RUGOSA RUBRA FL. PL.
<i>Regeliana</i>	"	RUGOSA RUBRA FL. SIMPLEX.
<i>Taicoun</i>	"	RUGOSA RUBRA FL. SIMPLEX.

CENTIFOLIA.

<i>Madame d'Hébray</i>	same as	UNIQUE PANACHEE.
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HYBRID PERPETUALS.

<i>Alexander Dickson</i>	same as	MADAME PULLIAT.
<i>Avocat Duviolier</i>	"	MARECHAL VAILLANT.
<i>Beauté Française</i>	"	LE LION DES COMBATS.
<i>Belle Egarée</i>	"	MADAME DAMET.
<i>Duc d'Elchigen</i>	"	POUPRE ROYAL.
<i>Enfant d'Ajaccio</i>	"	SOUV. D'ANSELME.
<i>François Fontaine</i>	"	SENATEUR FAVRE.
<i>Froissard</i>	"	MRS. STANDISH.
<i>Futur Empereur des Français</i>	"	PRINCE ALBERT.
<i>Général Hudelet</i>	"	COMTE DE PARIS.
<i>Général Lamorieière</i>	"	GERVAIS ROULLARD.
<i>Gloire de Châtillon</i>	"	MADAME MASSON.
<i>Isoline</i>	"	PAUL DUPUY.
<i>Julie de Saint-Aignan</i>	"	SOPHIE COQUEREL.
<i>Lælia</i>	"	LOUISE PEYRONNY.
<i>Madame Eugénie Cavaignac</i>	"	BARON HECKEREN DE VASSENÆR.
<i>Madame Hérisaux</i>	"	MADAME CHARLES CRAPELET.
<i>Madame Liabaud</i>	"	VIRGINAL.
<i>Madame Rival</i>	"	AUGUSTE MIE.
<i>Mlle. Henriette</i>	"	AUBERON.
<i>Marguerite Brassac</i>	"	CHARLES LEFEVRE.
<i>Marquis d'Ailsa</i>	"	DR. MARX.
<i>Miss Hassard</i>	"	MADAM RERNARD.
<i>Mrs. Wood</i>	"	CLEMENTINE SERINGE.
<i>Pauline Plantier</i>	"	CLEMENTINE SERINGE.
<i>Puebla</i>	"	SENATEUR FAVRE.
<i>Reine du Midi</i>	"	LA REINE.
<i>Rose la Reine à fleurs blanches</i>	"	QUEEN VICTORIA.
<i>Souv. du Petit Roi de Rome</i>	"	CONSEILLER JOURDEUIL.
<i>Triomphe de la Terre des Rosos</i>	"	HENDERSON.
<i>Triomphe de Valenciennes</i>	"	MADAME CAMPBELL D'ISLAY.

MOSS CENTIFOLIA.

<i>Centifolia alba</i> (Moss)	same as	WHITE BATH.
---------------------------------------	---------	-------------

PRAIRIE.

<i>Queen of the Prairies</i>	same as	BEAUTE DES PRAIRIES.
--------------------------------------	---------	----------------------

Notes of Observation.

KEEL'S BLIGHT AND INSECT DESTROYER.

ON referring to your observation, in the GARDENERS' MAGAZINE of May 7, 1881, on Keel's Blight and Insect Destroyer, I was much struck with what you said respecting old remedies being laid aside for new preparations. There is much truth in your remarks, and there can be no doubt that in the desire for novelty some excellent preparations have been pushed on one side by others not equal to them in effectiveness. Sometimes, of course, the new preparations possess real merit, as in the case of that to which special reference is now made. That it is an effectual destroyer of plant pests I can say without hesitation; it is in fact the most efficient of all the insecticides I have yet tried. I have had it in use for several months, during which time it has been subjected to a series of careful trials, and in no instance has it been otherwise than satisfactory. I have not found it injure the most tender foliage; on the contrary, the appearance of the plants is improved by its use. As in the case of other good preparations, Keel's Blight and Insect Destroyer must be used according to the directions given. The importance of this is often overlooked, and many really good preparations have fallen into disrepute and been laid aside simply because of their not being properly applied. Keel's preparation will, I am persuaded, prove a real boon to plant and fruit growers; especially will it be found useful where peaches are largely grown, whether under glass or on the open walls. The trees in our first and second peach houses are at the present moment pictures of health. The facility with which it can be applied is a point of some importance, and must not be overlooked. One pint of the preparation to thirteen pints of soft water is the most suitable strength at which to use it; and, owing to the comparatively low price at which it is sold, the solution prepared as advised is cheap enough to admit of its being applied with syringe or garden engine. To us this is a matter of some consequence, for the conservatory here is 120 ft. long, 32 ft. wide, and 30 ft. high, and we are compelled to employ some preparation that can be applied with the engine or to fumigate. The latter alternative is very objectionable, owing to the structure adjoining the mansion. Fumigation is also an expensive affair, for to fill the conservatory with smoke we have to set eight fumigators to work, and to use about 15 lbs. of tobacco paper. I would add that green and black fly are very quickly destroyed, and that thrips soon succumb. It will kill slugs as speedily as salt, and their ravages on seed beds may be checked by a light sprinkling at suitable intervals.

Walcot Gardens, Lydbury North, Shropshire.

G. BOND.

ASPARAGUS PLUMOSUS.

In a cut state this asparagus is most valuable for mingling with choice flowers. My gardener has brought me to-day a few sprays of it, with some flowers of *Dendrobium nobile*, and arranged in a vase they are very elegant. In another vase I have some red and white cyclamen, with a fringe of the asparagus, and I am delighted with it. My gardener tells me it will do very well in the greenhouse; but the old growth, he states, retains a much darker green, and the growth is more satisfactory when it is grown in an intermediate house. The young growth when first made is of a light pea green, but as it attains age it becomes much darker in colour. For myself, I could not tolerate it in my houses at all if it was not valuable to cut from, because it grows so straggling, and I have an idea that an asparagus trained to stakes would present a ridiculous appearance.

LAURA S—.

BALSAM SEED.

Whether I am singular or not in my opinion that English-grown balsam seed is better than foreign I cannot say, but I do know that I have not yet been able to obtain Continental seed equal to that of home growth. Why this should be I do not pretend to say, but it would probably be not difficult to give a correct explanation. However, to obtain good balsam seed is a question that concerns a good many, and as the time of sowing is near at hand, it may save trouble and disappointment to some if it is made known that the Continental seed cannot be depended upon to produce a reasonable percentage of double flowers: such at least is my experience. I have not had any trouble in obtaining plenty of double flowers when I have purchased English-grown seed from a trustworthy house. If I have been less fortunate with Continental seed, I do not wish to suggest that all Continental seeds are of the same quality; on the other hand, many of the seeds we receive are all that can be desired.

J. C. C.

CHRYSANTHEMUMS AGAINST WALLS.

When planted in the open borders for flowering out of doors chrysanthemums are so frequently spoilt by an early November frost that we no longer depend upon them for furnishing us with the large numbers of flowers that are wanted. We now utilize every available wall space with a south or west aspect by planting chrysanthemums against it. Having secured all the cuttings we require from the stock of plants that flowered in pots last season, we have during the past few days made several new plantations with the old stools. We had a good portion of the old soil shaken off, and the largest divided into two portions. According to previous experience these will make a capital growth during the summer, and flower well in the autumn. The shelter of the wall is sufficient to ward off several degrees of frost; but if it is necessary to protect them it will not be a difficult matter to do so with mats. But few of the early-flowering Japanese varieties can be recommended for this kind of work, and the large incurved and pompone varieties are our favourite sorts. To keep the growth near the wall, we stretch a piece of tar cord in front of the plants, and by fastening it to the wall about every four feet the growth is kept neatly together. Chrysanthemums are not only useful to cut from when grown as here advised, but they are admirably adapted for covering low walls. Any one having a few old plants lying about may turn them out at once and reap a rich harvest of flowers in the autumn.

J. C. CLARKE.

ZONALE PELARGONIUM WEST BRIGHTON GEM.

This fine variety of the *Vesuvius* section has proved to be of immense value as a winter-flowering plant; the habit is bushy and dwarf, the trusses of scarlet flowers on white footstalks are very effective and freely produced.

The Nursery, West Drayton.

R. B. MAKOWSKI.

READING THE THERMOMETER.

It often happens that reading the thermometer is a difficult task, owing to it may be, to the partial obliteration of the figures or to the lack of daylight, or from defective eyesight. Some three years ago I placed a thermometer in a certain part of my sanctum, and found the reading of it difficult. The proper place for a thermometer, generally speaking, is the coldest part of the house or chamber, the temperature of which must be noted from time to time. Therefore it is often impossible within reason to select a spot where there is suitable light for the purpose. The remedy I have devised for my own purpose is to paste a very narrow strip of white paper opposite the 50. By a mere glance at the instrument I can read it without looking at the figures. It needs not to be said that this plan may be varied indefinitely to suit particular cases. A thin line of white paint may be better than a strip of paper, and the figure marked may be 32 instead of 50. But whatever rule is once adopted should be adhered to; alteration at any time may lead to serious blunders. The 50 suits me, and I have marked all my thermometers at that point, and it is easy to read them by the merest glimmer of light.

S. H.

CALCEOLARIA AMPLEXICAULIS.

This fine old pale yellow calceolaria is worthy of cultivation in every garden, as it produces good trusses of flowers late in the season, when most of the other varieties have passed their best, and continues in perfection until it is cut down by frost.

The Nursery, West Drayton.

R. B. MAKOWSKI.

A PLANT FOR HARVEST FESTIVALS.

On page 98 of your present volume the beautiful *Anemone Honorine Jobert* is mentioned as being most useful for harvest decorations. I quite agree with your correspondent, but may I suggest "single dahlias"? Last autumn my church, or rather my late church, for I have but lately come into residence here, was decorated chiefly with oats and single dahlias, and the effect was, so my late parishioners told me, most beautiful, and withal "very æsthetic." Half a crown's worth of seed from Mr. T. S. Ware, Messrs. Cannell, or Messrs. Hooper, sown now, will be enough to decorate many churches next September and October.

Aldminster Vicarage, Stratford-on-Avon.

J. A. WILLIAMS.

AFRICAN MARIGOLDS.

I am pleased to see that Mr. Mann, of Howden Dyke, Yorkshire, is sending out his African Marigold seed. It is a magnificent strain of his own production, and has taken since the year 1875 three hundred first prizes, and has seldom or ever been beaten during the past twenty years. I have seen them staged as large as the finest dahlias, and as close as a ranunculus. I have been a visitor at most of the principal shows in the kingdom, but I never saw anything yet to approach them for size, quality, and perfection.

Homo.

Replies to Queries.

Gardeners' Royal Benevolent Institution.—"Subscriber" is advised to apply to the secretary, Mr. E. R. Cutler, 14, Tavistock Row, Covent Garden.

Paxtonian Plant House.—F. J. L.—The construction is patented, and we believe the present holder of patent rights is Mr. B. Warhurst, 33, Highgate Road, London, N.W.

Rats.—J. B., Beckside.—The subject was treated at length in the *Gardeners' Magazine*, January 24, 1880. Read that article with care, and if we can advise you further we will gladly do so, for the subject is one of universal interest.

Culinary Apples.—Subscriber.—The following are six of the best culinary apples for use in February and March:—Bedfordshire Foundling, Hambleton Deux Ans, Northern Greening, Striped Beefing, Warner's King, and Wellington.

Pelargonium.—P.—The plants may be subjected to a temperature ranging from 70 deg. to 75 deg., provided they are near the glass and have a free circulation of air about them. The proper rate for using the quassia chips is a quarter of a pound to a gallon of water. Soft water should be used.

Names of Plants.—Subscriber.—No. 1, *Selaginella denticulata*; the other specimen is not sufficient for identification. Bosc.—No. 1, *Polygala oppositifolia*; 2, *Habrothamnus fascicularis*; 5, *Pteris straminea*; 6, *Scelopendrium vulgare crispum*. The flowers of No. 4 are not sufficiently developed, and No. 3 must be seen in bloom.

Grubs in Soil.—Subscriber, Spalding.—The grubs were completely dried up when they reached us, and we cannot therefore say whether they will be injurious to the cucumber plants. They may perhaps be destroyed by applications of strong liquid manure, and as a precautionary measure we would advise you to water the bed two or three times with liquid manure of as high a degree of strength as it can be used without injury to the plants.

Zonal Pelargoniums.—G. M.—The zonals intended for bedding that have been kept in small sixties during the winter should, if practicable, be repotted at once. Put them into three-inch pots, reduce the balls of soil to about one-half, and use a substantial compost. It will not matter if the whole of the soil is removed from about the roots, provided it falls away readily.

Books.—"Constant Reader" asks the price of Mr. Moore's book on ferns; but this gentleman is the author of many books on the subject. Mr. Moore's "Nature Printed Ferns" is a very beautiful and costly work. His "Handbook of British Ferns" is published by Groombridge, price 5s. H. Hansard.—You will find all you want in the "Amateur's Kitchen Garden," published by Groombridge, price 6s. The treatise on the Narcissus by Mr. Burbidge is published by Messrs. Reeve, price 25s.

Bulbs that have Flowered.—C. B., S. R., and Others.—The shortest way to end the heartache in respect of hyacinths that have flowered in glasses is to throw them away. Those that have flowered in pots may be allowed to remain undisturbed until their leaves turn yellow, when they may be taken out of their pots and planted in odd places under hedges and other shelter to furnish cut flowers next year. To grow them in pots a second time would be a waste of labour and patience. Crocuses and tulips that have flowered in pots should in like manner be allowed to finish their career

without disturbance, and when carefully dried off may be put in paper bags or drawers to be planted out in September or October. For pot culture fresh bulbs should always be secured.

Cucumbers.—Market Grower.—The insect with which your cucumber plants have been attacked in previous years is most probably the thrips. A dry atmosphere and insufficient ventilation are both favourable to the development of this pest, and we would advise you to ply the syringe with greater vigour and ventilate more freely than you have hitherto done. A sharp look out should be kept, and as soon as the pest makes its appearance carefully sponge the infested leaves with tobacco water or some approved insecticide, or fumigate with tobacco or tobacco paper.

HOW TO COOK A POTATO.

1. The potatoes must be of good quality, or no cooking will make them eatable. 2. Scrub them clean. 3. Cut from each a piece the size of a shilling. 4. Soak them in cold water for one hour. 5. Steam them in their jackets in the usual way. 6. Dry them off either in the oven or on the top bar, where they will be very hot without burning. 7. Do as the Editor advised in his last speech at the Crystal Palace Show—eat your potatoes with thankfulness.

W. H. CULLINGFORD.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—“By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame.”—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—“JAMES EPPS AND CO., Homoeopathic Chemists, London.”—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

TRADE CATALOGUES.

STEPHEN HOWARD, CAMBRIDGE NURSERY, WALTHAMSTOW.—*Descriptive Catalogue of Dahlias*,

DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Select Farm Seeds*.

W. CLIBRAN AND SON, OLDFIELD NURSERY, ALTRINCHAM.—*Spring Catalogue of Garden and Flower Seeds*.

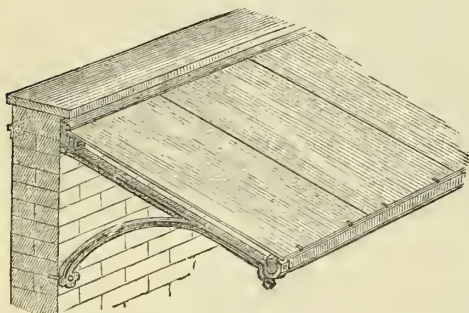
Obituary.

On the 10th inst., at Linlithgow, Sir CHARLES WYVILLE THOMSON, F.R.S., LL.D., aged 52 years. Sir C. W. Thomson was born at Bonyde, and educated at the University of Edinburgh. In 1850 he was appointed Lecturer on Botany in King's College, Aberdeen, and in 1853 Professor of Natural History in Queen's College, Cork. In 1868 he went on a scientific expedition with the Lightning and Porcupine, and shortly after was appointed head of the scientific department of the famous Challenger expedition. He published a general account of this in two volumes, which were reviewed in our issues for Dec. 22 and 29, 1877.

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPLOUGH'S PYRETIC SALINE restores health and vigour to the system? Headache, fevers, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist, and of the Maker, 113, Holborn, London.—[ADVT.]

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its natural, and consequently healthy, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Householders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

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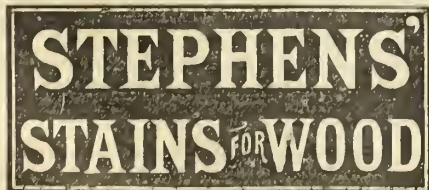
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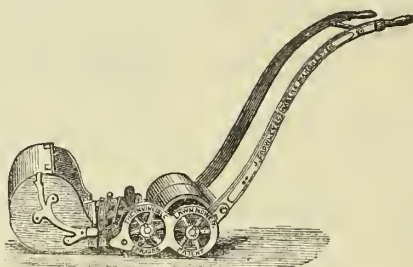
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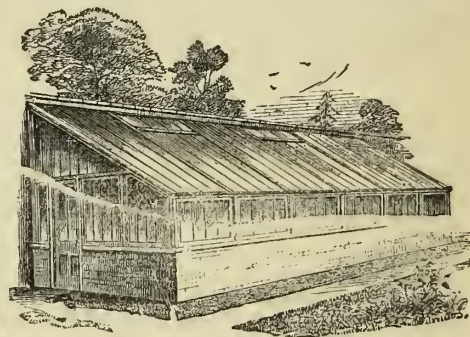
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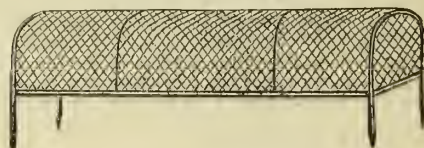
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, 37°. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; s, Stove.	Day of Yr.
			Rises.	Souths after Noon.	Sets.	Rises. Morn.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
26	S	5th Sunday in Lent. (1h. 33m. after First Quarter, 1882)	5 52	5 41	6 20	10 13	1 36	6 25	6 53	3 28	3 50	44.2	Amygdalus communis fl. pl., H. Red.	85
27	M	Prince Waldemar of Prussia died, 1870.	5 50	5 26	6 22	11 14	2 16	7 29	7 53	4 18	4 45	44.4	Azalea François Devos, G. Red.	86
28	Tu	Slave Trade abolished, 1807.	5 48	5 8	6 24	After.	2 49	8 30	9 12	5 13	5 55	44.5	Azalea Marie von Houtte, G. White.	87
29	W	Albert Hall opened, 1871.	5 45	4 49	6 26	1 22	3 16	10 0	10 40	6 37	7 25	44.7	Erica gracilis, G. Deep Rose.	88
30	Th	Battle of Fontenoy, 1814.	5 43	4 31	6 23	2 27	3 41	11 15	11 47	8 5	8 40	44.9	Hyacinths, G. Various.	89
31	F	Cambridge Lent Term ends.	5 41	4 12	6 30	3 30	4 1	—	0 15	9 12	9 40	45.3	Ixora Prince of Orange, s. Orange red.	90
		APRIL.												
1	S	All Fool's Day. Oxford Lent Term ends.	5 38	3 54	6 31	4 35	4 20	0 39	0 59	10 4	10 24	45.5	Thunbergia fragrans, s. White.	91

The Gardeners' Magazine.

SATURDAY, MARCH 25, 1882

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ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c. four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 21d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, MARCH 28.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

TUESDAY, MARCH 28.—SEVENOAKS HORTICULTURAL SOCIETY.—Exhibition of Spring Flowers.

WEDNESDAY, MARCH 29.—ROYAL BOTANIC SOCIETY.—Exhibition of Spring Flowers.

THURSDAY, MARCH 30, TO MONDAY, APRIL 3.—NATIONAL HORTICULTURAL SOCIETY OF FRANCE.—Spring Exhibition in Paris.

Auction Sales for the Ensuing Week.

MONDAY, MARCH 27, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Lilium auratum from Japan.

WEDNESDAY, MARCH 29, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Established Orchids.

THURSDAY, MARCH 30, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported and Established Orchids.

SATURDAY, APRIL 1, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THE ROYAL HORTICULTURAL SOCIETY has met with a severe and quite unexpected reverse of fortune by the decision of the Court of Appeal in the matter of the relation of the Society to the Commissioners for the Exhibition of 1851. It will be remembered that the Commissioners claimed the rights of landlords in respect of the R.H.S. Gardens at South Kensington; while on the part of the Society the contention was that the two corporations were virtually in partnership. Mr. Justice Fry ruled in favour of the Society, and dismissed the action with costs. The Commissioners appealed, and the appeal was heard on Wednesday last, and the decision of Mr. Justice Fry was reversed. The judgment gives the right of re-entry to the Commissioners within four months, and places the debenture holders in such a negative position that they have absolutely no remedy or source of compensation. The details of the decision turn upon the primary interpretation of the agreements subsisting between the Commissioners and the Society, these parties being regarded as in the position respectively of landlord and tenant. This is a disaster certainly, but we may soon be enabled to regard it as capable of considerable mitigation.

IS THE WORK OF THE FLORIST CONSISTENT WITH THE AIMS OF NATURE? This is a question of immense interest to a certain class, and possibly of some public importance also. It can scarcely be answered offhand with a plain Yes or No, and whoever attempts to answer it will be disadvantaged by some peculiar bent of sympathies. Mr. Darwin might be able to answer it judicially and perhaps judiciously; but, so far as we understand the scope and purpose of his labours, we doubt if he is sufficiently familiar with the ways of the florists and the collective results of their labours. It will be understood therefore that we can only undertake a tentative reply, and unless we were prepared for so much—which is not much—we could not with reason have propounded the question.

The one question resolves, at a touch, into two. What are we to understand by the Work of the Florist, and what do we know of the Aims of Nature? The florist is in a certain sense the slave of his senses, as most other men are. He selects a flower because it pleases him, and he rejects another because it displeases him, or at least pleases him less. It matters not at this moment whether he

prefers circular or triangular, or spherical or cubical flowers. It is quite certain that his eyes guide him much, and his nose guides him little, in the selection. It appears, on a hasty consideration of the case, that the florist is bound by no rule; it is with him an arbitrary and individual matter, and his taste is but a part of his idiosyncrasy. Well, let us turn aside and go to luncheon. Here we find the tastes differ, for some people like pungent condiments, and others repudiate their use as unpleasant and injurious. What a world we are in! Is it any wonder that Parliamentary government is becoming impossible, and that we are always speculating on the particular features of the next war?

But we must, with the mighty question before us of the relation of the florist's work to the ways of Nature, make some show of breadth and profundity. In the first place, then, we find that in the selection of flowers the florists are singularly of one mind. They prefer the flowers that are symmetrical in form, smooth and stout in substance, even and solid in colour, and carried on stems that need little or no support. The individuals have individual notions, fancies, and likings; but when all these are shaken up in a bag they prove so nearly alike that the little differences illustrate the great agreements, and we recognize the old saw to the effect that the exceptions prove the rule.

And the same philosophy will carry us through the intellectual mastication of the luncheon. The people do differ in the heaps of salt they put on their plates and the doses of pepper they powder on their meats; but they all condescend to eat bread, which is but tasteless stuff; they all lean to the clear turtle, the pressed beef, and the tender chicken, and the *pâté de foie gras*, and the ortolans with truffles. Their peculiar idiosyncrasies are therefore of trifling import; they really run together in a groove, as if governed by certain principles, and it does begin to appear that the children of Fashion, who are all capable of eating a good salad, are like the children of Flora, who are all capable of distinguishing between smooth and ragged flowers. And in what does the likeness consist? some one will ask. It consists in this, that they are all children of Nature, although at certain times and seasons they are perhaps not fully aware of it. The taste of the florist is not so much an acquisition as an intuition. He is guided to a good flower by an instinct, or say a natural appetite of the mind, just as people are guided to bread by an instinct or natural appetite of the palate. Examine the styles of architecture, however diverse they may be: they are only like variations of one tune, and all their decorative details are as truly drawn from Nature as their primary principles. It appears to be forgotten by some of our æsthetic friends who are now painfully toiling to put the world to rights, that Man, with his notions of beauty, is included in the general scheme of Nature, and if exceptions prove the rule then the people who profess to prefer the flowers that the florists reject are only in the same category as the people who spoil good food by heaping on it acrid condiments, a discredit at once to the table, the host, and the cook. The healthy taste prevails when all is said and done, and the florists will be justified when the claims of the several flowers to degrees of admiration are fairly balanced by the judicial and judicious mind.

But there remains the question about the Aims of Nature. We confess at the outset somewhat of a repugnance to the self-satisfied air of the evolutionist, who declares that this petal was designed to attract an insect, and this tuft of hairs to condense the dew. We are somewhat inclined to say that we must exclude from our council one who knows so much about it, lest he should declare his infallibility, and involve us in an impenetrable maze of awkwardness. But he shall speak this time, and of course he will say that all the details of a plant structure are designed for the good of the plant, and that unless the florist recognizes this he is likely to labour in direct opposition to Nature's plan. Very well; let us have it fair all through. This flower is to run a race in the "struggle for life," and by reason of stamens of such a form and a corolla of such a colour, &c., &c., &c., it is destined to win by pushing out of the way its competitors. But then what about those poor competitors that are pushed out of the way—are they not in the race of Nature, and does she really despise too much some of her children in order to lavish too much love on others? We do not pretend to answer the question, but it will occur to us when the self-complacency of the evolutionists is in full display. Let it be that we are always to consider, as Nature is disposed to do, what is best for the flower. Now it singularly happens

that the Florists do this, and the evolutionists, not being aware of the fact, denounce them as not doing it, and as not even apprehending that it should be done. We are not required now to defend through thick and thin every selection the florists have made, or that has been made in their name for trade purposes. With the general tendency and purpose of their work we certainly have to do in this argument, and we are fully persuaded that it is consistent with the aims of nature.

The fundamental qualities of a florist's flower represent vigour of constitution and enduring beauty. The compact sturdy growth, the smooth stout petal, the depth of colour, and the sweet perfume, that are so much desired, are just the qualities Nature gives preference to in the competition which ever tends to the "survival of the fittest." The evolutionist sees many things that the world at large does not see, but perhaps he has not, as yet, seen with sufficient clearness that Man is himself included in the competition, and is actually employed by Nature to promote her ends; his "instincts," or "appetites," or "tastes," or "tendencies," call them what you will, being more deeply seated than would be the case were they of purely individual origin, and without unity of expression or purpose. The florists have made mistakes, and they will again make mistakes, and it must be admitted that their primary object is to gratify a taste that may be termed arbitrary and artificial. But the system of the florists has a broader and deeper foundation than a mere fad or fashion or the eccentricities of a persuasive teacher could supply. It is founded on the constitution of man, and his instinctive perception of true beauty, which must be more or less allied with health and vigour and, in its degree, defiance of time.

HORSHAM ROSE SHOW will be held June 29.

THE QUEEN WILL VISIT EPPING FOREST in the forthcoming month of May, and declare it free to the public for ever.

WALSALL SPRING FLOWER SHOW will be held in the Agricultural Hall, Walsall, April 24.

MAIDENHEAD HORTICULTURAL SOCIETY will hold its annual exhibition in Kidwell's Park on Thursday, August 17.

MR. W. CRUMP is leaving Blenheim Palace to go into business at Leamington.

SHROPSHIRE HORTICULTURAL SOCIETY will hold its summer exhibition on August 16 and 17.

CLAY CROSS HORTICULTURAL SOCIETY.—The annual exhibition of this society will be held on August 15.

PUTNEY CHRYSANTHEMUM SOCIETY will hold its annual exhibition on November 14.

MR. H. WARD, late of Cadland Park, Southampton, has been engaged by Sir P. Egerton to take charge of the gardens of Oulton Park, Tarporley.

ESSEX FIELD CLUB.—The club will assemble at the Exhibition Galleries, South Kensington Museum, on Saturday next, at 3 p.m., to inspect the Anthropological collection, under the guidance of Major-General A. Pitt Rivers, F.R.S.

TUESDAY NEXT should be a busy day at South Kensington. There will be a promenade show of hyacinths, amaryllis, tulips, and cyclamens, and the recent judgment of the Court of Appeal on the claim of the Commissioners to dispossess the Society of the gardens will be a subject for conversation.

THE HACKNEY COMMONS.—The Metropolitan Board of Works has paid £33,000 to the Lord of the Manor for securing the open spaces of Hackney free to the public; and instructions have been given for the placing of seats and for other improvements of the Hackney Downs for the comfort of the people.

VAN GEERT'S ICONOGRAPHY OF INDIAN AZALEAS progresses at such a pace that the 6th part is already before us, containing figures of the varieties named *Franklin* (single white), *Argus* (single red), and Caldwell's variety of *Amœna*, which has larger flowers than the typical *Amœna*, but of the same rich purple colour.

A DIRECTORY OF THE GARDENS OF THE WORLD, now well known under its leading title, "Correspondance Botanique," is published annually at No. 1, Boverie, Liège. The ninth issue of this work is now before us. It is a complete directory of professors, curators, and advisers in botany and horticulture, with the schools, gardens, &c., &c., with which they are officially connected.

A NEW MODE OF PURIFYING WATER has been invented and put into practice on a large scale by Mr. Peter Spence, of the Pendleton Alum Works. It consists primarily in precipitating all matters, more especially earthy particles that are held in suspension and that constitute visible impurity. The exact mode of procedure has not been made public, but the general working of the scheme has been reported at length in the *Manchester Examiner and Times* of March 3.

BEGONIA READING SNOWFLAKE promises to take the lead for all the "useful" purposes of a free-flowering white begonia. It may be regarded as of the type of *B. semperflorans*, but is larger and richer in all its characters; the leaves very glossy, the flowers pure white and produced abundantly, and when raised from seed it is remarkably constant. We have seen it on several occasions, and now make note that seed sown in January, 1881, produced plants that began to flower in September last, and are now flowering profusely.

DUTCH BULBS, in common with other excitable subjects, are flowering in advance of their usual season, and those who propose to see the flower farms of Haarlem and Leyden will have to be early in the field. The crocuses are of course past the flower ring season, the hyacinths are now nearly in perfection, and the tulips will follow in the course of a fortnight or less.

THE BULLETIN OF THE FEDERATION OF HORTICULTURAL SOCIETIES OF BELGIUM for 1881 is an interesting budget of proceedings supplemented by a few original papers. Reports of exhibitions occupy a considerable space, and amongst them is one on the Brussels National Exhibition of 1880. The Horticultural Congress of 1881 is also reported on at length. Professor Morren's treatise on Brazilian Bromeliads is added.

NICOTIANA AFFINIS, which we have so much admired in its summer and autumn dress, is a grand subject for winter and early spring, as we have agreeable evidence before us. In the nurseries of Messrs. Sutton and Sons, Reading, seeds of this fine plant were sown on the 18th of August last, and the plants began to flower soon after the turn of the year. The specimens with which we have been favoured were grandly developed, and the ivory-white flowers were richly scented.

WONDERS ARE MULTIPLIED IN THE PAPERS with such rapidity that we are compelled to reject many from sheer inability to swallow them. We learn that leaves of the eucalyptus "laid around the stem of any fruit tree will protect the latter most effectually from the ravages of insects," and moreover that it is probable the eucalyptus leaves will protect grape vines against the phylloxera. The "bone collecting" tree is again brought forward as a veritable fact, and it is evident there are people who believe in it.

THE LEAFING OF THE HORSE-CHESTNUT.—The Parisians boast of their chestnut trees that in early seasons show green leaves about March 14. When the leaves do not appear to date there is nothing said, but when they do appear it is boldly alleged that they never fail. In several parts of London there are trees of the same kind that in forward years show plenty of green leaves on the 14th of March. In the centre of Clissold Park, Stoke Newington, stands one which was sparkling with green leaves on the 8th of March this year, and on the 14th was as green as its companion trees will be by the first week of April. In Bushey Park there are probably many trees that commonly show leaves on March 14, or earlier.

THE WEATHER has again become a subject of interest. In the midst of the halcyon days, with the trees leafing rapidly, and many of them in flower, there has come a visitation of snow in a most uncomfortable form, being mingled with rain and impelled by a cold wind. Thus concurrently with the incoming of spring, which, according to the *Garden Oracle*, commenced at 5 p.m. on Monday last, we have what may be called proper spring weather, which all the "old fogies" fully expected. It is therefore gratifying to know that vegetation is not greatly in advance of the almanac date, and, so far as we have observed, the present slight touch of cold will scarcely harm anything. If we do not soon have a plentiful fall of rain many springs and wells will fail in the coming summer.

TRANSIT OF GARDEN PRODUCE.—The London and North-Western Railway Company have shown themselves to be possessed of enterprise of a kind which is not so frequently exhibited by railway companies as it might be. They have arranged to receive daily at their Kew Bridge station all kinds of farm and market garden produce, and to forward them in time for the early markets next morning in Birmingham, Wolverhampton, Manchester, Liverpool, and other large towns in the northern and midland counties. *Land* hails this new departure of one of our great trunk lines as an indication that railway directors are alive to the necessity, if merely in their own interest, of affording every facility for the transit of market garden produce. Seeing that market gardening, in all probability, will play a very important part in our future agricultural history, this is a step in the right direction, and we shall be glad to see so good an example imitated by other lines.

TESTIMONIAL FOR THE RAISER OF MAGNUM BONUM POTATO.—In advocating Mr. Clark's claims on our readers as the raiser of several valuable varieties of potatoes, such as *Magnum Bonum*, *Covent Garden Perfection*, *Pride of the Market*, &c., we made a mistake, the correction of which enables us to present the subject once more to our readers. We spoke of Mr. Clark as having suffered considerable loss through the failure of seedling potatoes of his own raising. Now it remains to be said that if he had stuck to seedlings of his own raising all would have been well, for his own came through the last rainy season with complete success. He was induced, as a matter of business, to plant a lot of seedlings raised by others, and the loss of the crops of these makes the occasion for an appeal to the public to help a deserving man who has incurred serious losses in the public service, and who, we may hope, will be enabled to repay the world for whatever it may now be pleased to bestow upon him.

CARRIAGE OF GARDEN PRODUCE.—The *City Press* remarks that Londoners probably pay higher prices for many descriptions of vegetables owing to the heavy rates of carriage from Cornwall, where market gardening is carried on to as great an extent as in almost any county, as compared with the railway charges from other parts of the kingdom. Cornish growers are agitating for proportional rates, which, judging from statistics given at an influential meeting on the question, are now very unequal. For instance, London is 328 miles from Penzance and about 800 from Sutherlandshire, yet the rates for certain produce per ton are respectively 40s. and 32s. 6d. Again, the metropolis receives consignments from Jersey at 20s. per ton, while from Penzance the rate is exactly double; and can draw upon stores at Perth, some 450 miles distant, at 20s. 6d. per ton. It is a striking fact too that potatoes can be sent from London to Cornwall for 20s., whilst from Cornwall to London the tariff is 40s.

Exhibitions and Meetings, 1882.

APRIL.

- TUESDAY, APRIL 4.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Exhibition in the Town Hall.
- WEDNESDAY, APRIL 5, AND THURSDAY, APRIL 6.—ROYAL CALEDONIAN HORTICULTURAL SOCIETY.
- WEDNESDAY, APRIL 5, AND THURSDAY, APRIL 6.—NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—Exhibition of Spring Flowers.
- THURSDAY, APRIL 6.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.
- TUESDAY, APRIL 11.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- WEDNESDAY, APRIL 19, AND THURSDAY, APRIL 20.—BIRMINGHAM SPRING FLOWER SHOW SOCIETY.—Annual Exhibition.
- THURSDAY, APRIL 20.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Spring Exhibition.
- THURSDAY, APRIL 20.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.
- TUESDAY, APRIL 25.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Auricula Show, 1 p.m.; General Meeting, 3 p.m.
- TUESDAY, APRIL 25.—NATIONAL AURICULA SOCIETY (SOUTHERN SECTION).—Exhibition in the Gardens of R.H.S., at South Kensington.
- WEDNESDAY, APRIL 26.—ROYAL BOTANIC SOCIETY.—Exhibition of Spring Flowers.
- SUNDAY, APRIL 30, TO TUESDAY, MAY 2.—SOCIÉTÉ ROYALE DE FLORE DE BRUXELLES.—Annual Exhibition.

MAY.

- TUESDAY, MAY 2.—NATIONAL AURICULA SOCIETY (NORTHERN SECTION).—Annual Exhibition at Manchester.
- THURSDAY, MAY 4.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.
- TUESDAY, MAY 9.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- WEDNESDAY, MAY 10.—BATH.—Floral Fête.
- WEDNESDAY, MAY 17.—ROYAL BOTANIC SOCIETY.—Summer Exhibition.
- THURSDAY, MAY 18.—READING HORTICULTURAL SOCIETY.—First Summer Exhibition.
- THURSDAY, MAY 18.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—First Summer Exhibition.
- SATURDAY, MAY 20.—CRYSTAL PALACE.—Great Flower Show.
- TUESDAY, MAY 23, TO THURSDAY, MAY 25.—ROYAL HORTICULTURAL SOCIETY.—Great Summer Exhibition. On first day, Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- WEDNESDAY, MAY 24.—LINNEAN SOCIETY.—Anniversary Meeting, at 3 p.m.
- FRIDAY, MAY 26.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—First Day of the Great Whitsum Exhibition, at Old Trafford.
- WEDNESDAY, MAY 31, AND THURSDAY, JUNE 1.—KINSTON AND SURBITON HORTICULTURAL SOCIETY.—Annual Exhibition.

JUNE.

- THURSDAY, JUNE 1.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.
- THURSDAY, JUNE 1.—BORDEAUX.—Exhibition of Agricultural and Industrial Products.
- TUESDAY, JUNE 13.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.; Evening Fête, 8 p.m.
- WEDNESDAY, JUNE 14, TO FRIDAY, JUNE 16.—YORK.—Floral Fête and Gala.
- THURSDAY, JUNE 15.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Commemoration Show.
- THURSDAY, JUNE 15.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.
- WEDNESDAY, JUNE 21.—ROYAL BOTANIC SOCIETY.—Evening Fête, 8 p.m.
- WEDNESDAY, JUNE 21.—BURTON-ON-TRENT HORTICULTURAL SOCIETY.—First Summer Exhibition.
- THURSDAY, JUNE 22.—BURY ST. EDMUNDS HORTICULTURAL SOCIETY.—Summer Exhibition.
- FRIDAY, JUNE 23.—SCOTTISH PANSY SOCIETY.—Annual Exhibition.
- TUESDAY, JUNE 27.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Pelargonium Exhibition, 1 p.m.; General Meeting, 3 p.m.
- TUESDAY, JUNE 27.—PELAGONIUM SOCIETY.—Exhibition in the Gardens of the R.H.S., at South Kensington.
- TUESDAY, JUNE 27.—THORNTON HEATH HORTICULTURAL SOCIETY.—Annual Exhibition.
- WEDNESDAY, JUNE 28, AND THURSDAY, JUNE 29.—LEE AND BLACKHEATH HORTICULTURAL SOCIETY.—Annual Exhibition.
- WEDNESDAY, JUNE 28.—NATIONAL ROSE SOCIETY.—Southern Exhibition, at Bath.
- THURSDAY, JUNE 29.—GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Anniversary Festival, at the Albion, Aldersgate Street.
- THURSDAY, JUNE 29.—FARNINGHAM ROSE SOCIETY.—Annual Exhibition.

JULY.

- SATURDAY, JULY 1.—CRYSTAL PALACE.—Great Rose Show.
- SATURDAY, JULY 1.—REIOATE ROSE SOCIETY.—Annual Exhibition.
- TUESDAY, JULY 4.—NATIONAL ROSE SOCIETY.—Great Exhibition in the Gardens of the R.H.S., South Kensington.
- WEDNESDAY, JULY 5.—ROYAL BOTANIC SOCIETY.—Summer Exhibition.
- THURSDAY, JULY 6.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Second Summer Exhibition.
- THURSDAY, JULY 6.—CANTERBURY ROSE SOCIETY.—Annual Exhibition.
- THURSDAY, JULY 6.—BROCKHAM ROSE SOCIETY.—Annual Exhibition.
- FRIDAY, JULY 7.—TENBRIDGE WELLS HORTICULTURAL SOCIETY.—Annual Exhibition.
- SATURDAY, JULY 8.—ALEXANDRA PALACE.—Rose Show.
- TUESDAY, JULY 11.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- WEDNESDAY, JULY 12.—EALING AND DISTRICT HORTICULTURAL SOCIETY.—Summer Exhibition.
- WEDNESDAY, JULY 12.—CARDIFF ROSE SOCIETY.—Annual Exhibition.
- FRIDAY, JULY 14, AND SATURDAY, JULY 15.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Rose Show.
- SATURDAY, JULY 15.—BIRKENHEAD ROSE SOCIETY.—Annual Exhibition.
- TUESDAY, JULY 18.—LEEK ROSE SOCIETY.—Annual Exhibition.
- THURSDAY, JULY 20.—WEST OF SCOTLAND ROSARIANS' SOCIETY.—Annual Exhibition at Helensburgh.
- FRIDAY, JULY 21.—NATIONAL ROSE SOCIETY.—Northern Exhibition, at Darlington.
- TUESDAY, JULY 25.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Carnation and Picotee Show, 1 p.m.; General Meeting, 3 p.m.
- TUESDAY, JULY 25.—NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—Exhibition in the Gardens of the R.H.S., South Kensington.
- WEDNESDAY, JULY 26, AND THURSDAY, JULY 27.—NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—Summer Exhibition.
- WEDNESDAY, JULY 26.—WEST OF SCOTLAND PANSY SOCIETY.—Exhibition of Pansies, Roses, and Pinks at Glasgow.

AUGUST.

- WEDNESDAY, AUGUST 2.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Second Summer Exhibition.
- THURSDAY, AUGUST 3, TO TUESDAY, AUGUST 8 (EXCEPT THE 6TH).—BRITISH BEE KEEPERS' ASSOCIATION.—Exhibition in the Gardens of the R.H.S., South Kensington.
- SATURDAY, AUGUST 5, AND MONDAY, AUGUST 7.—LIVERPOOL HORTICULTURAL ASSOCIATION.—Summer Exhibition.
- MONDAY, AUGUST 7.—ROYAL HORTICULTURAL SOCIETY.—Artisans and Cottagers' Show.
- MONDAY, AUGUST 7.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Gooseberry Show and Table Decorations.
- TUESDAY, AUGUST 8.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.
- TUESDAY, AUGUST 15.—CLAY CROSS HORTICULTURAL SOCIETY.—Annual Exhibition.
- TUESDAY, AUGUST 15.—WITNEY HORTICULTURAL SOCIETY.—Annual Exhibition.
- WEDNESDAY, AUGUST 16, AND THURSDAY, AUGUST 17.—SHROPSHIRE HORTICULTURAL SOCIETY.—Annual Exhibition.
- THURSDAY, AUGUST 17.—MAIDENHEAD HORTICULTURAL SOCIETY.—Annual Exhibition.
- THURSDAY, AUGUST 22.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.
- WEDNESDAY, AUGUST 23.—BURTON-ON-TRENT HORTICULTURAL SOCIETY.—Second Summer Exhibition.
- THURSDAY, AUGUST 24.—READING HORTICULTURAL SOCIETY.—Autumn Exhibition.
- THURSDAY, AUGUST 31.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Autumn Exhibition.
- THURSDAY, AUGUST 31, TO SATURDAY, SEPTEMBER 2.—DUNDEE HORTICULTURAL ASSOCIATION.—Annual Exhibition.

SEPTEMBER.

- WEDNESDAY, SEPTEMBER 6.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Autumn Exhibition.
- FRIDAY, SEPTEMBER 8.—BURY ST. EDMUNDS HORTICULTURAL SOCIETY.—Autumn Exhibition.
- FRIDAY, SEPTEMBER 8, AND SATURDAY, SEPTEMBER 9.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Cottagers' Show.
- FRIDAY, SEPTEMBER 8, AND SATURDAY, SEPTEMBER 9.—CRYSTAL PALACE.—Great National Dahlia Show and Exhibition of Fruit.
- TUESDAY, SEPTEMBER 12.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.
- WEDNESDAY, SEPTEMBER 13, AND THURSDAY, SEPTEMBER 14.—ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—Great International Fruit Show at Edinburgh.
- WEDNESDAY, SEPTEMBER 20, AND THURSDAY, SEPTEMBER 21.—INTERNATIONAL POTATO EXHIBITION at the Crystal Palace.

OCTOBER.

- TUESDAY, OCTOBER 10.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.

NOVEMBER.

- THURSDAY, NOVEMBER 2.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Winter Exhibition.
- MONDAY, NOVEMBER 13, AND TUESDAY, NOVEMBER 14.—STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- TUESDAY, NOVEMBER 14.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- TUESDAY, NOVEMBER 14.—PUTNEY CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- WEDNESDAY, NOVEMBER 15, AND THURSDAY, NOVEMBER 16.—BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—Annual Exhibition, Royal Aquarium, Westminster.
- THURSDAY, NOVEMBER 16, AND FRIDAY, NOVEMBER 17.—KINSTON AND SURBITON CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- TUESDAY, NOVEMBER 21.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Exhibition of Chrysanthemums.
- TUESDAY, NOVEMBER 21.—OXFORDSHIRE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- WEDNESDAY, NOVEMBER 22.—LIVERPOOL HORTICULTURAL ASSOCIATION.—Exhibition of Chrysanthemums, &c.

DECEMBER.

- TUESDAY, DECEMBER 12.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

THE GARDEN FARMS OF VIRGINIA.

THE City of Norfolk in Virginia is known as the "Truck City" of Virginia. It lies in the centre of the garden farms of the South, which extend over a radius of twenty miles. The farms vary in size from eighty to 300 acres, with 100 acres as the average. While the land is sufficiently elevated for drainage, there are stretches seven and eight miles long almost as level as a floor. The soil is wonderfully rich, although it has been worked for a hundred years past. These "truck farms" are what we should call market gardens—farms for the raising of fruit and vegetables. The farmers, or rather market gardeners, have the advantage of being independent of local markets, for there is cheap water carriage both to New York and Philadelphia, where there is always a demand for early fruits and vegetables. In a fair season a farm of 150 acres will, it is said, pay a profit of from £14 to £18 per acre, and some, in exceptional seasons, have returned as much as £24 an acre. One of these Virginian market gardens has the distinction of comprising what is said to be the largest field in the South. It is 175 acres in extent, and is entirely planted with strawberries. In Eastern Virginia however, there are many fields varying from 50 to 100 acres in size. Water melons are largely cultivated, and every "truck farmer," each year sets apart a certain number of acres for their cultivation. The minimum profit per acre from melons is set down at between £12 and £13.

Some indication of the importance of these Virginian market gardens to the great consuming centres of the Northern States is furnished by the following list of shipments from the farms round Norfolk to the markets of New York and Philadelphia:—200,000 heads of cabbage, 3,500,000 quarts of strawberries, 4,000 pounds of asparagus, 500 barrels of artichokes, 50,000 barrels of beans, 5,000 barrels of beets, 4,000 quarts of blackberries, 12,000 quarts of huckleberries, 4,000 quarts of raspberries, 11,000 quarts of gooseberries, 20,000 quarts of cherries, 20,000 barrels of cabbage, 30,000 barrels of cucumbers, 4,000 barrels of lettuce, 20,000 barrels of onions, 60,000 barrels of peaches, 65,000 barrels of peas, 11,000 bushels of pears, 300,000 barrels of Irish potatoes, 2,500 barrels of sweet potatoes, 3,000 bushels of tomatoes, 800,000 water melons, 300,000 pounds of grapes.—*Land.*

CONSTRUCTION OF HORTICULTURAL BUILDINGS.

By F. A. FAWKES, F.R.H.S., Author of "Horticultural Buildings Illustrated."

Second of a series of Lectures delivered before the Crystal Palace Schools of Landscape Gardening and Practical Horticulture.

(Continued from page 128.)

It is very necessary to say a few words on the general principles of ventilation before we speak of ventilators in glasshouses, but we have not the time at our disposal to treat of the theoretical part of the subject in detail, as several long and interesting lectures might easily be devoted to it.

Ventilation consists in the renewal of the air, and when this is effected in a natural manner we have to rely upon the physical fact that the higher the temperature of the air the greater the volume of the air; that is to say, air occupying a given space will weigh less than colder air, and will weigh more than hotter air occupying the same space. In other words, the colder the air the greater the specific gravity; the hotter the air the less the specific gravity. Therefore hot air rises and cold air sinks, simply because the heavier cold air pushes the lighter hot air upwards. This displacement or rising and falling of air at different temperatures produces horizontal as well as vertical currents. In this way, you will readily perceive that by means of a heating apparatus, without any other mechanical means, we are able to produce currents of air in our greenhouses, and that by a proper arrangement of openings and heating apparatus we may, to a certain extent, produce a proper renewal of air.

Let us see how this principle will affect the currents of air in a greenhouse. We require to renew the air in the vicinity of the plants, and that the renewed air shall be warmed before it comes in contact with the plants if possible.

As, therefore, heated air rises we must place the inlet for the renewal of air low, and also the means for heating it low; we must then arrange that the current of heated air shall pass in the direction we want, and

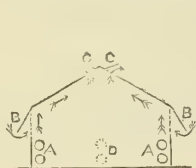


FIG. 33.

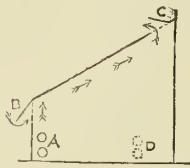


FIG. 34.

VERTICAL SECTIONS OF SPAN AND LEAN-TO HOUSES, SHOWING CIRCULATION OF AIR. A, Hot-water Pipes; B, Inlet; C, Outlet; D, Supplementary Pipes.

find its exit as high as possible. This, roughly, may be said to be effected in Figs. 33 and 34.

Therefore we see that inlets should be low, and in such a position that the air entering should pass near the pipes, and that outlets should be high. Air however is very mobile, and a heavy wind may neutralize the effect of the heating apparatus, and cause the air to come in at the top and out at the bottom, a circumstance often very prejudicial to plants. A good gardener however, may by watching the wind, often prevent this by varying respectively the size of the inlets and outlets. We find in practice that, as a rule, the outlets may be of smaller combined area than the inlets. Both outlets and inlets should be along the whole length of a house, except perhaps in the case of the top ventilators of a span or three-quarter span house, which may often be arranged alternately on each side of the ridge. This permits the ventilators on the opposite side to that against which the wind is blowing always to be open.

The most usual form of ventilator is a framed light, hinged at the top, and opening from the bottom outwards. Sliding sashes have almost gone out of fashion, except for frames, low pits, and houses in which the roof requires at certain times to be practically stripped. A roof in which sliding lights are fitted requires to be abnormally heavy, affords great obstruction to the solar rays, and the sliding lights themselves develop a large amount of friction. The same objections may be urged against ordinary window sashes used as upright lights in greenhouses. Ventilators pivoted in the centre are sometimes used, but are not so simple or efficient in practice.



FIG. 35.—OPENING GEAR FOR SEPARATE ROOF LIGHTS.

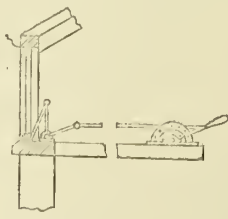


FIG. 36.—LEVER SIMULTANEOUS OPENING GEAR.

Casement ventilators are sometimes very useful in show houses, but after all, for growing houses, there can be nothing to beat the ordinary lights hinged from the top.

The size of ventilators will depend upon the requirements of what is to be grown, but for ordinary purposes I find the lower inlet ventilators may be about 2 ft. 6 in. deep, top ventilators 2 ft., the width of both, of course, corresponding to the distance apart of the rafters—that is, in a sash-bar roof about 5 ft., in a sash roof about 4 ft. In some vineries and fruit houses these dimensions may be increased. "Hit and Miss" ventilators may sometimes be employed in brick walls immediately in front of hot-water pipes, either in conjunction with vertical lights or where none exist; or for letting cold air into, or hot air out of, the spaces below the beds of forcing houses. All ventilators should fit closely and butt against fillets, not merely so that the rain may not drift in when they are closed, but also that the house may be fumigated with ease when this operation becomes necessary.

A word or two as to the mode of opening the ventilators next claims our

attention. We have just seen that it is advisable that all the lower lights, and that an uninterrupted succession of upper lights shall open in a house; that is to say, that there shall be an uninterrupted area of top and bottom ventilation. Now, a number of consecutive lights may be made to open simultaneously, or each can be arranged to open separately. Unless, however, there are a great number of lights to open, it is frequently advantageous to adopt the latter course; for obviously it may not be advisable to have exactly the same area of ventilation along the whole length of a house. At one part there may be plants which require a more constant and copious renewal of air than at another part. If lower lights are opened separately, then the ordinary "set-open," consisting of a bar having notches or holes in it, held in any required position by a pin fixed in the framework in front of the ventilator, may be used. If top lights are opened separately, then a quadrant bar terminating in an eye may be fixed to each light; a cord attached to the eye, and passing over a pulley fixed to the purlin or principal, will be sufficient to open the light. (Fig. 35.) A counterbalance weight or hook in the wall may be used to keep the light open when necessary.

When however, to save time in consequence of the large number of lights to open, or in consequence of the inaccessibility of the ventilators—as, for instance, when a vine border or a great width of staging is in front of them, a number of ventilators require to be opened simultaneously—a round bar may be fixed to plunger blocks immediately in front of the ventilators, and two jointed arms fixed on each ventilator and keyed securely on to the bar. A side view of one jointed arm and a section of the bar and a light is shown in Fig. 36.

Upon partially rotating the bar the jointed arm is of course straightened, and in the action of straightening the light is forced open. A handle keyed on to the bar, and moving in a quadrant, can easily actuate the bar, or this motion may be conveyed to some little distance.

The same apparatus may be used to actuate top lights. Care should be taken that the arms are all securely keyed on to the shaft or bar, otherwise there may be a tendency for the lights to wring, and some may be closed whilst others remain open. Sometimes toothed quadrants are used for the simultaneous opening of lights; but these double-jointed arms are far better; for, as you will notice, that when either closed or open they present no obstruction to plants or anything inside the house, such as is presented by the ordinary set-open or the toothed rack quadrant, which, when the vertical light is closed, stick into the house and come in the way of pots, plants, &c.

In vineries, cucumber houses, and houses of this class, provision must be made for training the plants near the glass. Trees and plants often require also to be trained up the back walls of houses. The wires used for this purpose are sometimes stretched vertically, sometimes horizontally,

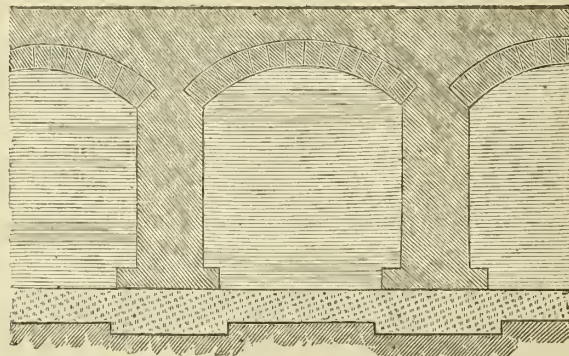


FIG. 37.—FRONT WALL OF VINERY, ARCHED.

depending often upon the particular views of the gardener; but the usual practice—for roofs at any rate—is to stretch the wires in a vertical direction, that is, parallel with the rafters and sashbars. In this way they help to support and strengthen the roof, and enable painting and repairs to be more easily effected than wires at right angles to the rafters. One very good way of fixing these wires is the following:—Suppose we have a lean-to roof to deal with; take two flat iron bars, turned edgewise, and suspend them at back and front by holdfasts at intervals, bolted through the back wall and into the front mullions; then at the necessary intervals stretch wires by means of raidisseurs to these two bars. The wires can thus be at short or long or irregular intervals along the bars; or at any time, and as frequently as desired, the distance apart of the wires may be altered; or in a few minutes they may be removed altogether. This, as you will see, is a much better plan than fixing wires separately and permanently. The wire used may be about the thickness known as No. 12, B.W.G., and may be suspended at about 10 to 12 inches under the roof.

If the house be a span instead of a lean-to, the flat bars will require to be held fast to the mullions on each side, and the wires strained between them, after being passed through eye-bolts screwed to the ridge plate, or, what is better, taken over an iron bar suspended at the proper distance from the ridge.

Wires against a vertical wall are better horizontal, however, than vertical. Such wires may be placed about ten or twelve inches apart, each wire fastened to a staple at one end, and to a "raidisseur," at the other, passing through guiding eyes driven into the wall at intervals of about ten feet. The length of wire which may be strained in this way depends upon the strength of the terminal holdfasts, but from 100 to 150 ft. may be strained with ease. There are other modes of fixing training wires, but they are scarcely so advantageous as the foregoing. There is the three-wire system, also another system in which wires are strained on rods held between rigid standards unsupported by and independent of the roof. Wood trellis is also used against walls of greenhouses for sustaining creepers, and in front of staging to mask hot-water pipes. When employed, wood trellis should be fixed in panels, or at any rate in pieces which can easily be removed for cleaning, painting, &c.

To refer to painting reminds me that this is by no means an unimportant part of greenhouse construction. To commence with, the woodwork should be well seasoned and thoroughly dry before any paint is applied.

Any woodwork prepared at a distance from its destination should be well primed before it leaves the shops. Before it is fixed those parts which come in contact with brickwork, and which cannot afterwards be accessible, such as the under part of eills, the back of wall-plates, &c., should be well painted with good oil colour. After the woodwork is fixed it should be well painted. In all, no fewer than four coats of good oil colour should be employed. The best finishing colours for horticultural work are stone colour and white. Bright prominent colours should never be employed in either growing or show houses. Such colours are certain to artistically kill all the plants and flowers, and we must always remember that it is after all the rich colouring of foliage and flowers, not the colour of woodwork, which we wish to make prominent.

Horticultural buildings have very trying atmospheric influences to contend against; therefore protection by periodical painting is an absolute necessity. Supposing houses are properly painted when they are erected, they should have one coat outside within at least a year; after this, two

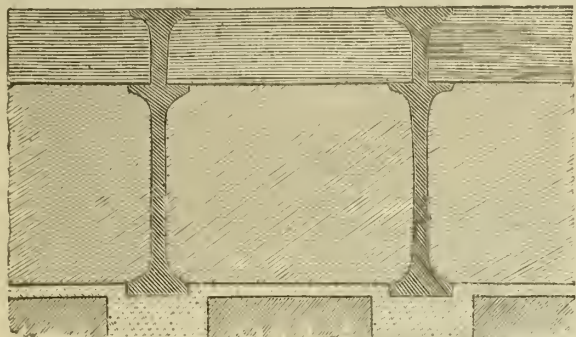


FIG. 38.—PILLAR SUPPORTS OF FRONT OF VINERY.

coats outside and in every three years. When new panes of glass are put in the woodwork left bare by the operation should be painted.

In none of the diagrams to which I have already drawn attention is a provision shown for enabling the roots of vines and fruit trees to have an outside as well as an inside border. As a viney or a house with such borders possesses several distinctive features, I will give you a few notes regarding the construction of a viney. Although some authorities advocate an inside vine border only, yet it will generally be found advantageous to allow the border to be outside as well as in, and to do this you require either to build the front wall of your viney on arches (Fig. 37)—the crown of the arch being just under the soil—or to support the front part of your viney on short iron pillars at intervals (Fig. 38), the spaces between the pillars from the wood and glass work down to a little under the level of the soil being filled by slabs of slate.

The roots of your vines must only feed upon such soil as you prepare for them. The drainage of your border must also be efficient. If the natural soil be too retentive, and there is no other way of accomplishing the

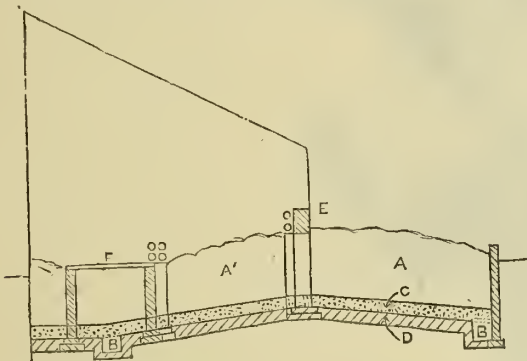


FIG. 39.—SECTION OF BORDER OF VINERY.

A, Outside Border; A', Inside Border; BB, Drains; C, Rubble; D, Concrete; E, Front Wall on Arches F, Path supported by Piers at intervals

purpose, you must prepare the bottom of your border in something like the manner shown in Fig. 39.

First a layer of concrete, then a layer of rubble, with perhaps some small transverse drain-pipes; then turf to prevent the compost filling up the interstices of the rubble, then the soil of the border itself.

In most cases it will be found that a rubble bottom will be sufficient for drainage, and at the same time form a barrier for the roots, in which case of course the concrete layer will not be required; but I mention the concrete bottom for the purpose of indicating how important it is that the border should be well drained. About three feet is, I am told, a very fair depth for a border, and the total width may equal the width of the house. The layer of rubble may be from six to twelve inches, in accordance with the ease or difficulty in draining. In some instances the border may be carried right up to the back wall, especially when a back border is required for wall trees. If it is absolutely necessary, from a cultivator's point of view, that root action shall not be checked by the exposure of part of the border to cold air, then, as mentioned before, you can either have the whole of the vine border inside the house, or, what is better, protect the outside border by matting or some such non-conducting substance from frost and cold rain, or even by simple lights. In some instances, it is advocated to run hot-water pipes through or under vine borders; but this, I apprehend, you will scarcely ever find necessary. In planning your viney it is advisable, if you can, to have part at least of your border above the ground level. The same remarks apply to span

houses, but they are not so suitable," in consequence of length of rafter required and small inside border.

Next to the viney, the house which is perhaps most frequently required by the gardener is the forcing house proper. I mean a house in which the temperature of the soil in the immediate vicinity of the roots requires to be raised.

Fig. 40 shows a usual form of such a house. In this form the materials of which the bed is composed are raised to the necessary temperature by hot-water pipes placed underneath them. Sometimes the pipes go through the bed itself, a layer of rubble keeping the soil from actually touching the pipes. The former is however perhaps a better plan to adopt, as in this case the pipes may be fitted with vapour troughs and water placed in them as required, instead of the necessity of pouring water on the top of the bed, the pipes being more accessible. Cold-air inlets can be more easily fitted in the outer wall, or warm-air outlets in the inner retaining wall, if the pipes pass through an air space similar to that shown in the diagram. In fact, I have known the pipes under the bed do duty for heating the air in the house as well as the soil in the bed; but I need not tell you it is much better to have the pipes for atmospheric heat separate from those for bottom heat.

The paths in horticultural buildings may be composed of stone, slate, bricks, tiles, concrete, or wood. The most favourite solid path is a tile one. Builder's ordinary 6 in. or 9 in. red and buff Staffordshire tiles, carefully laid diagonally in cement, upon a good bed of concrete, form at reasonable cost a very neat, durable, easily-cleaned, and agreeable-looking path. If such a path does not come against a dwarf wall, an edging such as a stone curb or edging tiles, of which there are several standard patterns, must be used. Failing this path, or in positions—such as on an inside vine border, where a permanent path cannot be laid—a very suitable strong lattice-wood path may be easily constructed of battens—say, 4½ in. by 1½ in.—laid transversely on quartering, with ½ in. spaces between, and a neat nosing on each edge.

2 ft. 9 in. is a very good width to allow for a path in a growing house; 3 ft. is perhaps better if you can afford to have it. If you are very much cramped for room, 2 ft. 6 in. only may be occupied by the path. Less than this however I should never advise.

In very large ranges of buildings 3 ft. 6 in. may be taken for a path. You must be guided however by the fact whether you have staging or any

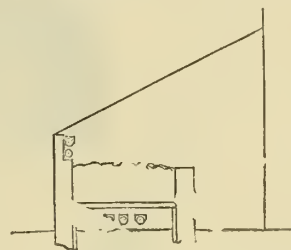


FIG. 40.—SECTION OF FORCING PIT.

similar obstruction rising 2 ft. or 2 ft. 6 in. high on each side of you, or whether you have an open path, such as in a viney.

Next week I hope to commence with a rather more interesting part of the subject, viz., that connected with ornament, design, and conservatories or showhouses.

New Plants, Flowers, and Fruits.

ARUNCUS ASTILBOIDES (*Florist and Pomologist*, pl. 544).—A very fine hardy herbaceous plant, the name of which will for a time perplex collectors. It should be observed therefore that this is a fine form of our old friend *Spiraea aruncus*, but separated from the genus *Spiraea* to figure under a new genus, *Aruncus*.

NEW GLOXINIAS (*Fl. and Pom.*, 1881, pl. 550).—A grand lot, one of which is named, this being *Chiswick White*, a chaste flower of the most perfect form and waxy texture, the colour snow-white.

TROPEOLUM EMPRESS OF INDIA (*Fl. and Pom.*, 1881, pl. 551).—A splendid annual in the way of *King of Tom Thumbs*, but the flowers come later and are a deeper colour.

TOMATO EARLY FILLBASKET (*Fl. and Pom.*, 552).—A very fine smooth spherical fruit raised by Mr. Stevens, of Trentham. It is of a large size, of a light red colour, the plant robust and remarkably fruitful.

LILIUM PARRYI (*Fl. and Pom.*, 553).—A Californian species, the flowers smallish, yellow with red spots.

LILIUM POLYPHYLLUM (*Fl. and Pom.*, 553).—An Indian species, the flowers elegant in form, greenish with stripes of purple.

PEACH WATERLOO (*Fl. and Pom.*, 554).—A fine early peach of American origin. The fruit is of medium size, round, with deep suture and short nipple, whitish green in the shade, purple-crimson in the sun; flesh greenish white, melting, vinous, clinging slightly to the pale yellow stone.

NEW DAHLIAS (*Fl. and Pom.*, pl. 555).—*Pioneer*, a grand dark self of the finest form and of average size; the plant dwarf and free. The colour is dark maroon, but it is so richly shaded that it appears to pass into black. *Duchess of Wellington*, a large and handsome tipped flower, a little wanting in form, but very showy, and the colouring pure and fresh. The ground is white, the florets lightly tipped with deep crimson. Both raised by the Rev. C. Fellowes.

PLUM THE ARCHDUKE (*Fl. and Pom.*, 556).—A fine late plum, as large as the *Diamond*, equally good for table or culinary use; the colour deep purple with a delicate bloom. The tree is vigorous and bears abundantly. Raised by Mr. Rivers.

PLUM REINE CLAUDE DU COMTE HATHEN (*Fl. and Pom.*, 556).—A medium-sized spherical fruit of a reddish purple colour and the finest table quality. The tree is vigorous and makes a good orchard standard. It is of Hungarian origin.

RAISING SEEDLING NARCISSI.

FIRST catch your hare, and then you may cook him. The paper published March 11 was intended to warn the lovers of narcissi in good time that seed should not be looked for as a matter of course, but must be laboured for, and then it may be reckoned on to a certainty. My clumps of Ajax section, both single and double, began to flower on the 1st of March, and some very fine clusters of the typical *Pseudo-narcissus*, as well also of *Nobilis* and *Nanus*, made conspicuous shining nuggets of gold on the dark ground of the border. You have of course only to watch, and work, and wait, and your seed is secured. But such words are worthless, and I use them only because I would show how vain is the system of your horticultural penny-a-liner who gets up articles to order. Yes; there may be some sweet spots in the world where a man may manipulate narcissus blooms in the open, with a thick mat for his knees, and a gift of patience surpassing that of Job, to keep his hands from failing and his

should be covered with canvas in the way of a tulip bed; for by this mode of procedure the plants are kept perfectly hardy, and have all the winds to blow upon them, except when the hybridizer for his own comfort lets the canvas drop, and for an hour or so secures for himself a little shelter.

As there are practical men always treading on the verge of the Impossible, so in raising seedling narcissi some enthusiasts will sail near the eye of the wind. And in truth wonders may be done in this way by the man who means it. There is yonder a clump of daffodils in flower. Very well. If it is intended to put pollen on them it must be remembered that the trumpets, the hoop petticoats, the incomparables, the Macleas, and some others that have the stamens in regular order on filaments of the same length, ripen their pollen before the stigmas of the same flowers are ready to receive it. Therefore self-fertilization is unlikely, and there is no apparent necessity for the forcible opening of the flower and the excision of the stamens usually practised. We have to watch



NARCISSUS LEEDSI EXPANSUS.

head from leaping off his shoulders. The man who means it will hybridize his narcissi under cover, for to do the work in the open is simply to expose yourself to sure destruction in the climate of London, or anywhere round about. The east winds and the Lent Lilies usually come in together, and to make a study of these flowers needs (save in the most favoured parts of these isles) an iron constitution.

You may deal with them in the orthodox fashion of the raiser of seedling tulips, who, it may be proper to say, would do well by treating the narcissi as he treats the tulips, and they would probably reward him in the same liberal manner, although differently as regards details. In the case before us we have a very limited range of colours, whereas in tulips the range of colours is almost unlimited. However, as regards the mechanical business, the first step in my opinion is to ensure comfort for the operator. And to this end a certain number of selected sorts should be potted up in a liberal manner to be flowered under glass, or a bed or beds should be devoted to them, and in the flowering season

for the ripening the stigma, and having pollen ready, we must be ready to apply it. On the other hand, the tazettas and the poets' daffodils have their filaments in two rows of unequal lengths, and the longest protrude and ripen at the same time as the stigmas, the short stamens ripening subsequently, and serving to fertilize the late stigmas of other flowers, or as a reserve, in case of accidents, for their own associated stigmas. Thus the tazettas and true daffodils are adapted for self-fertilization, and the removal of the stamens may be recommended in the case of special sorts selected to be crossed for seed bearing.

So far the work is comparatively simple. You must learn by observation how to collect the pollen and apply it, and what follows requires only the exercise of common sense. But a radical difficulty occurs in the long season over which the flowering of the several sections extends. We have *Corbularia* in flower in February, and *Ajax* in March, and *Poeticus* in the month of May, and according to all ordinary modes of procedure it is comparatively easy to save their pollen and apply it to the later

flowers. But to reverse the process some extraordinary procedure must be adopted. How are we to obtain pollen of the latest for the fertilization of the earliest? Clearly, we may force one section and retard another, and this will be easy in proportion to the nearness of their natural seasons of flowering, and difficult in proportion to the remoteness of their several seasons. The pollen, when secured, may be kept for three months in folds of tinfoil, or what is called "silver paper," or in glass phials. It should be removed with a dry camel's hair pencil, and in cases where crossing is reduced to a system the samples should be labelled, that the history of each cross may in due time be truthfully recorded. How long the pollen may be kept without loss of vitality appears not to be known. It would be somewhat of a surprise perhaps if it should prove capable of imprisonment for eight or nine months without harm, and even that may be within the region of the possible. The probable consequences of late pollen carried forward for fertilizing the earliest flowers may be guessed on the instant. We should be enabled

and here it is from Philip Miller, who speaks after the manner of one who has worked out the routine he has thus described. The extract is from the "Gardener's Dictionary," second edition, 1733.

"I shall first lay down the method of propagating these flowers from seeds, and afterwards proceed to the necessary directions for increasing them from offsets, with the manner of treating the roots to produce strong flowers.

"You must be very careful in saving your seeds to gather none but from such flowers as have good properties, and particularly from such only as have many flowers upon a stalk, that flower tall, and have beautiful cups to their flowers; from such you may expect to have good flowers produced. But if you sow ordinary seed it is only putting yourself to trouble and expense to no purpose, since from such seeds there can be no hopes of procuring any valuable flowers.

"Having provided yourself with good seeds, you must procure either some shallow Cases or flat pans made on purpose for the raising of seedlings, which should have holes in their bottoms to let the moisture pass off



NARCISSUS HUMEI MONSTROSUS.

to fertilize *Corbularia* and the earliest of the trumpets with the pollen of the latest forms of *Poeticus*, a thing not likely to occur in nature, and which it is pretty certain has not been accomplished by man. The work of one year would put the matter to the test, and the chances appear at present very much in favour of success.

It is evident in the complexion of the newer seedlings that not only have the best known, but some of the least known, species been employed in their production. There are many traces of *Montanus* (*Galanthoides*) and *Macleayi*; but of *Odorus*, *Dubius*, and *Tazetta* we have not noticed any traces. As for *Corbularia*, it seems to be necessarily shut out, but, as we never know where are the boundaries of the possible, we may hope the next earnest worker will discover the way to compel it to yield new forms, and perhaps establish a section having the characters of a species.

All that follows is sufficiently simple. No one capable of raising the seed would be much perplexed about raising the plants. It may be well, however, to go to one of the old masters for a lesson in this business,

these must be filled with fresh light sandy earth about the beginning of August (this being the best season for sowing the seeds of most bulbous-rooted flowers), which must be levelled very even; then sow the seeds thereon pretty thick, covering them over with fine sifted light earth about half an inch thick, and place the cases or pans in a situation where they may have only the morning sun till about ten o'clock, where they should remain until the beginning of October, when they must be removed into a warmer situation, placing them upon bricks, that the air may freely pass under the cases, which will preserve them from being too moist.

"They should also be exposed to the full sun, but screened from the cold north and east winds, where they may remain until the beginning of April, by which time the plants will be up, when you must carefully clear them from weeds; and if the season should prove dry, they must be frequently watered: The cases should also now be removed into their former shady position; for the heat of the noonday sun will be too great for the young plants.

"The latter end of June, when the plants are decayed, you should take

off the upper surface of the earth in the cases (which by that time will have contracted a mossiness, and, if suffered to remain will greatly injure the young roots), observing not to take it so deep as to reach the roots; then sift some fresh light earth over the surface, about half an inch thick, which will greatly strengthen the roots: The same should also be repeated in October, when the cases are moved into the sun.

"During the summer season, if the weather should prove very wet, and the earth in the cases appear very moist, you must remove them into the sun till the earth be dry again; for if the roots receive much wet during the time they are inactive, it very often rots them; therefore you must never give them any water after their leaves are decayed, but only place them in the shade, (as was before directed).

"Thus you should manage them the two first seasons, till their leaves are decayed the second summer after sowing, when you should carefully take up the roots, which may be done by sifting the earth in the cases with a fine sieve, whereby the roots will be easily separated from the earth; then having prepared a bed or two of fresh light earth, in proportion to the quantity of your roots, you should plant them therein at about three inches distance every way, and about three inches deep in the ground.

"Those beds should be raised above the level of the ground in proportion to the moisture of the soil, which, if dry, three inches will be enough, but if it be wet, they must be raised six or eight inches high and laid a little rounding to shoot off the wet."

Miller reckons the complete cycle of growth from seed to the full development of the floral character to comprise a series of five years. But within three years an operator would obtain a pretty clear indication both of the tendency and the value of his labours. S. H.

THE GLORIES OF TROPICAL VEGETATION.

By JOHN E. RUSSELL, Secretary of the State Board of Agriculture, Massachusetts.

At a meeting of the Massachusetts Horticultural Society, Mr. J. E. Russell, Secretary of the State Board of Agriculture, spoke on tropical fruits and flowers.

Some time ago he spent several years on the isthmus, which has no special name, extending seven hundred miles from Yucatan to Darien. This differs from any other part of the tropics. We speak of Southern Georgia and Florida as subtropical, and of the leeward and windward islands of the West Indies as thoroughly tropical, but all these are exposed to cold blasts from the north, which carry such a chill that in Cuba, where there was no fire except in the kitchen, and no means of keeping warm, he went to bed to escape the effects of a "norther." Central America is beyond cold blasts. The waters of the Caribbean Sea are never chilled, and the climate of Central America does not vary more than five or six degrees; the lowest the speaker had noticed was 75 deg. and the highest in the shade, 82 deg. Here we consider such a temperature agreeable and equable, and the speaker, when sweating on the hills of Worcester county, under a higher temperature, had longed for the tropical sun of Central America to cool off in. There is never a blast there that can destroy vegetation.

Though the isthmus is only one hundred and seventy-five miles wide, it possesses a great diversity of climate. On the Atlantic coast it rains every day, while fifteen miles inland the rainy season begins in April and ends in November. The rain does not fall incessantly, but so regularly every day that the hour can almost be fixed, and arrangements can be made for picnics or horticultural exhibitions without fear of interruption from the weather. These table lands are the inhabited lands of Central America. The speaker was much interested in the remains of ancient races found in these countries—cities, palaces, and hieroglyphics which could have been made only by a highly-civilized people. In the depths of the forest the explorer meets the images of forgotten gods, and almost expects their worshippers to reappear.

The temperature of this region is about that of a conservatory here, and the luxuriance of the tropical vegetation language utterly fails to describe. A single plant will present the appearance of an enormous lilac or rhododendron, with gay bulbous and other flowers beneath, and vines all over, and orchids interspersed. The climate and soil produce indigenous plants of the greatest value to mankind, among which are maize and the castor-oil plant, which grow in the greatest profusion.

Mr. Russell next gave a description of particular plants, beginning with the pine-apple. Few people are aware of the manner of growth of this so-called fruit, which is not a fruit in the common acceptance of the term, and botanically is described as a multiple or collective fruit, the constituent flowers having become sterile and seedless, and all their parts, along with the bracts and the axis of the stem, blending into a fleshy and juicy mass. The pine-apples sold here, which are necessarily plucked before they are ripe, will not compare with those ripened and eaten in the tropics. They can be grown of equally good quality in hothouses here, and the speaker had seen in Covent Garden Market, London, as fine pine-apples as ever were grown in the tropics—large, fleshy, thin-skinned, and juicy. In the tropics every one can raise them, and they are exceedingly useful fruits. They may be said to be drunk rather than eaten. They are chopped in small pieces, and sugar, oranges, and lemons added, and some add cane rum or French brandy. As there is no ice there, the mixture is cooled by swathing the jar in which it is placed in wet woollen cloths and hanging it in a draught. The spirit extracts the juice of the fruit, and when it is sufficiently cooled champagne is added, and then is the time to drink it.

The most prominent feature of tropical vegetation is the palm tree. No trees are more valuable; none are more beautiful, romantic, and dreamy. The comparatively small plants seen in conservatories here can give but little idea of their beauty and grandeur. The cocoa palm is at once the most beautiful and valuable of all. When the seed is placed in the ground it springs up in the form of a long narrow leaf, the type of the monocotyledonous plants, and ultimately rises to a great height: the speaker had seen them a hundred and twenty-five feet or more in height. They have no branches, but blossom for ever. A single tree will yield fifteen or twenty quarts of juice, from which palm wine is made. Besides the use of the fruit for food and other purposes, the leaves are used for thatching roofs, and the outer shells of the nuts afford fibre for cordage. Altogether, it is the most glorious and valuable production of the tropics.

The cocoa-nut palm is not indigenous in Central America. The most valu-

able indigenous production is the cacao tree, from the fruit of which chocolate is prepared. The description given by the Spanish discoverers of the drinks used by the natives indicate that this was early known to them. The cacao tree grows about as large as a moderate-sized plum tree, and is exceedingly beautiful. They are raised in nurseries, and afterwards planted in orchards, and by the side of each a banana is set to shade the young cacao tree, until it is five or six feet high. Most tropical plants when growing wild, must spring up in the shade, and, consequently, when raised by art, they must have shade afforded them artificially. At intervals in the orchards is planted a tree called "madre de cacao" (mother of cocoa), a species of *Erythrina*, or coral tree. It sheds its leaves towards the end of the dry season, and during the wet season flames out into crimson flowers, resembling those of the gladiolus, and in such numbers as to completely cover the tree. It thus affords abundant shade during the whole year; and to give this shade to the cacao trees is the object in planting it. On the plantation of the Lacayo family, "Las Malaccas," the "mother trees," are old, and more than seventy feet high, and in May, the first rainy month, are all in gorgeous blossom. When these trees are seen from an elevated position, mixed with the green of the banana, a cacao orchard affords a sight, not merely of beauty, but of wealth. The flowers of the cacao tree itself are borne in bunches, and are of a delicate pinkish white. The trees are very infertile, producing only from twenty-five to thirty ounces of seed in a year. The seeds are borne in a pod shaped very much like a cucumber, and are embedded in a pulpy substance which is very pleasant to eat, and this is known to the monkeys, which give the proprietor of an orchard a great deal of trouble to protect his trees from them. No one here has ever tasted pure chocolate. No substance in the world bears so much extension; a very small quantity will impregnate with its flavour a great deal of arrowroot, or similar harmless substances; or fats, such as oleomargarine. The Nicaragua cacao is the best in the world. The French chocolate manufacturing firm of "Menier" acquired a large tract of land in that country for the purpose of producing it. The native method of preparing the cocoa is by putting it in gourds six or seven inches deep, with some fine corn meal, and stirring it with a stick, when it rises above the mouth of the gourd in a foam stiffer than that of strong ale. It is almost always drunk cold. The word "chocolate" is derived from two native words, *choco* and *latl*, the former of which resembles the noise made by stirring the chocolate in the gourd—a very pleasant sound to hear when riding up to a house on a hot day—and the latter signifies "drink."

Coffee was introduced very early in the time of the Spanish occupation. It is cultivated in orchards, like the cacao, and the blossoms, which are always on the tree, have an indescribably delicious fragrance, so that a walk in a coffee plantation in a moonlight evening is most delightful. It requires seven years from the planting of the orchard to get a crop. The seed is enclosed in a pulp like that of a cherry. Formerly this pulp was separated from the seed by hand after drying, but machines have been invented for doing the work, which have much reduced the price of coffee. Each berry has two seeds, which, as is well known, are flattened on the sides where they come together, like half a cherry-stone. The so-called "male berry" is produced when one of the two embryos is abortive, and is raised on comparatively arid soils, at higher levels.

The cactus is always present in Central America—sometimes inconveniently so. It forms a positive fence, fulfilling the requirements of the western man who wanted a fence "horse high, bull strong, and pig tight." No animal ever bites a cactus; sometimes they bloom magnificently, and some of the species bloom at night. A species of upright columnar growth is used to make corrals for cattle, and in an incredibly short time the stems crowd together, forming a solid wall a foot or two in thickness. If it is too high the tops are cut off, and then the plants bloom all over with gorgeous scarlet flowers.

In the great forests, under the shade of the trees, is the most wonderful display of air plants. They grow in every place where they can possibly fasten their roots on the trees. The speaker saw in a conservatory a short time previous a plant valued at hundreds of dollars, which the owner told him had been in bloom for seven months; but, in that climate without a season, they grow with a vigour and luxuriance which cannot be equalled in conservatories. The vigour of the cactus is such that you can set bounds to the forest with it, and along the pathway between cactus hedges grow begonias and abutilons in the greatest variety and profusion. The portulaca, jasmine, and tuberose are common weeds. The fragrance is indescribably delicious. The vanilla of commerce is an orchid which is cultivated, and likes a cooler climate, but there are other species of that genus which grow wild, and when their seeds ripen they fall and decay, and add their fragrance to that of the flowers. But there is one tree whose fragrance overpowers that of the tuberose and jasmine; it is known as the "bedbug tree," and has an odour like that of ten thousand tavern bedsteads. Fuchsias hang from the trees in great strings, and the speaker in passing under them had cut down thousands with his riding whip.

But the most striking scene is when the convolvulus gets its opportunity. Some enormous mahogany, or other tree, becomes a prey to gigantic vines, which climb up and strangle it, and the tree dies but cannot fall, and becomes covered with great broad-leaved plants which root in its substance. But at length a tropic gale takes it over, and the ruins form a vast mound, covering perhaps an acre, among which birds drop convolvulus and other seeds, and if you walk out early in the morning you find it all alive and ablaze with blossoms, but in an hour the gorgeous show has faded.

EUPHORBIA PILULIFERA, a plant indigenous to Queensland, is mentioned by *The Colonies and India* as a remedy for asthmatic and bronchial affections. "An ounce of the leaves placed in two quarts of water, and allowed to simmer till the quantity is reduced to one-half, will afford a medicine which, taken a wine-glassful at a time twice or thrice a day, will relieve the most obstinate case of asthma, as well as coughs and ordinary chest affections."

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7½d. and 1s. 1½d., labelled, "JAMES EPPS AND CO., Homoeopathic Chemists, London." A letter received: "Gentlemen, It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

SPRING WORK IN THE ROSE GARDEN.

By J. C. CLARKE.

PRUNING.

No doubt many people will have pruned their rose trees by the time these remarks are published, but I may tell them that, except to secure a few early flowers, early pruning cannot be recommended. The last week in March is soon enough to prune roses that are grown as standards and dwarfs, and those pruned then will make a more satisfactory growth and produce finer individual flowers than trees or bushes pruned early in the same month.

In pruning roses care should be taken that the several varieties are treated according to their individual requirements. Some families of roses require much closer pruning than others, and as a general rule all strong-growing roses should be pruned very moderately, and the weak growers severely; such varieties as *Céline Forestier* and *Gloire de Dijon* are generally pruned too much. Standard roses when pruned by an inexperienced hand are generally cut into the shape of a mop instead of the middle of the head being well thinned out to fully expose the main branches to the light and air. In comparing the numbers of flowers produced by roses in beds with their shoots pegged down, after the points have been taken off, with those borne by closely-pruned dwarfs and standards. I begin to think we prune our roses too much, simply for the sake of neatness and the desire to obtain a few fine flowers.

STAKING AND TYING.

Standard roses should now be examined for the purpose of ascertaining whether any require new stakes or ties. The old ties should be looked to where the stakes are sound, to see that they are not injuring the bark. Many a standard rose has been killed by a ligature of wire, which is the worst material that can be used for tying up trees. The best tying material for roses is strong tar cord, and the best supports for standard roses are the twisted iron stakes that any ironmonger will supply. It is very important that newly-planted roses be staked securely, for if the wind is allowed to rock them about it will do the roots serious injury. Dwarf roses also should have a short stake put to them if the position in which they are growing is exposed. I find a stake about fifteen inches long standing about eight inches above the surface, and a strong tie to the principal branch, a great assistance. In the case of pegged-down roses the branches should be pegged down at once, if not already done, and where the branches are more than required to cover the surface cut some of the weakest shoots away. Strong growths should be eight or nine inches apart. Pegs cut out of the pea-sticks that have been used one season are better than iron pegs. Roses growing on walls or fences that have not had attention must be seen to without any delay, or they will suffer severely.

MULCHING AND MANURING.

Roses are much benefited by a heavy mulching of half-rotted hotbed manure, which should be applied early in April. Where the plants stand in lines the whole of the surface should be covered to a depth of three or four inches, and where they are in beds on the lawn the manure should be covered with a little fine soil. Specimens that are standing singly about the lawn or in the borders may be dealt with in the same way. If the soil has become close and level through being trodden upon, stir to a depth of two or three inches before the manure is spread over it, to enable the fertilizing properties of the latter to pass more readily down to the roots. In the summer the mulching will maintain the soil about the roots in a more uniform state of moisture than is usually the case when the surface is fully exposed to the hot sun and drying wind.

Excepting where new plantations are to be made, very little can now be done towards manuring established plants, but some assistance may still be given to these in a weak condition. The best course will be to take off the surface soil to a depth of four inches within a radius of twelve inches of the stems, and then put a layer of short fat manure in its place, and cover with a portion of the soil removed. In the absence of a suitable stable manure some of the artificial manures will be found a fairly good substitute. The best artificial that I have used for roses is Amies' Chemical manure. This is less forcing than some others, and the plants appear to derive benefit from it for some months after it has been applied. The way we use it is to scrape away the surface soil, and then give to each plant three large table-spoonfuls. It is spread evenly over the surface, and about a couple of pints of water applied to wash it down to the roots. The soil is then replaced.

PLANTING.

Although I do not advocate the planting of roses grown in the open ground so late in the season as this, I do not say it is impracticable; but as a rule November planting is preferable. Where it is necessary to plant now the roses should be lifted very carefully, and remain as short a time as possible out of the ground. In planting, place some fine sifted soil immediately on the roots, and when the hole is filled in the soil must be trodden firm.

PLANTING POT ROSES.

Roses in pots may be successfully planted at any time, but the middle of May is as good a time as any in the whole year. The soil should be made deep and rich with manure and garden soil. I consider it a mistake for public writers to assume that roses cannot be grown in any other soil than one consisting of turfy loam enriched with fat manure. Costly preparations are necessary in growing roses on a poor soil fit for an exhibition table, but it is not necessary to lay before the reader such formidable arrays of details if the flowers are only wanted for garden decoration. A walk round a country village any day in June will demonstrate this. Therefore those who like roses, and wish to grow them as garden flowers, may do so in what is known as an ordinary garden soil. That is to say, if the soil will grow good crops of potatoes and peas, it will be

good enough for roses. Those who wish to plant roses out of pots are advised to well stir up the soil now, and incorporate with it a little well-rotted manure, and then it will be in good condition to receive the plants in the month of May.

SHORT NOTES FOR SMALL GARDENS.

By THE VICAR'S GARDENER.

BEDDING PLANTS.

THOSE amateurs who usually fill their beds and borders with summer bedders should, within a very few days, closely examine their stocks of bedding plants, for the purpose of determining whether any of the subjects require special attention to bring them up to the proper degree of strength, and whether any of the stocks are short of the required numbers. It is yet practicable to propagate several of the most important classes, but the time that now remains must be made the most of, or the plants will not be large enough when put out to produce an immediate effect. *Verbenas*, *lobelias*, *petunias*, and *heliotropiums* struck now will, with an ordinary degree of care, make good plants by the end of May. But *ageratums* struck now will be so late in coming into bloom that if the stock is short it will be better to substitute some other good subject. These flowers ought indeed to be invariably raised from cuttings in the autumn, and to be put into large sixties early in March, and stopped two or three times. *Lobelias*, *petunias*, and *verbenas* may yet be raised from seed, and a large packet of each would enable the amateur to make good considerable deficiencies. For beds in which it is not essential to have masses of any one colour seedling *verbenas* and *petunias* are of immense value, as they grow with great vigour and bloom most abundantly. As a matter of fact, some of the finest beds of *verbenas* I have seen were formed with seedlings. The zonal *pelargoniums*, which constitute the most valuable class of all the summer bedders, must have some attention. Those still in cutting pots and boxes must be potted off at once, and they should have a compost consisting of sound loam and well-rotted manure. Plants that were lifted from the beds in the autumn and put in sixties would derive much benefit from a shift into five-inch pots. If they are now well furnished with new growth they will fully repay the labour involved. Those raised from cuttings struck in the open borders and put into small sixties when lifted would also derive much assistance from a shift into three-inch pots.

HARDY EDGING PLANTS.

Where the beds are empty many of the hardy plants employed for edging purposes may be planted with advantage during the next two or three weeks. In planting the edgings first, it is important to have the outside of the beds and the front of borders of the proper level before commencing. By planting now the edgings will have plenty of time to become established, and the work at the end of May will be materially reduced. But it is not often practicable to plant the edgings until the beds are filled in May, because of their being occupied with spring flowers. It may therefore be useful to state that it is a good plan to break up old bands of *cerastium* and other hardy subjects, and plant in nursery beds. It is particularly desirable to lift the *cerastium* now, and after pulling it into small tufts to plant in a bed of light soil from four to six inches apart each way. By dividing now, trimming up the shoots a little, and then planting in nursery beds, we obtain neat little tufts which can be put out more expeditiously and neatly than pieces taken direct from old bands or blocks. The *cerastium* flowers must, of course, be clipped off as fast as they make their appearance.

CYCLAMENS AFTER FLOWERING.

In visiting the gardens of my amateur friends, I often hear complaints of the cyclamens not breaking so strongly as they should do. I also occasionally hear practical cultivators making similar complaints. As amateurs and gardeners suffer in a similar manner, I have been induced to refer to the matter now because it is only by taking precautions when the cyclamens are going out of bloom that a strong growth can be ensured. Excepting old corms it is safe to infer that when they do not break freely in the autumn they have been unduly taxed in the spring. In some instances the weakness is due to their having produced a comparatively heavy crop of seed, and in others to a too rapid drying off. Cyclamens suffer very severely in ripening seed; no plants more so, and in general collections it is a quite common occurrence to find as the leaves die off a dozen pods resting on the soil. They are left, not because the seed is wanted, but because of its not being thought necessary to remove them. Six pods are sufficient to reduce the strongest example to a very weak state, and experienced cultivators are careful to not allow more than two pods upon one plant, and to nip off all the others immediately they begin to form. As a very few pods of seed will suffice for the raising of a stock, half a dozen plants bearing two each will afford an abundant supply. Those from which it is not desired to save seed should have every flower removed, with a portion of the stem, immediately they fade. Too rapid drying off is often the cause of weakness, and ought not to be resorted to, even if a little additional labour is entailed. The water supply should be continued with but little reduction for three or four weeks after the plants go out of bloom, and then it must be lessened in a very gradual manner until it can be safely withheld altogether. Cyclamens ought not to remain perfectly dry for any length of time. In some seasons they are severely attacked by red spider during the drying-off process; and to be able to cope with this pest it is a good arrangement to put them in a frame on the north side of a wall, and to ventilate freely. They can then be syringed freely and have a moderate degree of atmospheric humidity maintained about them when necessary. If the red spider obtains a firm hold they should be dipped in some approved insecticide, several times if necessary. But the prudent cultivator will be careful to prevent by a free use of the syringe red spider or any other pest becoming established.

The House, Garden, and Home Farm.

OXFORD REVISITED.

MOTHER! mild Mother! after many years—
 So many that the head I bow turns grey—
 Come I once more to thee, thinking to say
 In what far lands, through what hard hopes and fears,
 'Mid how much toil and triumph, joys and tears,
 I taught thy teaching; and, withal, to lay
 At thy kind feet such of my wreaths as may
 Seem the least withered. But what grown child dares
 Offer thee honours, Fair and Queenly One!
 Tower-crowned, and girdled with thy silver streams,
 Mother of ah! so many a better son?
 Let me but list thy solemn voice, which seems
 Like Christ's, raising my Dead; and let me be
 Back for one hour—a boy—beside thy knee
 EDWIN ARNOLD, C.S.I., in the *Athenæum*.

January 28, 1882.

THE HOUSE.

CAGE birds will require constant attention just now in the matter of the food and water supply, and the circulation of air about them to ensure their maintainance in the best possible health.

The middle of April is quite early enough to commence the pairing of canaries and other of the small birds, but it will be necessary for those who may be desirous of increasing their stock to have their plans well arranged before hand. The best and least troublesome course, where a considerable number of birds are kept, and there is no regular aviary, is to place the birds selected for pairing together in a small room, with a south aspect, and fitted with several large branches of trees in a somewhat natural manner to afford suitable quarters for the nests. The window should be kept open and be covered with strong wire netting of small mesh. For nest building, the birds will require supplies of moss, the hair of cows, fine hay, lint, wool cut up short, and paper shavings. When it is necessary to pair the birds in cages, these should be of comparatively large size, and be placed in as quiet a position as possible. The cages should be provided with nests of turned wood or wicker work, and for lining them the birds must have wool, lint and cows' hair placed within their reach. Artificial nests may also be fixed in suitable positions in aviaries and rooms, and supplies of fine stuff for making soft linings only provided for the birds. The food supplies must be carefully looked after, the water changed daily, and the floor of cage or room be well strewn with clean sand. Facilities for bathing must be provided, and the importance of fresh air not be overlooked.

THE GARDEN.

BALSAMS must be shifted on and kept warm. Any check by becoming pot-bound or for want of water will seriously injure them. In repotting have the soil and pots warm; let the shift be made quickly, and water with tepid water.

BEANS AND PEAS.—Sow for succession as required. The marrow peas are the kinds which answer best for present sowing. Dress the rows of beans and peas with wood-ashes or soot before moulding up.

CAMELLIAS AND AZALEAS going out of bloom in the conservatory to have all the remaining flowers clipped off, all seeds removed, and after being well syringed to be shut up close and warm, to promote a vigorous growth.

CAPSCUMS AND TOMATOES to be potted off and put in a moderate heat to encourage new roots. Use light rich soil. Tomatoes wanted early may be thrown into a blooming state by allowing them to become pot-bound in small sixties; as soon as they show for bloom shift to forty-eights, and when they fill those pots with roots shift into six or eight inch pots. Use strong liquid manure and plenty of it.

COCKSCOMBS.—Sow in a rich light soil at once or early in April, and plunge the pots in a smart hotbed, or place them in a warm propagating house. It is impossible to grow fine cockscombs by cool treatment. The secret of producing large combs on small plants, with healthy leaves, consists in potting them on into larger and larger pots as they require, each time putting them a little deeper in the soil, and maintaining a moist atmosphere with sufficient heat.

CONSERVATORY to be kept moderately close while east winds prevail, or the plants in flower will suffer. No need for fire heat now unless there are many newly-introduced stove plants.

CUOMBERS.—Newly-established beds should be carefully aired every morning, to let off rank steam and prevent damping.

FRENCH BEANS must be kept near the glass, have as much air as possible, and while bearing have regular supplies of manure water.

FUCHSIAS for exhibition must now have large shifts. Pot off cuttings as soon as rooted; never suffer them to starve in the cutting pans, and place them in moist heat to have a good start. A rich and rather open compost must be employed in the cultivation of these graceful subjects.

GLOBE ARTICHOKE should, if it is desired to raise a stock from seed, be sown in deep, rich, loamy soil, in drills one foot apart; thin the plants to nine inches apart in the rows, and in the following spring transplant to permanent beds three feet apart each way. Protection during winter with litter or earth will in some cases be found desirable.

JERUSALEM ARTICHOKE should be planted now on deeply-worked and well-manured land, two feet apart in the rows, and four feet from row to row.

LILIUMS growing freely in good turfy peat should have a top dressing of half-rotten cow-dung. Give plenty of water, and take care the pots are not exposed to hot sun.

ORCHID HOUSE will require an abundance of atmospheric moisture now, and general attention to plants newly potted and those coming into seasonal growth. Give water cautiously to such as are yet dormant; but encourage growth by sprinkling water about the floors, and keep a comparatively brisk temperature in the several houses.

ONIONS require a good, rich, loamy soil, but it should be deeply dug, sweet, and well pulverized. Lay the land in four-foot beds, nicely finished and slightly convex. Sow in drills nine inches apart as early as the state of the weather will allow. Cover the seed half an inch, and beat or tread firmly. It is a great advantage if the bed can be covered with a couple of inches of the charcoal from a "smother" previous to sowing, for this will save the crop from maggot and nourish it immensely.

PEACHES AND NECTARINES must be carefully managed while the fruits are stoning. Any excess of fire heat or water, or cold draughts, will cause the fruit to fall at that critical period. As they commence swelling after the stoning period, the heat may be slightly raised, and the trees have frequent syringings.

PARSLEY.—Make at least two sowings, for parsley is always in demand for a well-kept kitchen. The best times for the sowings are March and June. The soil should be deeply dug and well manured, and the plants thinned out in time to promote a vigorous growth. In August or September a plantation from the June sowing should be made on a warm sheltered spot, where the plants will be likely to survive the winter, for dried parsley is a poor substitute for the fresh green herb.

SWEET HERBS to be sown and planted. The majority of these do best on raised banks of sandy earth in the full sun.

WINTER GREENS.—Sow seed of Brussels Sprouts, Scotch Kale, and Savoy for main crops. Drumhead Savoy sown in February will now want pricking out to strengthen.

WALL TREES must have protection of some kind in all except the most favoured districts. If any pruning or nailing has been neglected see to it at once.

THE HOME FARM.

WHERE it is desired to lay down any portion of the home farm with artificial grasses the work must be put in hand at once, as this is the most suitable period of the year for sowing them on heavy land, and a capital time for sowing on light soils. It is essential in selecting grasses to give preference to sorts adapted to the soil and climate. On cool moist land Italian rye-grass is one of the most profitable, but on hot dry soils it is useless. As a sewage crop, and for deep soils irrigated, this fast-growing nutritious grass has no compeer. But on dry calcareous or sandy soils, and especially in a dry climate, and generally speaking in the East of England, clovers take the lead, and are invaluable. For sowing with barley a mixture of 10 lbs. red clover, 5 lbs. white clover, and 5 lbs. yellow suckling will answer on a soil fairly well adapted for clovers. This may be cut for hay twice a year, but requires careful handling because of the tendency of the leafy part to fall in the making. General prescriptions are not to be implicitly trusted, because, if the mixture is not well adapted to the soil it will not give a satisfactory result; therefore it is of much importance to obtain the seed of houses of standing, even if there is a slight difference in the cost as compared with that offered in the market without any guarantee. The difference in the produce is the matter of chief importance, and those who are really alive to the importance of securing paying crops will take care to secure the best seed obtainable, even if they pay a little higher price for it than they would have to pay for the worst.

PROPAGATING AND PREPARING DAHLIAS.

THE great exhibition of dahlias to be held at the Crystal Palace in September next bids fair to fully justify the labours of the promoters, and prove one of the most important floricultural events of the year. Already we hear of cultivators being stimulated to further efforts, and of amateurs and professionals who have not as yet grown dahlias, beyond a few for the embellishment of the flower garden, making preparations for taking them in hand with a view to the production of exhibition blooms. How many of these new growers will put in an appearance at Sydenham and take high honours yet remains to be seen; but it is quite safe to predict that we shall have splendid stands of bloom from cultivators whose names are practically unknown. We may certainly depend upon all the well-known growers taking an active part in the combat, and we may be well assured that the residents in the home counties will have an opportunity of seeing dahlias in larger numbers and finer condition than for many years past. It is now a long time since we have had a really good display of dahlias within the metropolis, but it must not be inferred that because there has been no show in London for some years past that dahlias are neglected. At no time in their history have they been grown so extensively as they now are. Nearly all the provincial societies holding exhibitions during August and September make some provisions for these, and seldom indeed are the classes otherwise than well filled. Very frequently the prizes are contested with so much spirit that the entries in five or six classes suffice to fill the greater part of a large tent. The display which formed part of the great exhibition at Manchester last autumn affords the best evidence that could possibly be desired upon this point, for it was so large and good as to surprise the visitors, and growers from all parts of the kingdom were represented.

Those who would make their mark at the forthcoming exhibition at Sydenham, or indeed at shows of minor importance, must very soon make a beginning, and from the time of so doing they must give the plants careful attention, and carry out the various details at the right moment. The work of immediate importance at the present moment is the propagation and preparation of the stock. Many cultivators will, by the time these remarks appear, have taken their first crop of cuttings, but there is yet sufficient time to start the roots and take cuttings, provided it is made the most of. To begin very early is a mistake. Some growers start the roots in February, strike the cuttings in a high temperature, and then put them into small pots, in which they remain until planted out. The result of the practice is a stock of half-starved plants that require several weeks to recover before they can commence to make a vigorous growth. When the propagation is delayed until too late a period the plants do not have time enough to attain to a proper size, and, as in the case of those struck very early and subjected to a starving process, a loss of time is experienced. I like to have the cuttings struck by the end of March or early in April, as they then have about two months to prepare for the border. Cultivators who have a stock of dry roots will of course set them to work for the production of stock, but those who are not so fortunate, or are desirous of adding any of the established varieties to their collection, will have to consider whether it will be better to buy dry roots now or young plants in May. My practice

s to buy the dry roots and raise the stock myself, as I can grow the plants on, and have them in the best possible condition for putting out at the end of May. This practice is a good one, and can be recommended as well worthy of general adoption. Those who from any cause would rather buy young plants may be advised to make their purchases early in May, and shift into three or five inch pots immediately they are received. The nurserymen are compelled to keep them in the smallest pots possible, and when dahlias remain in thumbs until the last they are certainly not in the best condition for becoming established quickly. The shifting of a few dozen plants is not a heavy task, and the growth made from the first will amply repay any labour that may be incurred.

In starting the dry roots, a temperature ranging from 65 deg. to 70 deg. is the best, and there is no more suitable place for them than on a mild hotbed. But they may be started in any structure in which the temperature is suitable. They can be put separately in pots or several together in boxes. I prefer shallow boxes about two feet in length and fifteen inches in width, as they can be placed in melon and cucumber pits without interfering with the permanent occupants. A little soil is spread over the bottom of the box, the roots are placed upon it as closely together as possible, and sufficient soil is packed between them to reach the base of the old stem. It matters not how close they are together, and to facilitate their arrangement in the boxes the tubercles may be shortened one-half. A moderate watering should be given to settle the soil between the roots, and subsequently the soil must be maintained in a nice moist state. It is not of much consequence whether the roots are placed in a light or shady position, because the shoots will be removed and formed into cuttings before they will have time to become drawn. It is the practice with some growers to propagate their stocks by dividing the roots; but it is not so good a plan as striking the cuttings.

The cuttings should be taken off when about three inches in length rather close to the base, and after the two lower leaves have been removed be inserted singly in small sixties. In preparing the pots fill them to about one-third of their depth with small crocks, and then fill with a mixture consisting of loam, leaf-mould, and silver sand in equal proportions. Insert the cuttings rather firmly, and after giving them a good sprinkling of water place in the propagating or melon pit, or in a shady corner of one of the forcing houses. A brisk bottom heat will be found of great assistance, and where practicable the pots should be plunged to one-half or two-thirds of their depth in a hotbed or in the material with which it is covered. The cuttings are rather liable to damp off, and water must in consequence be applied with due care; the soil should be kept just moist, and the cuttings be sprinkled as often as may be necessary to prevent their flagging. Shading with paper or canvas will be necessary when the sun is shining, and sufficient air must be admitted to maintain a pure atmosphere. Cuttings obtained from roots started in a low temperature can be struck under a handlight placed in a warm and shady corner of an ordinary greenhouse.

When the cuttings are nicely rooted shift them into large sixties or five-inch pots; the latter are the best when the space can be spared. In some districts pots intermediate between the two sizes mentioned are manufactured, and known as fifty-fours, and they are admirably adapted for dahlias and other plants of rather large growth. It is a good practice, when the cuttings are struck early, and the time and space will permit, to put them first into three-inch pots, and when they have filled these with roots to shift into others six inches in diameter. Very strong examples are obtained by taking this course. In all cases employ a substantial compost, a mixture consisting of loam three parts and old hotbed manure one part being perhaps the best. They will require to be kept rather close for a few days after they are first potted, and then to be hardened off and placed in a frame in which they can be efficiently protected from frost. When hardened sufficiently to bear the exposure without injury draw the lights off altogether during the day, provided the weather is genial, for a sturdy short-jointed growth is not less essential than a strong one. The stock must be well looked after in the matter of watering, especially if the plants are kept in small pots, and after they are well rooted an occasional supply of liquid manure of a moderate degree of strength will be most beneficial.

AN OLD DAHLIA FANCIER.

"IL MESE AGRICOLO" is the title of a monthly illustrated paper devoted to the agriculture and horticulture of Italy. The conductor is Dr. P. Lucchetti, of the University of Bologna; and the publishing office is at 4, Via Piatti, Milan. In the number before us, the principal articles are on varieties of wheat and the saffron crocus. The rural industries of the Italian peninsula very much need the stimulus that a few good papers might contribute to them, and, in any case, they are at present almost without literary representation.

A WAY OUT OF THE DIFFICULTY.—A certain farmer in the county of Durham once bought some bone-dust to be put upon a field on his farm, but found fault, as he got no benefit from the same. The secret came out afterwards. The man in charge, to save himself the trouble of spreading the same, had emptied it all down an old pit shaft in the field. This reminds us of the story of Professor Sedgwick, the geologist. He had, as the result of much labour in a stone quarry, secured a grand lot of fossils, and entrusted them to a man to be carried to the railway station. The carrier groaned under the weight, but soon saw a way out of the difficulty. He emptied the bag at the road-side, and when he reached the railway station filled it again from a gravel heap. The Professor was astonished when on reaching home he discovered the contents of his bag.

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of these merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its natural, and consequently healthy, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Householders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

Exhibitions and Meetings.

EAST LONDON FLORICULTURAL SOCIETY.—SPRING EXHIBITION, MARCH 21 TO 23.

THE spring exhibition of this important and ably-managed society was held on Tuesday last and the two following days in the Bow Institute, and in extent and the excellency of the production was fully up to the average. The spacious hall in which the plants were arranged was not perhaps quite so crowded as in some of the previous years, but it was well filled, and the general effect was remarkably rich and tasteful. The great features of the show were formed by the hyacinths and tulips, which are invariably staged in splendid style at Bow; and narcissi, cyclamens, and general collections were staged in large numbers, and in a condition that left but little to be desired.

Chief amongst the exhibitors of hyacinths, which of themselves made a large and attractive display, were Mr. J. R. Roberts, Mr. C. Parker, and Mr. J. Holtam. In the class for eighteen hyacinths Mr. Roberts was first with a magnificent collection, the spikes large and the foliage good, and Mr. C. Parker was second. For twelve a silver medal was offered as the first prize, and this was taken by Mr. C. Parker with a collection in which the spikes were remarkable for their massiveness and the foliage for its neatness; Mr. Hare was a capital second with finely-developed examples, and Mr. Roberts was third. A silver medal was also offered as the premier award in the class for nine hyacinths, and this was secured by Mr. J. Holtam with specimens evincing cultural skill of a high order; Mr. Dann was a good second. Mr. Holtam was also successful in taking the first prize in the open class for six. In the division limited to growers who have not taken a first prize at the society's shows, Mr. Dann was successful in taking the first prize for six hyacinths, and Mr. E. Squire was awarded the first prize for three and the second for six; Mr. R. C. Parvin was second for three and third for six. Although the flowers in the several collections were not equal to those staged in the other divisions, they were remarkably good, and gave promise of the exhibitors eventually proving formidable competitors in the open classes.

The tulips were contributed in sufficient numbers to produce a brilliant display of colour. For eighteen pots, three bulbs in a pot, Mr. C. Parker was first with a collection remarkable for its evenness and the splendid development of the flowers. Mr. Parker also occupied the post of honour in the class for twelve with even finer flowers than those in the larger collection, and was closely followed by Mr. Hare, Mr. J. Holtam, and Mr. C. J. Dance, who were second, third, and fourth respectively. For nine pots of tulips Mr. J. Holtam was first with an even and thoroughly good collection. In the class for six Mr. Dann and Mr. J. Holtam were the prize-takers, in the order of their names; and for three pots Mr. E. Squires was first.

In the classes for narcissi, which are invariably presented in fine condition, Mr. Roberts, Mr. Hare, and Mr. J. Holtam were the leading exhibitors, taking first for nine, six, and three pots respectively. The premier award for two boxes of lily of the valley was taken by Mr. Roberts, who staged this beautiful flower in excellent style. The first prizes for a collection of bulbs and a collection of miscellaneous plants, unlimited in numbers, were awarded to Mr. C. Parker for groups which contributed in no small degree to the general effect. In the class for a collection of bulbs not exceeding twenty-five pots Mr. Dance was first with a beautiful group, in which the cyclamens were especially good; Mr. Hare, who was second, also had an admirable collection. For a collection of miscellaneous plants, not exceeding twenty-five specimens, Mr. Roberts was a capital first, and Mr. Craig a good second. The first prizes for two azaleas and three ferns were awarded to Mr. Hare for excellent examples. The prizes for twelve pots of bulbs were keenly contested by Mr. Dance, Mr. Dann, and Mr. Holtam, who were first, second, and third respectively. In the class for a collection of six miscellaneous plants Messrs. Dann and Parvin were the prize-takers in the order of their names.

The arrangements throughout were of the most satisfactory character, and reflected the highest credit upon the executive. The judges were Mr. Robert Oubridge, Church Walk Nursery, Stoke Newington, and Mr. George Gordon.

THE LIGHTING OF PRIVATE HOUSES BY ELECTRICITY is the problem of the day. We have, for the most part, done with the lighting of theatres and other large interiors as a subject for experiment, but for lighting the commonplace dwelling house there is as yet a question before us. That we shall in our ordinary home experience have the full advantage of the electric light no one doubts, and all agree that it is but a work of time. But mere words do not assist us when we want a clear strong light that will not poison the atmosphere, as gas has always done and always must do. We want the electric light in the dining and drawing rooms at once, and we ask, Who can provide us with the healthy luxury? We have, by invitation, seen the suite of apartments fitted up in connexion with the Electric Exhibition in the Crystal Palace by the Domestic Electric Lighting Company, and it seems to us that one part of the problem is satisfactorily solved. That the smallest as well as the largest chamber may be lighted by electricity in the most comfortable manner is demonstrated. But then the Edison lights, that are so safe, so moderate in their lustre, and apparently so manageable, are kept in action by steam power, which is not to be thought of in a private dwelling, unless it be a ducal castle or a royal palace. In what way the company propose to carry into effect for universal advantage the splendid scheme that is illustrated at the Crystal Palace we do not know, and for the present we can only suppose it will be by means of accumulators, which we cannot but think are of only tentative value for the purpose. But that private apartments designed for every-day use can be perfectly lighted by electricity is demonstrated in the Victoria Cross Gallery, near the Handel Orchestra, and happy are they who have seen it for themselves.

Notes of Observation.

VALLOTA PURPUREA.

A TRAVELLER representing a trading house sees the weak as well as the strong points of commercial horticulture, and if he is wise he will observe much and say little. It falls to my lot to see more than I would wish sometimes, and the temptation to advise where advice might not be palatable is often so strong that resistance is almost painful. I wanted to buy a lot of the good and old Vallota purpurea, and I found myself in the same fix as when some years ago, as I reported to you, I wanted to buy Agapanthus umbellatus. It will be safe to say there are no stocks anywhere of either of these plants, although, generally speaking, traders have enough for their ordinary trade. And why is Vallota purpurea scarce? I can answer in a word. Because it never obtains enough water! When Nature has it in hand the plant is in mud, and it thrives, and in fact is a rampant-growing plant in its native haunts. There is a tendency everywhere to treat many plants of widely different habits in the same way, and thus we see batches of vallotas in small pots starving, when they would, if they could, run riot with health and strength. It is a plant that never needs rest, and should never be dry, and moreover should never be severely conditioned as to root room. Try the liberal rule with this thirsty plant and you shall have growth and flowers and plenty of stock either to keep or sell.

NURSERY TRAVELLER.

CHAMELEON CLUMPS.

Acting on advice you gave me years ago to make the ground well, and then plant well, and then leave all alone for a few years, I have had some glorious flowers at little cost, where, until I adopted your advice, we were always tinkering and obtaining but little for our trouble. I had all the beds that border the lower lawn dug out and liberally manured, not only with stuff from the stable, but with the contents of a grand old heap of leaf-mould, in which there was abundance of grit from the sweepings of the gravel walks. These beds, formerly occupied with mop-headed standard roses and bedding plants, were then planted with first-class herbaceous plants in large clumps, with no particular order, and yet there is an order that appeals agreeably to the eye in the repetitions that occur as the seasons revolve. I call them chameleon beds because they change from time to time, and keep up a display of flowers from early spring to late autumn. All the more striking subjects are repeated at intervals, but not in a wearisome manner—just enough to prevent any one bed appearing like an odd man or a servant out of place. We have lots of Crocuses and early Tulips scattered throughout, and these therefore are repeated. We have all the sorts of Hepaticas, and several very fine clumps of the lovely blue *H. angulosa*. The smaller Iris have been planted sparingly, but none of the larger Iris have been admitted, as in my opinion they are not adapted for the purpose, being more properly border plants. The free-flowering Iberis of the shrubby section are repeated, and the common yellow Alyssum the same; but we have excluded all the Arabis as too weedy, their proper place being on banks and to fringe rough rockeries. We have fringes of Polyanthus all through, and clumps of Pyrethrum of all colours. Of Delphiniums we have renounced all except the old *D. formosum*. The fiery Tritoma is repeated in clumps at intervals, and makes a very fine display with the green turf to assist it; but I would reject this fine plant if I had not a great space at command, for it is coarse, and more of a woodland than a garden flower. Odd things innumerable are dropped in here and there, but the plants named give the colour tone to the series of beds, and greatly delight us all as we ramble about the garden.

J. E. S.

ODDMENTS FOR THE FERNERY.

In a sunny nook in my fern house, where there is a great depth of peat soil and a pile of rough rocks that I intended to plant with surface-rooting ferns, I one day "stuck in" with finger and thumb a bit of *Sibthorpia europæa* that a friend had given me. Time passed and the pile of rocks remained unplanted, and I used to say to myself, "Next week that corner shall be finished." But the "next week" was like the celebrated "to-morrow," for it did not come. But the *Sibthorpia* was there, and he seems to have obtained some seasonable splashes from the water engine when the house was treated to a general shower. And after making a little spread in a very unpretending way he got hold of the rough rocks, and then grew with such rapidity as very soon to cover them. Now from that pile the pretty pale green trailer hangs down in rich beards or festoons in such a delightful manner that I could not disturb it on any account. Just the same kind of glorious growth I have obtained with the "mother of thousands," the ever beautiful *Saxifraga sarmentosa*. This "common" plant is one of the loveliest when grown in a shady fern house, and the sunniest part of the house suits it best. The richness of its leafage and the delicate beauty of its myriads of flowers, that may be likened to clouds of white moths, cannot be imagined by those who only know it as a pot plant.

J. E. S.

SWEET WILLIAMS.

There are not many hardy flowers to surpass in their season the sweet williams; they have an effective appearance in the mixed border and in beds devoted entirely to them, and they are more useful for supplying cut flowers than is generally supposed to be the case. For many years I have paid special attention to their cultivation, and in some seasons I have had several thousand plants in bloom at the same time. The greater part of the stock grown annually consists of seedlings, and from these a selection is made when they are in bloom. The selected varieties are propagated by layers or pipings, and the marked superiority of specimens raised from pipings is evident. I have had numbers of trusses fifteen inches in diameter, the flowers in many instances measuring three-quarters of an inch in diameter. It is necessary to commence the work of propagation early; in fact, the pipings should be taken as soon as they can be had after the flowers are expanded, and the merits of the varieties correctly determined. The pipings should be inserted firmly in a cool and shady place out of doors, and be sprinkled overhead as often as may be considered necessary; with but little attention they strike very quickly, and are ready for transferring to their permanent quarters early in the autumn. Sweet williams make the strongest growth, and produce the finest heads of bloom when in a strong and rich soil.

The Gardens, Buthkollidar, Dunoon.

THOMAS LOWE.

ABUTILONS.

For some reason, which I cannot explain, the abutilons are not in high favour with the gardeners in the west of England, yet they are worthy of more attention than they now receive. I wish that some successful cultivator would give us the benefit of his experience in the pages of the Magazine. I am quite sure it would be highly appreciated by a host of gardeners in the west, if not in other parts. Any information respecting the temperature for the winter months would be especially valuable, particularly if the advice would enable the great body of cultivators to obtain such blooms as recently came from Mr. S. Randall's nursery at Exe Bridge, Exeter. They included a lemon-coloured flower with golden anthers, which was of large size and of the finest form.

J. C. CLARKE.

ASPARAGUS IN THE PLEASURE GROUND.

Although the kitchen garden is the proper place for the beds of asparagus, there can be hardly a question as to the admissibility of this esculent into the pleasure grounds. When fully developed it is perhaps quite unsurpassed in elegance, and in autumn, when thickly studded with its brilliant scarlet berries, it has a very effective appearance. It is certainly very pleasing when planted in borders occupied with miscellaneous subjects and dwarf shrubs. In growing asparagus in shrubby borders only one or two heads should be left, the strongest to remain, and the other to be cut and sent to the kitchen in the usual way. Established plants that are assisted with dressings of manure in the winter and supplies of liquid manure in the summer will produce from thirty to fifty heads in the course of the season. It is essential to pay strict attention to staking and tying, to prevent the shoots being injured by heavy rains or winds. When the shoots are broken by the wind the crowns are more or less weakened, besides the appearance of the plants being spoilt for the season. In dry weather liberal supplies of water will afford great assistance when the new growth is being made, but liquid manure will of course be the most beneficial.

The Gardens, Buthkollidar, Dunoon.

THOMAS LOWE.

A CHEAP ESPALIER TRELLIS.

I can fully understand the difficulty your correspondent "A New Subscriber" has experienced in constructing a cheap trellis on which to train fruit trees, and will help him so far as I am able. I believe that a trellis similar to the one I have for raspberries will answer his purpose. In constructing it I procured some oak posts about seven feet in length and three inches square. Holes eighteen inches in depth were dug nine feet apart, and in these the posts were put, and for filling in broken bricks and rubble were employed and well rammed in. Previous experience had convinced me that soil, however firmly rammed, would not hold them steadily. The end posts are further steadied by wires passed round them near the top and fastened to posts driven into the ground at a distance outside the line for the wire to be at an angle of about 55 deg. I tried to keep the outside posts erect by inside stays of wood, but found the wires decidedly the best. I employ four wires for raspberry canes, but your correspondent would require a greater number for fruit trees, and it would be better for him to put the posts rather closer together. Our posts cost about four shillings each. The wire is about the thickness of telegraph wire, galvanized, and not very expensive. Any blacksmith can make the necessary staples for driving into the posts, to hold the wires in their places, and raddisseurs for drawing the wire tight.

Cheshire.

W. M.

Literature.

The Weather of 1881. By EDWARD MAWLEY, F.M.S., &c. (Stanford).—The honorary secretary of the National Rose Society has established a system of reporting on the weather that is at once copious in detail, scientific in method, and full of interest for all who are concerned in outdoor industries or meteorological studies. Such labours are never sufficiently appreciated, and that perhaps is the main reason why so few engage in them. To all students of weather wisdom we commend these reports as of the highest value.

Paxton's Flower Garden. Revised by THOMAS BAINES. Vol. I. (Cassell.)—The completion of the first volume of this useful and beautiful work is an event of some importance to those who are interested in horticultural literature. The original plan has been adhered to by Mr. Baines in his revision, but in respect of details many alterations have been found necessary. The object of the work when first projected was stated to be "to supply as full an account of all the new and remarkable plants introduced into cultivation as is necessary to the horticulturist." And this object was admirably accomplished by Professor Lindley and Sir Joseph Paxton. But times have changed, and some will say tastes have changed. We are of opinion that changes of taste are quite superficial and relate to the mere froth of the world. The perception of true beauty is not greatly affected by fashion or circumstances, and therefore a plant that was considered beautiful thirty or fifty years ago will be in favour now unless, as often happens, it has in the meantime been superseded by something of its own class of a far superior character. Thus on the somewhat secondary point of relative merit, a work of this kind must need revision if reproduced. But we say times have changed, and they have certainly brought with them important changes in the introduction of new plants to cultivation. They used to come in a round-about way, and their numbers were few. Now they come direct, and their numbers are many. Hence the necessity for careful picking and choosing to secure the best and ignore the worst, and leave the plants of middling quality to find their level. In selecting good things for illustration and description Mr. Baines has been singularly happy, but we give him no praise for that because he has been amongst plants so much as buyer, grower, exhibitor, critic, and valuator, that we suspect it would be a difficult thing for him to make a mistake. However, the revision of Paxton is all that can be desired, and the book is creditable to all parties concerned in its production. For the gentleman's library it is a work of primary importance, and the gardener's library will certainly be incomplete without it.

DESCRIPTIVE LIST OF BOUQUET DAHLIAS.

By MAX DEEGEN, Dahlienzüchter, Kostritz, Germany.

I HAVE attached the dates of introduction to the varieties raised by myself. The others have been raised elsewhere.

- Madame Urban-Francotte* (1879).—Pure white, perfect shape. Height 44 inches.
- Apoth. G. Wetschky* (1874).—Fine maroon, blooms well placed and of fine rosiform shape. Height 42 inches.
- L. Korsyneck* (1874).—Blood-red, finely quilled. Height 42 inches.
- C. F. Liebscher* (1874).—Intense brick-red, cellular-rosiform, free blooming. Height 40 inches.
- Helene Deegen* (1879).—White inside with delicately-flamed tips. Height 46 inches.
- Commerz. W. Küster* (1874).—Maroon-purple, compact rosiform flowers, free blooming. Height 40 inches.
- Frau Helene Kesslerschmidt* (1874).—Milk-white, free blooming. Height 40 inches.
- Max Schleif* (1879).—Dark purple, good rosiform shape. Height 46 inches.
- Frau von Heldreich* (1879).—Flesh-white, fine blooms. Height 44 inches.
- Dr. Eugene de Rodiecky* (1879).—Pale yellowish red, good colour and fine form. Height 44 inches.
- Gustav Wesser* (1875).—Fine deep rose colour, very compact cellular blooms, free flowering. Matador. Height 48 inches.
- Madame Roman* (1879).—Pure lilac with purple flamed tips, splendid colour. Height 44 inches.
- Ernst. Schleicher* (1875).—A very intense violet-purple; a first-class variety, both in colour and form. Height 40 inches.
- Frau Louise Gräfin Haller* (1879).—Pure yellow, with the smallest and prettiest of miniature blooms. Height 40 inches.
- Hedwig Deegen* (1879).—Light crimson-purple with small yellow tips or margins, rosiform. Height 46 inches.
- Alwin Meyer* (1879).—Dark crimson-purple, rosiform. Height 44 inches.
- Freiherr von Steinaecker* (1879).—Lovely yellow tipped with fiery red. Height 44 inches.
- Korallenrose* (1875).—Dark cochineal-red, quilled rosiform. Height 42 inches.
- Landrath von Schröder* (1879).—Light yellow inside, with crimson tips and centre. Height 40 inches.
- F. Streit* (1879).—Whitish yellow, fine form. Height 50 inches.
- H. Ridsiek* (1875).—Crimson-purple with white tips, fine, free blooming. Matador. Height 40 inches.
- Landrath von Schaper* (1879).—Whitish yellow, shaded with violet. Height 44 inches.
- Otto Freyer* (1879).—Inside violet, the outsides closely set, petals a pinky lilac, cell-shaped. Height 48 inches.
- P. Maubach* (1875).—Inside deep lake-red, outsides of peculiar shaped petals a carnelian-red. Height 40 inches.
- H. F. Schmutz* (1879).—Buffish red, abundant bloomer. Height 48 inches.
- Advocate Victor Weiske* (1875).—Dark amber, petals evenly edged with greenish yellow. Height 40 inches.
- Ich bin so schön* (1875).—Clear white, well-defined violet centre, and tips edged with the same. A dwarf Matador of the finest class. Height 40 inches.
- Hauptmann Miliesky* (1875).—Purple, dark shaded tips. Extra. Height 44 inches.
- Frau Clementine Rossberg* (1875).—Delicate pale straw colour, flamed with reddish purple, and richly streaked and punctuated with rose colour. Height 44 inches.
- Dr. Reinhardt* (1880).—Fine golden amber, outside a delicate violet. Height 50 inches.
- Von Lüpke* (1880).—Beautiful light yellow. Height 44 inches.
- Max Touchon* (1880).—Light yellow, with violet centre. Height 48 inches.
- Sonnenstrahlen* (1875).—Dazzling yellow. A Matador remarkable for colour and the regular cellular shape of the petals of its high barred and abundant blooms. Height 40 inches.
- Prinzessin Blüthenreich* (1875).—Lovely golden bronze, interesting novelty in colour, fine shape. Height 40 inches.
- Kammerherr von Hinkeldy* (1880).—Pure lilac, rosiform Matador. Height 40 inches.
- Philip Eichling* (1880).—Pure yellow, fine form. Height 44 inches.
- Hermann Zindel* (1876).—Vermilion-scarlet, beautiful Matador. Height 40 inches.
- John Fraser* (1876).—Amber coloured, yellow tips, outsides of petals shaded with violet on a tan ground. Matador. Height 44 inches.
- Metz and Co.* (1876).—Sides of petals lovely purple, centres and tips white, fine flower. Height 40 inches.
- Fraulein Kühn*.—Fine golden brown, with purplish carmine margins. A fine early sort. Height 40 inches.
- J. E. Olsens Enke* (1876).—Yolk of egg yellow, fine shape and colour. A Matador of first rank. Height 44 inches.
- Deutsches Ordensband*.—Maroon-purple, specked and tipped with white. Height 40 inches.
- Morgensröthe* (1876).—Fiery cochineal-red, extraordinarily early, free-blooming. Matador. Height 40 inches.
- Frau v. Martels* (1876).—Pure milk-white, fine rosiform shape. Height 40 inches.
- Ockerröschen*.—Yellow, with rose coloured and white tips and margins. Height 40 inches.
- Handelsgärtner Schatzky* (1876).—Pale egg-yellow, light flamed with bluish purple. Height 44 inches.
- E. Kammler* (1876).—Fine crimson, small blooms. Height 44 inches.
- Emilie Mischke* (1876).—Snow-white, free bloomer. Height 44 inches.
- Frau Auguste Muske* (1881).—Golden brown, yellow and purple shading. Height 44 inches.
- Perluhn* (1876).—Centres of petals white, sides a magnificent blood-red, very fine free-blooming sort. Height 44 inches.
- Fraulein Jacob*.—Fine rose-brown. Height 40 inches.

- Frau Catharina Folkmann* (1876).—Snow-white, very fine shaped Matador. Height 40 inches.
- Gustav Laufer* (1882).—Light brown, streaked with red and tipped with yellow. Height 44 inches.
- Ludwig Dietrich* (1877).—Dark purple, rosiform. Height 40 inches.
- W. Kreidemann* (1882).—Dark yellow tipped with purplish carmine; a peculiar colour. Height 44 inches.
- Kauffmann Ehrlich* (1877).—Very dark purple-red, the best of all dark bouquets. Height 44 inches.
- Fr. Schneider II.* (1877).—Buff. Height 44 inches.
- Marie Baumann* (1882).—Ochreous red, fine fir cone-shaped flowers. Height 46 inches.
- Friedrich Spittel* (1877).—Lilac, striped on outsides of petals with violet; fine globular shape. Height 40 inches.
- A. Kramer* (1882).—Carmine with whitish tips. Height 46 inches.
- C. Kultz* (1877).—Fine dark purple. Height 48 inches.
- Rathin Schmidt* (1882).—Light bronze and violet, fine globe-shaped Matador. Height 44 inches.
- König Braunsberg* (1877).—Citron-yellow, purplish tips. Height 40 inches.
- J. v. Eller* (1882).—Purplish black. Height 44 inches.
- P. Machr* (1882).—Pure sulphur-yellow tipped with white, fine. Height 40 inches.
- Kleine Zarte* (1878).—Dark purple-crimson, valuable rosiform variety. Extra quality Matador. Height 48 inches.
- C. Brasch* (1878).—Vermilion-red. Height 44 inches.
- Bild der Anmuth* (1878).—Grey metallic lustre with purplish backs to petals. Quite a novelty in colour among Matadors, best form. Height 42 inches.
- Frau Lucie Behrent* (1878).—Beautiful purple with large white tips. Height 46 inches.
- Alexis Breitfeld* (1878).—Purplish red. Height 44 inches.
- Klein und Niedlich* (1878).—Purple-crimson with white margins. Height 42 inches.
- G. Tross* (1878).—Lilac with bluish purple outsides, pearl shape. Height 40 inches.

BEGONIAS FOR BEDDING.

By J. C. CLARKE.

It cannot be too widely known that the tuberous-rooted begonias are not nearly so tender as some cultivators suppose, and that when required for bedding out in the flower garden the most commonplace management will suffice. In the winter season the tubers are in a dormant condition, and can be kept in a store in the same way as potatoes for household use. But while saying this much I do not go so far as some writers and express an opinion that they will prove formidable rivals to zonal pelargoniums. On the contrary, I do not think they can fairly come into competition with them. Begonias are elegant in growth and valuable for bedding when a selection of suitable varieties is made, and the stock properly prepared. I have raised begonias from seed sown in February, and grown them on in heat and planted them in beds the same season. I have also planted one and two year-old corms that had been grown in a cold frame previous to their being bedded out. The seedlings have done fairly well, but I am quite satisfied that to have them in perfection in the flower garden they must be at least one year old. Plants two years old are better than yearlings.

The object of this paper is to give a little advice to those who are in possession of old corms which they are desirous of preparing for flower garden decoration. The suggestions will not be of service to those who want to grow them in pots for indoor decoration. Where there are four or five hundred bulbs to be dealt with a two-light frame should be devoted to them, but where there are only a few dozens handy boxes six inches deep will serve the purpose. My practice is to place a two-light frame in a sunny part of the frame ground and put eight or ten inches of soil in the bottom, and in this we plant the bulbs. The end of March or beginning of April we find soon enough to do this. After they are planted the frame is kept quite close, and no water is applied until there are signs of the growth pushing through the soil. Then the frame is ventilated regularly, and the admission of air increased until the middle of May. The lights are at the period last mentioned taken off altogether during the day and put on again at night. The begonias have sufficient water to maintain the soil in a nice moist condition. When boxes are employed they should be ten inches wide, and then two rows of medium-sized corms may be put into each box. The frame or pit in which the boxes are placed must be ventilated in the same way as recommended for those planted out. In bedding out the plants should be carefully lifted with a trowel and carried to the flower garden on a handbarrow. The majority of the begonias I have seen bedded out have not been planted thick enough, the soil has been unpleasantly conspicuous, and not unfrequently the plants have been too small to be effective. Knowing the importance of having strong plants, I advocate their being grown in another part of the garden one year before they are employed in filling the flower beds.

Those who wish to raise seedling begonias for bedding out cannot do better than to start at once. The first and most important step to take is to secure a suitable strain. As soon as the seed comes to hand prepare a large pan; have it well drained, and cover the crocks with some rough soil, on which place a layer of fine sandy soil; then sprinkle liberally with water and sow the seed; but as it is of the finest description it must only be lightly covered. I usually cover it with a mixture consisting of silver sand and very fine soil in equal proportions. Directly the seed is sown a square of glass is placed over the pan, and on the glass a layer of moss to keep it dark. The pan is then taken to a warm house and placed in a shady position. At the end of a week the moss is removed, as by this time darkness to assist germination has done enough. The glass is still left, and at the end of a fortnight the pan is examined to see if the soil requires water; if it does I gently plunge it in a cistern

of water. At the end of three weeks some of the seedlings appear; the glass is instantly removed; but the pan still occupies a shady position. Any water required is very carefully applied with a can to which a fino rose is attached. As the seedlings grow the pan is removed to a light position shaded from strong sunshine.

Assuming that the seed is sown in the middle of April, the plants will be large enough for transplanting by the end of June. Then, having a frame or pit ready with glass lights, a bed of rich soil should be made up, the surface to be not more than one foot from the glass. There should be two inches of fino sifted soil on the surface. On this bed the young plants should be pricked out six inches apart each way, and after the work is finished they must be gently watered and the frame or pit kept close for a fortnight. Afterwards the ventilation must be increased until the middle of August, when the lights may remain off altogether night and day. During the first month following their being transplanted shade as required, but gradually reduce the shading towards the end of the period. Of course the plants will require some attention in watering; light sprinklings will do for the first six weeks, but subsequently they will require more liberal supplies, which must be regulated by the weather.

In the autumn the plants should be allowed to die down at their own time, but they are generally ready for lifting about the end of October, when they may be stowed away under a greenhouse stage with a little dry soil over them. They may be kept anywhere provided they are secure from frost and from excessive damp or dryness.

In preparing the beds for the reception of begonias the use of fresh manure must be avoided. If the soil requires enriching and manure is used it should be thoroughly rotten and well incorporated with the soil. The begonia does not root deeply, but it requires a depth of eight or ten inches of good soil, which should be broken up fine.

Law.

COURT OF APPEAL.

(Sittings at Lincoln's Inn, before the MASTER of the ROLLS, LORD JUSTICE COTTON, and LORD JUSTICE LINDLEY.)

THE COMMISSIONERS FOR THE EXHIBITION OF 1851 v. THE ROYAL HORTICULTURAL SOCIETY.

JUDGMENT was given, March 22, in this appeal from the dismissal by Mr. Justice Fry, in June last, of an action brought by the plaintiffs to recover possession of the Horticultural Gardens at South Kensington, the claim being founded on a proviso for re-entry contained in an agreement, dated 24th of July, 1860, by which the plaintiffs agreed to grant a lease of the gardens to the defendant society. The action was originally brought against the society alone, but, inasmuch as the holders of debentures issued by the society claimed to be interested in the matter, one of the debenture-holders was afterwards added as a defendant, to represent the class. The agreement in substance provided that the Commissioners should grant a lease to the society of 20 acres of the land at Kensington Gore (now the site of the gardens) for a term of 31 years, and should expend in improvements and the erection of arcades, &c., a sum of £50,000. The society were to expend on the land a sum of £10,000, which they had already received by way of contributions, and a further sum of £40,000, which they intended to raise by debentures. It was provided by clause 12 that out of the "receipts from the gardens," which included the subscription of Fellows and the sums paid by the public for admission to the gardens, the society should retain such a sum as should from time to time be allowed by the committee (whose appointment was afterwards provided for) in respect of the expenses of the Chiswick Garden, the reasonable expenses of the management of the society and other general and necessary expenses, and further in respect of the current expenses of the South Kensington Gardens, "which allowance shall from time to time proceed, and be made upon a fair and reasonable basis, and so as to keep the said gardens and all the buildings, improvements, and ornaments upon and belonging thereto in thoroughly good order and condition." Secondly, interest at the rate of 5 per cent. per annum upon the debentures was then to be retained by the society; thirdly, the yearly sum of £2,145 was then to be paid by the society to the Commissioners, if the receipts should be adequate for such payment, after retaining to the society the sums above mentioned as authorized to be retained. In the event of any surplus remaining over and above the several payments thereinbefore directed to be made, a sum equal to half that surplus was to be paid to the Commissioners as additional rent yearly. Clause 18, upon which the plaintiffs founded this action, provided that in case it should happen, after the expiration of the first five years of the lease, that the sum or sums payable to the Commissioners as rent should fail in every one of any five consecutive years, subsequent to the first five years, to be equal to the sum of £2,145, it should be lawful for the Commissioners to re-enter upon the premises and resume possession thereof, with all improvements therein and all erections thereon, and with all the plants, shrubs, and trees in and about the same, and out of whatever fund the same might have been paid for, without making any compensation whatsoever to the society. It was also provided that if the average rent from the commencement of the term had amounted to the stipulated sum the right of re-entry should not arise. The agreement further provided that for the purpose of regulating the amount to be retained by the society in each year for expenses, a committee should be appointed annually, which should consist of six persons, three of whom should be appointed by the Commissioners, and three by the society. Any three of the committee were to form a quorum, so that one at least should be a person appointed by the Commissioners and one a person appointed by the society. One of the committee-men appointed by the Commissioners was to be selected as chairman, and was to have a casting vote, in addition to his ordinary vote. There was another provision that the society should devote towards the liquidation of the £40,000 debenture debt three-fifths of the money actually received by them from time to time in respect of the "receipts from the gardens," after the payments directed to be retained and made out of those receipts. The arrangement was duly carried out, the £40,000 was raised on debentures, and the stipulated sums were ex-

pended by each party, but no lease was ever executed. The agreement was modified by the parties on more than one occasion, but the only alteration which it is necessary to mention for the present purpose is that the £2,145 payable to the Commissioners, after payment of the expenses and the interest on the debentures, was increased to £2,400. The plaintiffs sought to recover possession of the gardens on the ground that no rent had become payable to them under the terms of the agreement, and that no rent had, in fact, been paid since 1872. The nature of the defendants' case appears from the judgment of the Master of the Rolls. Mr. Justice Fry was of opinion that, as the expenses committee had not met since the year 1873, the sum payable by the society by way of rent had never been ascertained, and therefore it was impossible to say that that sum had failed. On this ground his Lordship held that the forfeiture had not arisen, and he dismissed the action with costs. The plaintiffs appealed.

The Solicitor-General, Mr. Crossley, Q.C., and Mr. E. Beaumont were for the appellants; Mr. Fischer, Q.C., and Mr. Houghton were for the society; Mr. Cookson, Q.C., and Mr. De Castro, were for the debenture-holders.

The Master of the Rolls said that the real difference between this Court and Mr. Justice Fry was that he had given a construction to the agreement which this Court thought was not correct. The Commissioners were willing to lease the ground to the society on liberal terms, their objects being to some extent for the public benefit. The effect of the agreement shortly stated was that the Commissioners were to get nothing at all unless the receipts of the society were enough to keep up the gardens and pay the interest on the debentures; then they were to be paid a sum equal to interest at the rate of 4½ per cent. on the £50,000, which they were to advance; but they were to have no rent properly so-called until after those payments had been made, and then they were to get only half the surplus. The Commissioners wished to obtain some control over the expenses of the society, for it was obvious that, if the society could spend what they pleased, the Commissioners would never get anything. Therefore, it was proposed that there should be a regulating committee of six members, three chosen by the society, and three by the Commissioners, the chairman of which, who was to be one of the members appointed by the Commissioners, was to have a double vote. This would have given the Commissioners an absolute control over the expenses. The society would not agree to this, and a compromise was come to. A clause was inserted providing that the committee should allow the necessary and reasonable expenses. What those expenses were must, in the event of a dispute, be determined by arbitration or by a court of law. The committee had only a limited power over the expenses, and must allow the necessary and reasonable expenses. If the committee disallowed any expenditure, the society might still say it was a reasonable or necessary expenditure. On the other hand, if the committee allowed more than the Commissioners liked, they had no remedy. There was, however, no power to compel the committee to meet if they did not choose to do so; and even if a mandamus would lie to compel them to meet, they could not be compelled to decide anything. If the true construction of the clause was that no expense could be paid until the committee had decided, then the Commissioners might get nothing, even if there was a surplus of £10,000. His Lordship then referred to the 12th clause of the agreement, by virtue of which, he said, the society had a right to say, "We do not care what the committee have done" if they had not decided on a fair and reasonable basis. The society were entitled to a fair and reasonable expenditure, whether the committee allowed it or not. That was really the deciding point of the whole case, for the society could not be in a worse position because the committee did not meet than if the committee had disallowed the expenditure. His Lordship then referred to clause 18, and said that the meaning of it, roughly stated, was that if the Commissioners did not get the interest on their advances for five years the whole thing had come to an end, and was a failure, and the Commissioners were entitled to re-enter and put an end to it. The question was, whether there had been a "failure" within the meaning of clause 18. The society did not plead that there had been no failure, though they did not admit that there had been a failure. They said it could not be determined whether there had been a failure or not, because the committee had not met. They did meet up to the year 1871. There was a dispute after that between the Commissioners and the society as to the validity of the election of committee-men by the society. However, in 1875 the society elected committee-men in the way which the Commissioners thought valid. But still the committee did not meet. The five years in question began in 1872 and expired in 1877, and no rent was paid for that term. The society did not plead that their expenditure had not been fair and reasonable; they had never asserted anything of the kind. There was really no dispute as to the facts. It was proved as well as admitted that no rent had been paid for more than five years. That was *prima facie* evidence against the defendants that they had not got the money to pay it. They could not of course be allowed to say, "We had the money in our pockets, but we dishonestly refused to pay our rent." But the accounts of the society were in evidence regularly audited according to their charter, and from them it was plain that there was no surplus. Lately there had not been enough to pay the interest to the debenture-holders. The *prima facie* case being thus made out, it was for those who said that there had been enough to pay the rent to prove it, and this had not been done. It was in truth admitted that, assuming the expenditure of the society had been on a fair and reasonable basis, there was not in any of the five years any money at all to pay the rent. If this was the true view of the construction the plaintiffs were entitled to recover possession. There was not a particle of evidence, or even a suggestion, that there had been anything but a fair and reasonable expenditure during the five years. It was not to be expected that the society should prove that there had been. But the debenture-holders might have done so if any evidence could have been produced. The provision as to fair and reasonable expenditure was for the protection of the debenture-holders, and they might have interfered if the expenditure had been improper. The fact that they did not was so far evidence against them. As against the society the action was really an undefended one. As to the debenture-holders, who had properly been made parties, they took a different position. They said they had been induced to lend the money by representations made by the society, by which the Commissioners were bound, and also that, on the fair construction of the debentures, the Commissioners were not entitled to re-enter without making them compensation. They did not allege that the expenditure of the

society had been other than fair and reasonable. But they said (1) that the representations made to them as to the position of the society did not mention that there was to be any such proviso for re-entry by the Commissioners; (2) that, after the representations were made to them, they were kept in ignorance of the demand by the Commissioners for the insertion of the proviso for re-entry, and that they paid their money in ignorance of it; (3) that the agreement between the Commissioners and the society constituted a partnership between them; and (4) that, if two persons entered into a partnership, each agreeing to bring in a certain sum of money, and one of them knew that the other was borrowing the money which he was to bring in, he would be bound, by a sort of constructive notice, by the terms upon which the money was borrowed from a third party, though, in fact, he knew nothing of them. His Lordship thought that all these objections failed. (1.) No representation had been made to the debenture-holders of any fact which was untrue. They advanced their money upon a fair and honest representation that negotiations were still in progress with the Commissioners. If they did not inquire into the result of the negotiations it was their own fault. (2.) There was no evidence that they paid their money without notice of the new requirement of the Commissioners. There was strong evidence that many of them knew of it. Many of them were Fellows of the society, and there was a long discussion before this term was accepted by the society. His Lordship was satisfied that a great many of them did know of it, and there was no evidence that the others did not. (3.) Though the agreement had in it some of the elements of a partnership, the whole of it must be looked at. It was clear that they did not intend to become partners. The property was in the society, and so was the management. The only thing which the Commissioners could get out of it was half the surplus after paying the expenses, the interest to the debenture-holders, and the first rent. And that surplus was not profit. It arose partly from the voluntary subscriptions of the Fellows. That was not profit. There might be a loss from carrying on the gardens, and yet the subscriptions from the Fellows might be so large that there would be a large surplus. (4.) This was a proposition of which his Lordship had never heard before, and it was wholly unfounded in law. All the four points equally failed, and it would be enough if one of them did. The only other point was one which his Lordship could not understand—the claim of the debenture-holders to compensation. The debentures assigned to them only an interest derived from the society, the lessees. How could a person who claimed under a lessee have a better title against the lessor than the lessee himself would have had? His Lordship could not follow the argument. He could not see that the debenture-holders were entitled to any compensation, or that they stood in any better position than an ordinary mortgagee of a lease. Their case entirely failed.

Lord Justice Cotton and Lord Justice Lindley delivered judgment to the same effect.

Judgment was accordingly given that the society should give up possession of the gardens to the Commissioners, and that the defendants should pay the costs of the action and of the appeal; but, with the consent of the plaintiffs, the society are to be allowed to retain possession for four months.—*The Times*.

A STUDY OF A NARCISS.

THIS tall scape of scented narcissus, picked from a pot in the south window, with its thick bunch of snow-white golden-crowned flowers, springing from the little thin papery spathe, carries one back in spirit for a moment from our northern winter to the cloudless skies and sun-bathed fields of Provence. Between the dry hills of Hyères and the sea a long level of soft spongy water-logged meadow stretches away towards the Mediterranean for three miles or more; and there, a couple of seasons since, in the first weeks of March, I picked these same pretty blossoms—the poet's jonquils, as the botanists call the solitary kind, with an unwonted touch of graceful fancy—by big handfuls among the rank marshy grass of the Pré Salé. Two months later, on a green alp at Glion, overlooking the Lake of Geneva, I found them again in equal abundance, so thick that one might grasp a dozen stems at once in a single bundle, all as fine as any garden specimens, but far more beautifully and delicately coloured. Indeed, these artificial English varieties are but pale and washed-out representatives of the original wild species, yet even they are beautiful enough. The wonderful winter has brought them out apace, and this particular bulb has blossomed a month earlier than its kindred on the lovely Riviera—for even the drains of Cannes will never make me, at least, falter in my allegiance to the most beautiful coast on all the shores of Europe.

It is an exquisitely dainty flower, the narcissus; and I can sympathize somewhat with a sceptical friend of mine who once pulled one while we walked through an Italian meadow discussing evolutionism, and said emphatically, as he held it up before my eyes, "You will never make me believe that flies developed that." And yet there are very few flowers on which the flies have left their mark more unmistakably. Like almost every other early spring blossom, the narcissus springs from a bulb in which it has stored up last year the stock of foodstuffs necessary for its early growth. All the family to which it belongs have the selfsame habit, which enables them to steal a march upon the less provident and lazier annuals. One wild member of the group, closely allied to the poet's jonquil, and known by the queer name of "primrose-peerless," or two-flowered narcissus, still grows in the warm south-west of England and Ireland, where it has been stranded as a last relic of the old southern flora which occupied the coast-land between Spain and Cornwall during the genial period after the last great ice age. When this stretch of land was broken up the warm flora was driven to take up its abode in the few sunny nooks of Kerry, Cornwall, the Isle of Wight, and the Pembrokeshire peninsula, where the Gulf Stream enables its members to carry on a precarious existence to the present day, though one after another is now dying out under our very eyes with every recurring cold winter. Both primrose-peerless and the common wild daffodil, another English narcissus, are bulbous plants; and so are their more distant relations, the amaryllis and Guernsey lily of our gardens; while the great prickly American agaves, commonly known as aloes, are familiar to everybody in the flower-gardens of Nice and the terraces of Monte Carlo (for somehow to-day "my fancy flies to the south again"), though their tropical habits render them independent of such wintry devices as bulbs, yet lay by a rich store of material for their

huge bunches of flowers in the big fleshy leaves. These great flower-bunches, which grow so tall that the negroes in Jamaica appropriately call them maypoles, only spring up after the plant has laid by material for their growth during many years; and when the big stem has at last shot up, as it does, to a height of several feet, and a thickness of many inches, in a few weeks the drained leaves, now emptied of their stored-up starches, are left flaccid and dry in a monstrous rosette upon the ground below. Such habits of laying by foodstuffs for the flowering season are characteristic of highly-developed plants, which depend absolutely for fertilization upon insects; and they are generally combined with unusually large, brilliant, and attractive blossoms, as in the lilies, crocus, iris, gladiolus, orchids, tulips, hyacinths, yucca, and asphodel.

Of course, all this trouble taken by the plant to store up materials for a big head of coloured blossoms has direct reference to the needs of the insects, and has been evolved by their slow unconscious action, exerted in the continuous selection of the most striking flowers from season to season. But when we look into the head of bloom itself, we can see even more evident proof of the effects produced by the flies. The flower-stalk bears a head of eight or ten white tubular blossoms in this species; in the daffodil and the true poet's jonquil it has only one, and in the primrose-peerless two. Around them in the bud clings this thin papery covering or spathe, which encloses them tightly while they are young and delicate, so as to prevent insects or birds from eating the fresh juicy buds or stealing the pollen before it is ripe. As the flowers open they push aside the spathe, and emerge into the outer air. Originally, of course, the narcissus, like all the rest of its kind—for example, the snowdrop—had six separate and distinct petals, the three outer being larger and brighter than the three inner ones. But the narcissus genus is a particularly advanced type—a go-ahead Yankee among flowers—and it has adopted all the latest and newest improvements in the way of cross-fertilization. Accordingly, all its petals have grown together into a single united tubular corolla, while the six distinct pieces now only exist in the shape of spreading lobes, which serve to attract the passing bee or vagrant butterfly. At the same time, the filaments or stalks of the stamens have coalesced with the long deep tube thus formed, so that the pollensacs hang out apparently from its inner wall, ready to shed their golden dust on the insect's proboscis as he thrusts it down into the recesses of the blossoms to extract the little drop of honey which lies at the bottom. I cut open the tube, and, see, three of the stamens are fastened at the top and three on the sides a little lower down, alternately with the upper set; so that the bee can hardly fail to carry away a good instalment of the pollen, which he will infallibly brush against the sensitive surface of the next flower he visits. In this way cross-fertilization is made almost an absolute certainty, and the chances of sterility are reduced to a positive minimum.

Nor is this all. The narcissus almost exceeds any other plant I know, except the orchids, in the minuteness of its provisions for ensuring the visits of insects and making them effectual when ensured. Beside the tubular form and the peculiar position of the stamens, it has taken the trouble to produce a little central cup or crown (as it is technically called), which makes it almost impossible for the bee to get at the honey without rubbing against the stamens and pistils. Furthermore, this cup, which is a quite abnormal outgrowth of the corolla, unlike almost anything else except the scales of the cupanions, prevents any small creeping insects from getting at the honey; and the reason for such exclusiveness on the part of the flower is easy enough to understand, because such small insects go from one species of flower to another indiscriminately, and so do not help to set the seeds aright, but rather produce fantastic forms of hybrids, whereas bees and butterflies always confine their attention for considerable periods together to a single species. In this poor dwarfed artificial northern variety the cup is white, like the petals; but in the wild southern form it is pale primrose, tipped with a rich orange-red fringe, slightly waved at the edges. Nor must I forget either the additional attraction of the perfume, which marks the jonquil out as in part at least a nocturnal flower; for these heavily-scented white or light yellow blossoms, like jasmine, tuberose, and stephanotis, almost always lay themselves out to some extent, if not entirely, to allure the night-flying moths. Thus we may sum up the peculiarities of the narcissus, so far as the flower alone is concerned, under two heads. First, there are the purely attractive devices intended to entice the proper fertilizing insects—namely, the coloured petals, the sweet scent, and the drop of honey; and, secondly, there are the closely connected, self-regarding devices, intended to ensure their due performance of the fertilizing function—namely, the united corolla, the long tube, the cup-shaped crown, and the odd arrangement of the pollen-bearing sacs. When we add to these the possession of a bulb for producing a large showy head of flowers, we can form some idea how important to the narcissus is the power of attracting the right sort of insect fertilizers.—*Pall Mall Gazette*.

STOCKS AS BORDER AND BEDDING PLANTS.

Six several chapters might be written on the cultivation of stocks, showing how to manage them as pot plants, as bedding plants, for early bloom, for late bloom, and for raising seed and new varieties. Our duty is to avoid those matters that pertain to the nursery and the market garden, and provide directions for the employment of the stock as a bedding and border plant simply, and a very few words will suffice. In the first place, we condemn *in toto* all troublesome and complicated methods of procedure, because they necessitate a wasteful expenditure of time, and actually tend to the production of flowers that are bad in proportion to the time wasted upon them. In the next place, we denounce as sheer foolishness all the rules proposed for distinguishing double from single stocks when the plants are in a small state. To a certain extent it is in the cultivator's power to make them all double, and our simple code of culture will indicate the proper order of procedure. Home-grown seed is rarely of any use; indeed, the production of good seed is an art demanding more skill and patience than any average amateur can devote to it. Secure the best seed possible from a first-class house, and sow it on any day between the 10th and 30th of March. The seed-pans or pots should be filled with light rich soil, consisting of about equal parts of leaf-mould, rotten manure, and sandy loam. The proper place for the seed-pans is a cold frame, and it will be well to lay slates, tiles, or sheets of glass over them, to assist germination and render watering unnecessary. If the soil becomes rather dry, however, it must be

carefully moistened with the syringe, or by dipping the pans into a vessel containing a sufficient depth of soft tepid water. Instantly upon the plants appearing remove the covers and let them have light and air, the ventilation being regulated by the weather so as to render the plants as robust as possible without causing a chill. They are not to be pricked out to strengthen, nor are they to be kept in the seed-pans to starve. As soon as they are large enough to handle, which they will be by the middle of April, they must be planted out and encouraged to grow freely from the very first. Any soil that will grow cabbages will produce first-rate stocks, but it should be deeply dug and liberally manured long in advance of the day of planting; better, indeed, if prepared expressly for the purpose some time in the winter and left rough to the last moment. It is, however, not absolutely necessary to prepare the ground until the last moment, but it must be well done, and the manure, in liberal quantity, thoroughly well broken up with the staple soil. When the digging is finished, spread over the bed two inches of manure rotted to powder, and prick it in with a small fork. Then draw drills fifteen inches apart and two inches deep, and in these drills insert the plants three inches apart. An experienced workman would lift the plants out of the pans by the aid of a bit of stick, and lay them in bunches towards the left hand, and presenting one between the finger and thumb, make a hole with the right hand, thrust the plant into it with the left, and close with the right, at a rate of speed which would astonish a novice looking on.

If frost should follow, the little plants must have some kind of protection, and there is no more speedy and effectual method of providing it than to cut a lot of short branches of spruce, or any evergreen that can be spared, and stick them all over the bed. A net spread over, and kept from touching the plants by means of a few stont stakes, will answer well. Water must be supplied in plenty during dry weather, and as fast as the growing plants touch each other thin them out, always removing the weakest and those that show flowers first. When there begins to be a show of colour all over the bed, make a final thinning, taking out all that present single flowers first, and then the forwardest of the double ones, until the plants are far enough apart to promote full development, and yet not too far for a rich effect. When the thinning is completed give the bed a good soaking with weak liquid manure, then carefully touch it over with a small hoe or rake to make a neat finish, and the routine of your cultivation is completed. You may now send out cards of invitation to friends, for you will have a good bed of stocks that will be worthy of admiration, and far too good for your own enjoyment solely.

Stocks may be sown in September and wintered in frames for an early bloom. They may be sown again in heat in January or February, but by no other course of cultivation than we have here described is it possible to obtain them in perfection. The best sorts are *Ten Weeks* for summer display; *Intermediate* for autumn; and the *German Dwarf Bouquet* and *German Large-flowered Pyramidal* are useful.—*The Amateur's Flower Garden.*

Replies to Queries.

T. C., Amersham.—We make no charge for any replies to correspondents.

Asparagus Prizes.—*J. H.*—We cannot inform you of the date or place appointed for the asparagus competition to which you refer.

J. H. F.—Hartley's is the best of the three named, and the light blue the worst.

Grape Vines in Pots.—*C. W. M.*—You will find an article by Mr. Cole on this subject in our issue for January 1, 1881. It will afford you ample information on the subject.

A. B. C.—Young gardeners are admitted to Kew in just the same way as the elder Mr. Mathews got into the Temple—by knocking at the door. If you want employment there write to the Curator and briefly state your case, and you will have just the same attention as in any other place of business.

Duplex Fuchsias.—*W. G.*—The monstrous blooms sent are in their way extremely beautiful and certainly uncommon. All the parts of the flower are duplicated or transformed. There is a "hose-in-hose" calyx, the corolla is malformed, and the stamens appear in a petaline form as petals attached to stalks. By the colour and style we imagine the variety to be our old favourite *Duchess of Lancaster*.

Names of Plants.—*Mac.*—Your *margarite* is probably *Chrysanthemum Halleri*, but if you label it *C. frutescens* you will be not far wrong. The true *frutescens* has leaves more delicately divided, and of a decidedly glaucous colour. *C. D.*—Your little blue flower is the creeping forget-me-not, *Omphalodes verna*. *J. L. C.*—1. *Pinus inops*; 2. *Pinus pinea*. *W. Phillips.*—Probably *Rhabdotheca picridioides*. See Hooker's "Icones," t. 766. We have met with it at St. Vincent and Cape de Verd. *W. H. W. K.*—1. *Muscari botryoides*; 2. *M. comosum*; 3. *Chionodoxa Lucilla*; 4. *Scilla bifolia*. *R. Apsley.*—The blue flower is *Patersonia sapphirina*, an irid allied to *Watsonia*. It may be said to represent a group of beautiful irids that have never obtained the attention they deserve.

Peas for India.—*"Medicus"* asks for a few names of sorts of peas suitable to grow in the Deccan. The black soil of the valleys of the Deccan is favourable to vegetables generally, but those that require a high temperature are more profitable than such as peas, which do not like heat. There, as here, the incoming of a dry hot season produces mildew, but in the Deccan the peas are mildewed in February, and here not until July. Perhaps the management is of more importance than the selection, and for the present we will imagine it to be so. We should advise therefore the employment of phosphatic manures if they are obtainable, and the practice of mulching with whatever vegetable rubbish or sterco from the stable that may be obtainable for the purpose. On the subject of irrigation we have nothing to say, because that is ever present to cultivators in India, who irrigate if they can, and grow if they cannot. A deep moist bed and a fair allowance of phosphatic manures appear to us to be the primary requirements in the production of green peas in the Deccan. Now we come to the selection of sorts. As a rule, wrinkled peas, of whatever colour, require very favourable conditions, and as a rule they do not bear adversities so well as smooth round peas. But we would not ignore the wrinkled peas, for amongst their number there are some that are so accommodating in their character that we should expect them to come through the trial triumphantly. But we will make a small selection with a view of subjecting our correspondent to the least possible risk of loss with the largest prospect of complete success in his endeavour to enjoy green peas in India.

Our faith for the present is pinned to the following:—*Kentish Invicta*, round blue, 2 ft., early; *Sangster's No. 1*, round white, 2½ ft., early; *Ringwood Marrow*, round white, 3½ ft., second early; *Princess Royal*, round white, 1½ ft., second early; *Blue Scimitar*, round blue, 2½ ft., second early; *Burbridge's Eclipse*, round blue, 2 ft., late. These may all be grown without stakes, which are probably not obtainable by our correspondent.

Markets.

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Primroses „ „ „ „ „ „ „ „	0s. 9d. „ 1s. 0d.
Primulae, double, per bun.	1s. 0d. „ 1s. 6d.

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Primulas, Single, dz. bun.	6s. 0d. „ 9s. 0d.
Roses „ „ „ „ „ „ „ „	3s. 0d. „ 7s. 6d.
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SEEDS.

Mustard, brown, per bush.	9s. to 16s. 0d.
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Cloverseed, red, old, per cwt.	40s. „ 70s. 0d.
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Trefoil, new, per cwt. „ „ „ „ „ „	25s. „ 35s. 0d.
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Caraway, Calcutta, per cwt.	87s. „ 30s. 0d.
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Consols, 3 per cent. „ „ „ „ „ „	101½ to 101½
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THE TITHES, THE CROPS, AND THE NATIONAL PROSPERITY.—“Ove four millions of tax for tithe are paid annually on the cost of producing food for the country—four millions to prevent our home growers competing with the foreign growers—is this just?” This is the pertinent question put by an “Essex Farmer.” We quite agree with him that it seems “most iniquitous.” “Let this be removed,” he continues, “and we shall have the farming industry of the country in a better state than it has been for many years.” He adds, “We have quite enough skill amongst our farmers and owners to make farming in England a great success. Only remove the heavy burdens and we shall soon see they can compete with any country. Every one must admit the benefit that a good harvest is to the trade of the country, showing that the prosperity of the country to a very great extent is affected by the farming interest; and I believe that, were the tithes removed from the land, and also land and other taxes adjusted, the agricultural produce of the country within three years would be double what it is now, and in seven years considerably more. We want our land in a high state of cultivation, so as to get good crops, but the farmer is so heavily taxed that he hardly knows how to meet expenses, much less how to expend money on the land for manure, &c.; and as a result his crops become smaller and smaller, whilst he grows poorer and poorer, until ruin overtakes him, and he has to leave his farm. The average tithe on 200 acres would be about £60. This spent on the land would make all the difference to the produce of the farm. The plan that I should propose in reference to tithes is to make it compulsory on the landlord to redeem them, but to allow him to redeem at ten years' purchase, the balance to be paid by the Government, it being to the general interest of the public to produce food in our own country at as cheap a rate as possible, and as much as possible. The farmer is more taxed than any other part of the community, and has much more to contend with, owing to the uncertainty of the weather and various other causes.”

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasants, Avian, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

LAMPLOUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sen or Bilious Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff-coloured wrapper. 113, Holborn, London.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avrg. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths after Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.				
2	S	Palm Sunday.	5 36	3 36	6 33	5 41	4 39	1 17	1 33	10 42	10 58	45.7	Anemone nemorosa fl. pl. &.....	White.	1882
3	M	○ Full Moon, 5h. 47m. afternoon.	5 34	3 13	6 35	6 48	4 59	1 51	2 5	11 16	11 30	45.9	Andromeda floribunda, H.	White.	92
4	Tu	Oliver Goldsmith died, 1774.	5 32	3 0	6 37	7 55	5 20	2 20	2 35	11 45	Midn.	46.2	Cheiranthus Marshalli, H.	Yellow.	93
5	W	Hilary Law Sittings end.	5 29	2 42	6 38	9 4	5 45	2 50	3 5	—	0 15	46.5	Cytisus racemosus, G.	Yellow.	94
6	Th	Old Lady Day.	5 27	2 25	6 40	10 11	6 14	3 22	3 33	0 30	0 47	43.7	Iris pumila, H.	Blue.	95
7	F	GOOD FRIDAY.	5 24	2 7	6 41	11 15	6 51	3 55	4 12	1 3	1 20	46.9	Narcissus bulbocodium, G.	Yellow.	96
8	S	Lord Chatham died, 1778.	5 22	1 50	6 43	Morn.	7 35	4 30	4 47	1 37	1 55	47.1	Trollius europæus, H.	Yellow.	97

The Gardeners' Magazine.

SATURDAY, APRIL 1, 1882

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, APRIL 4.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Exhibition in the Town Hall.

WEDNESDAY, APRIL 5, AND THURSDAY, APRIL 6.—ROYAL CALEDONIAN HORTICULTURAL SOCIETY.

WEDNESDAY, APRIL 5, AND THURSDAY, APRIL 6.—NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—Exhibition of Spring Flowers.

THURSDAY, APRIL 6.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

Auction Sales for the Ensuing Week.

MONDAY, APRIL 3, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

WEDNESDAY, APRIL 5, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Established Orchids.

THURSDAY, APRIL 6, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

THE POISONOUS PLANTS IN ENGLISH GARDENS are comparatively few in number and of no great value for decorative purposes. Recent events, to which we shall not refer in detail, have brought under notice once more the aconite as a very dangerous plant. The destruction of all poisonous plants, without regard to their places or uses, would not perhaps in any sensible degree diminish crime, but the way to a dark deed would certainly be rendered more difficult, and from what we have recently learned there seems to be in the poisonous properties of aconite a kind of invitation to the wicked mind; for, given time enough, and all traces of the poison would be lost. But we need not concern ourselves with any extreme conditions or peculiar uses, for the matter comes home to us in a quite different way. Our common monk's hood, *Aconitum napellus*, is not particularly ornamental, and as regards the decoration of the garden we can do without it. The poisonous properties reside chiefly in the root, and the root has many times been eaten as horse-radish, and many human lives have been lost thereby. Thus, without the teaching of a criminal trial, we may learn to dislike this plant so much as to turn it out of the garden, and to take care in so doing that it does not find its way to another. It may perplex the learned that any one could mistake the roots of aconite for horse-radish, but we have to deal with facts, and we know too well that this plant has worked much more mischief than it has paid for by any display it has ever made in an English garden.

Garden plants are for the most part harmless, and very many may be spoken of as wholesome. We do not advise people to eat flowers in place of bread, but it is comforting to know that many flowers might be eaten without harm, as a few sheep or goats will prove to any who have the courage to allow them to make a demonstration in the course of the summer. The achilleas are bitter and tonic. The lilies are innocuous, and in many instances their roots would be worth eating if served in the way of artichokes. The crucifers are pungent, and have various claims to regard as antiscorbutics. The florets of the dahlia have often been added to salads with advantage, and the roots are not unwholesome. Most composites are aromatic and tonic, and none of them are poisonous, while, as regards food uses, very few indeed are of any value. The campanulas are harmless, and one of them is in common use as a

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salad. The geranium tribe possess wholesome and often agreeably acid juices, as do also the begonias; but in neither family do we find any food plants, and for other "useful" purposes they are but of small account. The iris is almost without a position in the arts, either as food, medicine, or luxury; but the "orris root" of commerce saves the family from complete exclusion. All the rosaceous and caryophyllaceous plants—such as potentilla, spiræa, lychnis, carnation, and saponaria—are devoid of deleterious properties, and are variously valued for their uses in the arts. Primulaceous plants and saxifrages may be said to be without any distinct properties, and so are never to be feared. Dodoens speaks of primulas as pot herbs.

On the other hand, the ranunculaceous plants are a bad lot, though we need not banish them *en masse*. All anemones, aquilegias, delphiniums, and aconites are poisonous more or less. All the narcissi are ill-flavoured and unwholesome. The digitalis is a dangerous plant, but we do not remember to have heard of any one suffering through mistaking it for something wholesome. In reviewing the dark catalogue, we seem bound to return to the aconite, because it has so often offended, and may so well be spared, that there really remains no good excuse for allowing it a place in any ordinary garden.

WE HAVE IN ENGLAND NO VEGETABLES, but we have a *Pall Mall Gazette* to record the fact and expose us to the scorn of the Universe for our horticultural and culinary destitution. The declaration by the paper that is "written by gentlemen for gentlemen" appeared on the 15th of March, 1882, and is reproduced *verb. et lit.* in this issue of the GARDENERS' MAGAZINE for April the first, for which it will be seen it is most appropriate. "It is impossible in the same country to have good meat and good vegetables" is the startling declaration of our elegant contemporary, speaking on the authority of "an American stranger at a restaurant in the Strand." The American stranger and the gentleman writer appear to have been agreed that English mutton chops are good and English peas bad; while on the American continent the tables are turned, and as they can grow peas to perfection there, it follows they cannot grow meat, and American beef, therefore, is "all a hum." That we should be abused for our cloudy sky is quite proper, and it follows that while the Yankees cannot produce beef, and consequently never send us any, so we never produce potatoes and never send them any. With market reports we have nothing to do, for in the presence of a gentleman writer munching muck at a restaurant in the Strand, and finding a chum professor in "an American stranger," we are prepared to admit that beef and potatoes are mythical creatures that find their way into market reports through the imaginative invention of those by whom such reports are written. How sweet must have been the converse of the "gents" as they became dimly convinced that the restaurant cabbage was rank to the nose and hideous to look at, and the restaurant spinach gritty and flavourless, and the restaurant turnip greens stringy, bitter, and black! What a good thing might have been done for these two—representing as they did the two hemispheres of the terrestrial globe—if they could have been transported to some well-kept middle-class table, where the juicy joint and well-cooked English vegetables are daily served hot, fragrant, and in perfection of colour and flavour, without one thought about the impossibility of any one country producing both "good meat and good vegetables"!

THE DECISION OF THE COURT OF APPEAL on the relations of the Royal Horticultural Society to the Commissioners of 1851 has occasioned much discussion as to the future of the R. H. S. Our course for the present is clear, whatever certain of our friends may think. We make no proposals and hazard no opinions, and leave the whole case untouched until the Council shall be enabled to mature plans and communicate with the Fellows. As regards the facts to be taken into account, both by the Fellows themselves and lookers-on who appear anxious to manage their affairs for them, there is one of paramount importance and having at once a bright and a dark side. The debenture debt is virtually extinguished, and it was the recognition of this debt that compelled the Council of the R. H. S. to claim a property in the estate as the security of the holders of debenture stock. The bright side may be visible to Fellows who have not invested, and we do not doubt the dark side is like a "darkness that may be felt" by the financial following of the late Prince Consort.

AGRICULTURAL EXHIBITION.—On April 8 to 15 an International Exhibition of Agriculture will be held at Vienna.

SOUTH ESSEX FLORICULTURAL SOCIETY.—The exhibition will be held June 14.

TEDDINGTON ROYAL HORTICULTURAL SOCIETY.—The eleventh annual exhibition will be held in the grounds adjoining Bushey Park Cottage, Wednesday, July 5.

A CITY ROSE SHOW is in course of organization by the Lady Mayoress. It will be held in the Mansion House in June. The profits will be devoted to charitable purposes.

THE BATH AND WEST OF ENGLAND SOCIETY will have the co-operation of the Glamorganshire Agricultural Society and the Bristol Bee-keepers' Association in the exhibition now preparing in Cathay's Park, Cardiff. The horticultural department will be as usual under the direction of the Hon. and Rev. J. T. Boscawen.

MR. J. FORSYTH JOHNSON, horticultural director of the Alexandra Palace, has taken offices at 90, New Bond Street, W., at which his business as landscape gardener and manager of the Alexandra Palace exhibitions will be carried on.

FRUIT TREES, plums and cherries more especially, are now coming into flower in the vicinity of London. A few pear trees show blotches of white, but the pears generally seem inclined to wait a bit. Everywhere now there is a pleasant glimmering of green, and the grass is so rank as to need the scythe before the machine can be put upon it.

MASSACHUSETTS HORTICULTURAL SOCIETY.—The first show of the season was held March 23. The exhibitions to follow comprise Pelargoniums, May 13; Rhododendrons, June 10; Roses and Strawberries, June 27; miscellanies, every Saturday from July 8 to September 9; annual exhibition, September 19 to 22; Chrysanthemums, November 9. At all the meetings there are classes and prizes for fruits and vegetables.

BEGONIA MANICATA was conspicuous in a mixed group from R. H. S. Gardens in the pretty little flower show at South Kensington on Tuesday last. This is a very small-flowered species, and the flowers, which are of a pale pink colour, are produced in large pyramidal panicles in a most elegant manner. It is one of the best room plants we have, and is exceedingly beautiful when seen under artificial light.

EARLY MUSHROOMS.—In an open field at North court, one mile north of Abingdon, five mushrooms were found on Thursday, March 16. One weighed seven ounces, one six, one four, and two "buttons." The field in question is in the occupation of Mr. Geo. Saxby, brewer; the finder of the fungi, Mr. Chandler, the gardener.

Oxford.

WILLIAM GREENAWAY.

NATIONAL AURICULA SOCIETY.—The exhibition of the southern section will be held in the gardens of the R.H.S., South Kensington, April 25; that of the northern section in the New Town Hall, Manchester, May 2. The honorary secretary for the southern show is Mr. Douglas, Loxford Cottage, Ilford, Essex. The honorary secretary and treasurer of the northern section is the Rev. F. D. Horner, Kirkby Malzeard, Ripon.

GENERAL HORTICULTURAL COMPANY.—Mr. Romer, Q.C., has applied to Mr. Justice Chitty for the appointment of two directors of the General Horticultural Company as provisional liquidators of the Company, pending the hearing of a creditor's petition to wind up the Company. The application was assented to by Mr. Crossley, Q.C., on behalf of the Company, which, it was said, was insolvent. The Company has several branches, and carries on an extensive business. Mr. Justice Chitty granted the application, and authorized the provisional liquidators to carry on the business in the ordinary way as a going concern, and to spend a sum not exceeding £350 a week.

CORYANTHES MACRANTHA, shown at South Kensington on Tuesday last by Mr. Spyers for Sir Trevor Lawrence, M.P., is the best of its family, and a rare and exceedingly curious plant. The labellum forms a cup, in which a liquid is distilled apparently for the attraction of insects destined to collect and carry pollen for the fertilization of other flowers on plants of the same species, and to be half drowned in the process. A better known but less handsome species is *C. maculata*, figured in *B. M.*, 3,102, as also in "Maund's Botanist," 228. *C. speciosus*, with pale yellow flowers, is less desirable than either of the other two. Although resembling and allied to the Stanhopea, the Coryanthus needs different treatment. It requires more sun than shade, a decided season of rest, and it will not send its flowers down when grown in a basket, as is customary with the Stanhopea.

AN ANCIENT HERBARIUM.—A small herbarium of plants over 3,500 years old has just been formed by the African traveller Dr. Schweinfurth out of the garlands found last year on the mummies at Deir-el-Bahari, in Upper Egypt, to which reference has already been made in our columns. Two garlands on the body of King Aames I. consisted of leaves of Egyptian willow (*Salix salsifera*) folded together, and sewed side by side on a branch of date palm, thus forming holders, in each of which was inserted a single flower. The flowers consisted of those of *Acacia nilotica*, *Nymphaea caerulea*, and a delphinium, believed to be *D. orientale*. The garlands on the bodies of other kings contained flowers of *Carthamus tinctorius* in folded leaves of *Minuscops Kummeli*. Leaves of the common water melon were found on the mummy of Neb-Sini, a high priest of the 20th dynasty. Dr. Schweinfurth succeeded in preserving both leaves and flowers by moistening them with alcohol, spreading out and drying. The preservation of the violet hue of the delphiniums and of the green of the melon leaves is described as very remarkable. All the species are still found in the East, and afford living proof of wild and cultivated plants which have undergone no change in the course of nearly 4,000 years.

Calls at Nurseries.

MR. W. CAUDWELL'S, LOWER MOOR, AND THE IVIES, WANTAGE.

LAST season, on May 3, we paid a flying visit to the above nurseries, a few notes thereon appearing in the Magazine a week or so later; and, as the period was then somewhat advanced, we arranged to make another call earlier this season. Accordingly, we set out for the vale of Berks on the morning of March 21, but not without some misgivings as to the weather, which appeared on the change, and, true enough, before nightfall we had to encounter a fierce nor'-wester accompanied by blinding showers of rain, hail, and snow.

We arrived at Lower Moor one hour before midday, where we were met by our worthy host, who very courteously led us over the plots and explained in detail the cost and difficulty he had put himself to in order to reclaim this swamp, and cause it to become "a garden of spices." Lower Moor is situate about three-quarters of a mile north of the reputed birthplace of Alfred the Great. It abuts on the high road from Wantage to Oxford, being enclosed by a neat iron palisading the entire length. The site, four acres, was formerly an ancient homestead and orchard, with a swamp of osier beds, separated in nearly two equal portions by the river Ock, which passes through the estate and under the Berks and Wilts Canal on its way to the Thames at Abingdon, having, from its rise above Wantage to the outfall supplied motive power for over a dozen corn-mills. Here, at the present time, can be seen the labour of four or five seasons, viz., breadths of dwarf roses in about 200 varieties, clumps of double cuckoo flower, crimson hepatics, foxgloves, campanulas, sweet williams, and pyrethrums; beds of pansies, violas, and Victoria Regina violets; very pure crimson and white daisies, and many other kinds of hardy plants. A small plot is occupied with dwarf pyramid fruit trees on the plan recommended by Mr. Rivers, Sawbridgeworth, and judging from appearances promise well for a few years till they become too crowded. About the place is a large variety of young apple, pear, and plum trees, worked on fine plump stocks; these will no doubt serve to supply scions for grafting, &c., as the ground becomes further broken up. The great feature however at the present time is formed by the masses of primroses and polyanthus, for in addition to the old-fashioned gold-laced named varieties, you meet at every step the singular and beautiful pantaloons, galligaskins, oxlips, cowslips, and hose-in-hose. One patch is enlivened with the old double cowslip while the next contains well-flowered plants of the old Irish Brown polyanthus. Double primroses in white, sulphur, cream, mauve, and yellow, receive due attention; while the coloured primroses may be had in shades of purple, crimson, lemon, rose, brown, and white. The polyanthus comprise bizarre, spotted, striped, brown, yellow, and white. A very large number of the coloured flowers have been raised here, and the saving of seed for market purposes forms no inconsiderable item in the routine of nursery work, as on a sloping bank several thousands of wild primroses are cultivated and the flowers fertilized for the production of the seed.

Among the gems which have been raised here we selected about a dozen of the best, which, having blooms before us, we will attempt to describe. Laced polyanthus—*Alfred the Great*, a large flower, heavily laced, crimson-brown, good rose eye, and *William Caudwell*, finely laced, rich crimson, bright yellow centre. Fancy polyanthus—*Punch*, very large, crimson-brown and iron suffused with gold, bright orange centre, calyx limb seven-lobed, mealy, and beautifully-marked rose eye; *Harlequin*, clear purple, orange centre, cream markings. Selfs—*Golden Queen*, pale yellow, very smooth flower, fine circular outline, deeper centre; *Golden Queen of England*, bright gold, serrated edge, phlox eye; *Queen of Whites*, paper-white, very circular, fimbriated lobes, large flower, well-defined centre; *Crimson Queen*, rich crimson, bright yellow eye; *White Venus*, smaller than *Queen of the Whites*, colour less distinct; *Jupiter*, smallish flower, remarkable bright crimson, velvety, splendid rich gold eye (unfortunately this is a pin-eyed flower); *Rosy Morn*, large flower, calyx limb seven-lobed, finely imbricated, rich lemon colour, and bright orange centre, rose eye—a grand variety; *Golden Prince*, deep gold, fine rounded lobes, mouth of tube raised, rose eye, and *Charlotte Jones*, semi-duplex or hose-in-hose, deep crimson flecked white. Other varieties might be referred to; suffice it to say, that these were among the most distinct forms selected from the seed beds during the past few years, although it may be said that hundreds of pleasing shades and markings appear each succeeding year.

For spring bedding there are few subjects more effective in colour, easy of propagation, or continuous in flowering, than the primula family, whether planted singly or in masses. Especially so are the double forms of primrose, belts of yellow, white, and mauve being imposing, the shades of leafage adding to the effect. Before leaving the Lower Moor novelties we ought to mention that an ivy arch is in course of formation, which will measure nearly one hundred yards; this will present a very striking feature as seen from the roadway.

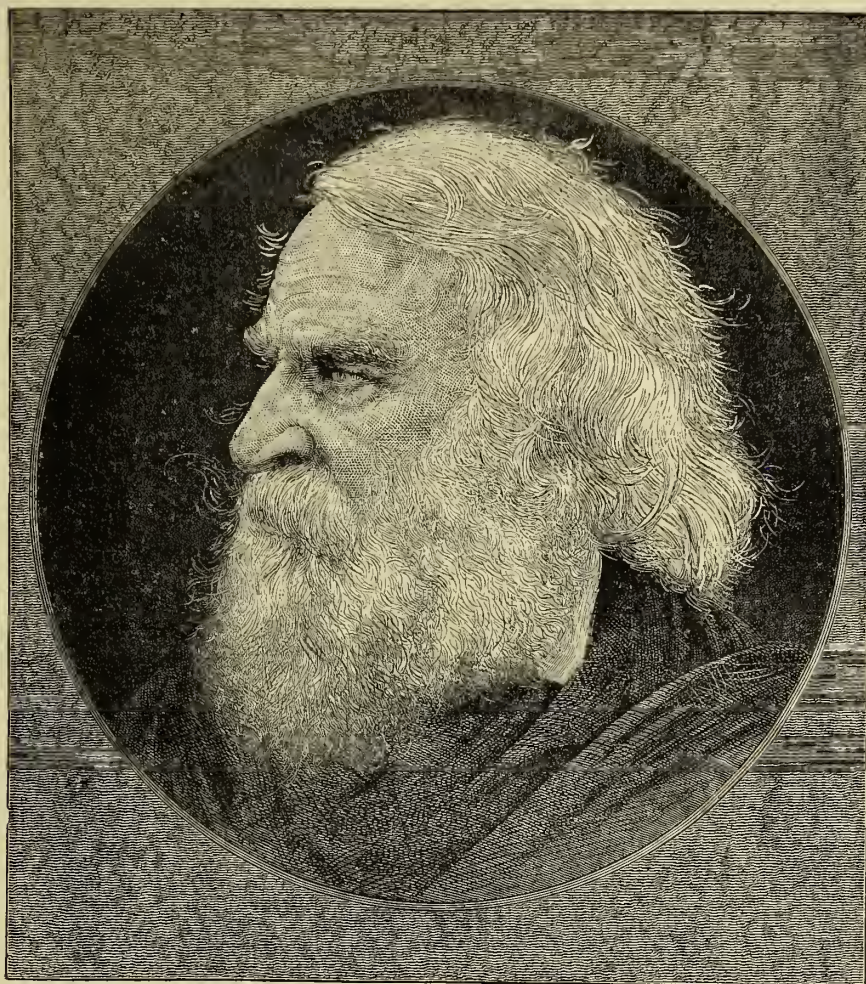
At the Ivies, Wantage, our host has some glass structures, in which tea-scented roses are wintered, and since Christmas "every morning, true as the clock," boxes of buds are carried along the tramway en route for Manchester and Covent Garden Market. At the time of our visit a large number of trees had been lifted and potted up to supply a succession of blooms.

The other subjects under cultivation not referred to were the auriculas, of which large numbers are grown; these were just sending up their mealy trusses, and will be very beautiful a month hence. African marigolds, antirrhinums, and asters receive due attention here. But our wanderings were cut short by the snowstorm, and having taken leave of our host we made the best of our way back home, and so sign ourself

Oxford.

WILLIAM GREENAWAY.

THE PARCELS POST, long hoped for and often promised, is now in process of organization, and will be in action shortly. On Monday night Mr. Fawcett explained his proposals to the House of Commons. The inland post will carry a maximum weight of 7 lb. at a charge of 1s., with a descending scale for lesser weights, and it will be linked with an International Post extending to all European countries, except Russia, and to Egypt and Asiatic Turkey. As an illustration of the scale for this, he said that a parcel of 3 kilogrammes (6½ lb.) would be conveyed to France for 1s. 9d.



En Memoriam :
HENRY WADSWORTH LONGFELLOW.

Old and New World mourn a lost, gentle life—
So few the gentle lives that live and move
And have their being in these days of strife
And eager quest for that which is not Love.
Yet with the tidings flashed through the deep Sea,
"Longfellow dead!" methought, that cannot be:
The Poet cannot die whom God gives birth;

March 25, 1882.

Still audibly his "Voices" speak to Earth
Pure psalms of Life. Two Worlds are his, not one
Here, still the Singer breathes through sweet songs sung;
In the Beyond, now with no faltering tongue,
He sings that "new song" made of Joy and Rest,
His Angel-Kinsmen sing to greet each guest,
Who hears the Master's gracious word, "Well done."

ROWLAND BROWN

PROFESSOR LONGFELLOW.

THE death of Mr. Henry Wadsworth Longfellow, at Cambridge, Massachusetts, on the 24th ultimo, is an event of world-wide interest. Probably no writer of this century has exercised so wide, so deep, or so beneficial an influence on the English-speaking nations as the author of the "Psalm of Life," the "Footsteps of Angels," and the exquisite story of "Evangeline." He was the poet of the domestic affections in a higher sense even than was Wordsworth, although in contemplative subtlety he falls below our heart-searching prophet of the Lake School. He acquired on his very first appearance as a singer a deep hold on the minds of the young, to whom the "Voices of the Night," the "Village Blacksmith," and the "Song of Hiawatha" have constituted a kind of academic course, preparing their minds for larger and profounder studies. To the observer of outdoor life, the naturalist, the traveller, and the sportsman, the works of Longfellow are unceasingly attractive, whether he takes us into "the forest primeval" where the "murmuring pines" are "bearded like Druids of

eld," or compels us to throb with sympathy for Minnehaha when, amid the famine and the fever, the ghosts fix their cold eyes upon her, and death creeps into the wigwam.

Although not ranking first amongst modern poets, Longfellow holds and will keep an honourable place in the Temple of Fame. His highest effort perhaps is the "Golden Legend," and his most finished and touching work "The Courtship of Miles Standish." But as a pastoral "Evangeline" stands alone in picturesqueness, unity of tone, tenderness of feeling, and nobleness of purpose; but although this versified gem carries with it a special condemnation that every Englishman must feel, Longfellow was on no party; his aims were universal, and he appealed much less to schools and sectaries than to humanity. This largeness came in part, no doubt, from his mastership of languages, although primarily it was part of his nature. He was born in the year 1807, and published his "Hymn of the Moravian Nuns" before the year 1825. From that time to the year 1878—a period of fifty-three years—he continued to write and publish, his latest work being "Keramos."

FROST.

Read before the Westerham Gardeners and Amateurs' Mutual Improvement Society.
By J. H. JEWELL.

My paper this evening, in continuation of the series of meteorological subjects which I have prepared at your request, is on "Frost," a subject with which we are all more or less acquainted; but I do not purpose to submit to you my own ideas absolutely on the matter, but rather give you a digest of the opinions of many scientists who have devoted time and talents to the study of this phenomenon.

The learned Professor Tyndall tells us that it is certain that more than ten per cent. of the heat radiated from the soil of England is stopped within ten feet of the surface. The vapour of our moist atmosphere is a blanket, not less necessary for the fruitful earth than clothing is for earth's proudest inhabitants, and if it were possible to remove for a single summer night the aqueous vapour from the air which overspreads the country, it would assuredly destroy every plant capable of being destroyed by a freezing temperature. The warmth of our fields and gardens would pour itself unrequited into space, and the summer's sun would rise upon an island held fast in the iron grip of frost.

This assertion appears on the surface somewhat startling; but let us carefully consider the grounds upon which it is based. The temperature of the earth differs not only in different regions of its surface, but at different elevations above or below the surface. For instance, in ascending a mountain the thermometer as a rule falls at the rate of 10 deg. Fahrenheit for every 300 feet, because here the air is thinner or more rarefied, but at the sea level, or within a few feet of the earth, the air is denser, the weight of the atmosphere being about 14½ lbs. on every square inch. Air however is subject to variation in its density even at the same level, as it is affected by the pressure of vapours in the atmosphere, by currents of wind, electric action, and other causes. The apparent increase of cold at high elevations arises also from several causes, one of which is, as I previously stated, the rarefaction and expansion; as by this means the temperature appears to fall. There is really however no change of specific heat; but occupying as it does a much larger space, its temperature to outward observance seems to diminish. Another cause is found in the fact that the sun's rays have little effect on the atmosphere, especially when dry. To give out its full heat, the rays must strike some solid object such as the earth; but Fourier, a celebrated French *savant*, has a notion of a combined action which the universe (leaving the sun out of the question) exercises upon us by its caloric radiation. He says, "If the sun were to go out, the temperature of the solar system would sink indefinitely," or rather it would not fall to absolute zero (273 deg. Centigrade), but would stop at a certain point, which he estimates at 62 deg. Centigrade below the freezing point of water.

We perceive then that the atmosphere possesses the capacity of receiving and containing heat from the sun's rays, or any other source of warmth; but this capacity is proportionate to the degree of density of the air, and accordingly varies in different situations. It is also well known the air is warmer on low than on high ground, this peculiarity arising from the different density of the two planes. If we were to take a given quantity of air—say, a pound weight—from the sea level and a like quantity from a mile above the sea, we should find each contained precisely the same amount of heat; but in the case of that taken near the sea the air would feel warm, while the other would feel cool. This seems a contradiction, yet it is a scientific fact, and why? The pound of air taken from the sea is compact in substance, and is comparatively small in bulk; while that taken from a higher range is thin, and occupies a much larger space. Aloft the air is as warm as it is below; but there is less of it, the particles are wider asunder, and thus produce the effect of greater coldness: properly speaking, the cold in high situations arises from the want of air rather than from the air itself.

In the warmest regions of the globe the air is cold at the top of high mountains merely because the air is too thin to retain the influence of the sun's rays. In colder regions this follows of course. The accumulated mass of ice forming the Mer de Glace is about twelve miles long, and rises 3,000 ft. above the level of the sea, and amid this icy region is the Jardin, a rocky oasis, rich in alpine plants, amid a wilderness of snow and ice, a relic of a long-forgotten summer blooming in the lap of eternal winter. A recent traveller—I think, the Rev. Hugh Macmillan—has thus described that monarch of mountains, Mont Blanc: "It rose upon my view like a vision of heaven, its majesty increasing as I gazed, until at last it filled soul and sight, and completely absorbed each awe-struck sense. A golden cloud rested upon its highest point, like a diadem with which the setting sun had crowned it Monarch of European Mountains. The reflection of the rosy hues upon its stainless snow was exquisitely beautiful. It looked like an enormously tender illuminated crimson flower, held up in Nature's white fingers for the sun's dying blessing."

In every country there is a point of altitude at which water freezes on all occasions, whether summer or winter. In Europe this is called the snow line, and is from 5,000 to 6,000 ft. above the sea level. In the hot regions of Africa and America, it is 14,000 ft. high: at these points of altitude respectively snow lies constantly on the mountains' sides and summits. In the warm regions of Hindustan the atmosphere is as cool and pleasant at a certain height on the Himalaya Mountains as it is in the northern part of Europe.

Heat is communicated from one body to another by conduction—that is, by contact. Some bodies conduct heat well, others badly; everything that conducts heat from us renders us colder; bad conductors, on the contrary, keep us warm, because they do not rob us of our warmth to transfer it to

other objects. At this season most persons wear wool or fur, because these are bad conductors and do not suffer the heat from our bodies to be drawn off by the cold air. Wool and fur do not give out warmth; they simply preserve our own natural heat from escaping into the air, which would gradually draw it from us, till it and our own body were of the same temperature. But why is it, the air being a bad conductor of heat, that it should deprive any part of our bodies exposed to it of warmth to make us require clothing? The reason is, the air is ever moving and changing, and the particles which pass over our skin deprive us of but a small amount of heat at a time, but as they move off fresh cold air takes their place, and then we are continually warming fresh particles of air to our own loss of temperature. Happily thus is it for us that the air is a bad conductor of heat; if it were as good a conductor as stated it would draw the heat from our body so quickly that we should perish from cold.

The earth is also a bad conductor of heat; the surface may be scorched, but intense heat cannot reach the roots of trees, neither can cold in the shape of frost penetrate more than a few inches beneath the surface.

On a hot dry day much more evaporation is produced than on one which is cold, but it is not on that account more perceptible to the senses. Thus on a hot day we do not see the breath issuing from our mouths, but

on a cold damp day in winter we see it leaving us in puffs at every expiration.

When the weakness of the sun's rays in winter reduces the temperature of the atmosphere to a certain degree of cold (it is indicated on our thermometer at 32 deg.) the phenomenon of frost, or freezing, ensues. Freezing is a process of congelation, or more properly we might describe it as crystallization, produced by the withdrawal or absence of heat, by which water assumes the form of ice. In most fluids there is a regularity of expansion with the rise of temperature, but an exception to this rule exists in the case of water. It is very remarkable, and its consequences important.

In every body of water exposed to the atmosphere the surface in contact with the air will assimilate to that temperature. If it be cold it will become denser and fall to the bottom, its place being supplied by the lighter and warmer liquid, and so on till the whole body receives its maximum density, viz., 40 deg. Beyond this, loss of heat occasions expansion instead of contraction; so that the very cold water on the surface has no tendency to sink, but rather the reverse. This singular anomaly in the behaviour of water is attended by the most beneficial consequence, in shielding the inhabitants of the waters from excessive cold. The deep lakes of the North-American continent never freeze, the intense and prolonged cold of the winters of those regions being insufficient to reduce the temperature of such masses of water to 40 deg. Ice, however, of great thickness forms over the shallow portions of the rivers, and accumulates in mounds upon the beaches when the waves are driven up by the winds.

Above the freezing point sea water has no point of maximum density; the more it is cooled the denser it becomes, till it solidifies at 26 deg. (6 deg. below that of pure water). The gradual expansion of pure water cooled below 40 deg. must be carefully distinguished from the great and sudden increase of volume it exhibits in the act of freezing, and in which respect it resembles many other bodies which expand in solidifying. It may be observed that the force thus exerted by freezing water is enormous. Thick iron shells quite filled with water, and exposed (with their fuse-holes securely plugged) to the cold of a Canadian winter night, have been found the following morning split. The freezing of water in the faults and crevices of rocks is a most potent agent in their disintegration. It was no uncommon practice among our forefathers to chisel out channels in rocks or stones and plug in some fibrous material that would absorb moisture, so that when freezing it tended to split up portions of the same, and thus save an immense amount of labour. Generally bodies expand during the process of fusion, but the exception to this rule is water, which expands during freezing, and thus ten volumes of water will become eleven volumes of ice, while ice when fusing produces a relatively small volume of water.

It may be as well to note that the coldest period of the year (from

observations taken over a long period) will occur on or about the 20th January,

When ice will crust the pond, and all around
Betokens hoary winter will have sway:
Stern Iron King, with his hard-handed rule,
Binding the earth in chains of adamant.
Yet welcome winter, sent by the All-wise,
To smooth the way for flower-teeming spring.

Professor Fownes tells us some interesting experiments may be made with water to show the effect of latent heat in the liquefaction of ice. If, for instance, we take a pound of water at 32 deg. and a pound of water at 174 deg., and mix the two, we shall have a mean temperature of 103 deg.; but if the same experiment be tried with snow, or finely-powdered ice, at 32 deg., and water at 174 deg., the temperature of the whole will be only 32 deg., but the ice will be melted in this latter experiment. It will be seen therefore that as much heat has been apparently lost as would have raised a quantity of water equal to that of the ice through a range of 140 deg. But when water at 212 deg. is mixed with an equal weight of water at 32 deg., then it will be found to possess the mean of the two temperatures, or 122 deg.

Again, let a perfectly uniform source of heat be imagined of such intensity that a pound of water placed over it would have its temperature raised 10 deg. per minute, starting with water at 32 deg.; in rather more than 14 minutes the temperature would have risen to 140 deg.; but the same quantity of ice at 32 deg. exposed for the same time would not have its temperature raised a single deg., but it would have become water. The heat received would have been exclusively employed in effecting this change. This heat is not lost, for when the water freezes it is again evolved.

If a tall jar of water, covered to exclude dust, be placed in a situation where it shall be quite undisturbed, and at the same time exposed to great cold, the temperature of the water may be reduced 10 deg. or more below the freezing point without the formation of ice; but then if a little agitation be given to the jar, or a grain of sand dropped into the water, a portion instantly solidifies and the temperature of the whole rises to 30 deg. The heat disengaged by the freezing of a small portion of the water will have been sufficient to raise the whole contents of the jar 10 deg.

I think you will notice that ice is lighter than water, and, in addition to this fact, there is another curious quality appertaining to it, which many persons perhaps do not know, viz., its purity. A lump of ice melted will become pure as distilled water. Water in freezing turns out of it all that is not water—salt, air, colouring matter, and all impurities. Frozen sea water makes fresh-water ice. If you freeze a basin of indigo water, it will make it as clear and white as that made of pure rain water. When the cold is sudden, these foreign matters have no time to escape either by rising or sinking, and are thus entangled with the ice, but do not form part of it.

The remarkable phenomenon of regelation can be exhibited by placing a block of ice on a netting of fine wire. The ice will be melted by the wire, and passing down through it, will become frozen into a mass again below the wire. A single wire can in a similar manner be drawn slowly through a block of ice, the ice uniting again behind the wire, and finally showing no sign of having been cut at all.

Speaking of phenomena, the celebrated astronomer Arago, with whom also Mr. Loomes agrees, implies that there is a sort of connexion between the apparition of the northern lights and disturbance of the magnetic needle. After the Aurora Borealis comes the cirri, the mare's-tail clouds of a peculiar form, which float very high in the atmosphere, entirely formed of minute spicules of ice: these have an intimate connexion with the aurora, and seem in some sort the atmospheric substratum or stage of all these manifestations.

Coals burn out faster on a frosty day than on a warm one, and why? Simply because the cold condenses the air and then produces more oxygen. Colder air then makes the fire burn more intensely. But, what is more surprising, ice may be converted into good fuel, and thus, if coal-dust, breeze, or ashes be mixed up with water to the consistence of stiff paste, and placed where it can be frozen into blocks, one of them being placed on a clear fire will be found to evolve a great amount of heat, the oxygen concentrated in the blocks expanding and feeding the fire.

When the temperature of the stratum of air from which rain falls is under 32 deg., the vapour or clouds must necessarily be frozen, and the descending particles will be snow. Snowflakes are the aggregate or union of frozen particles, just as raindrops are the union of watery particles. They aggregate according to the laws of crystallization of water into regular and symmetrical forms, of which the general character is a six-sided figure, as, for example, six needles branching from a centre, each needle being three and six-sided. Though single crystals always unite at angles of 30 deg., 60 deg., or 120 deg., they nevertheless form by their different modes of union about 1,000 distinct varieties of snowflakes. The Rev. Hugh Macmillan says, "Examine under the microscope one of the flakes of snow that fall so pure and white from clouds so black; and no lily, no snowdrop, can be more beautiful than that blossom of cold: it is six-leaved; it radiates on every side in the most exquisite crystalline forms, so ethereal, so spiritual, like the ghosts of the flowers that perished in the summer coming back again from heaven to earth."

Snow is generally found in the lower regions of the atmosphere, and an intensely cold current of air mixing with the vapour in a warm current occasions its precipitation. There is a story told of a ball which was taking place in Sweden, when the room became so warm that several ladies fainted, while without the cold was so intense that the windows of the room were frozen so fast as to render it impossible to open them. An officer present broke a pane of glass; the cold air rushed in, causing snow to fall in the room. Snow is very common in the Arctic regions, where it falls nine days out of ten in April, May, and June. The peculiarities of snow consist in its extreme lightness, and also in its being purely white. Its lightness is occasioned by the excess of its surface exceeding so much in comparison the matters it contains, and its whiteness is owing to the minute particles into which it is divided; hence when ice is pounded it is equally white. When snow however accumulates in large quantities its weight becomes very considerable. It falls most copiously in the months of December, January, and February, and seldom occurs before November. The whiteness of snow

has always been typical of purity, and our poets have ever sung in its praise. Our own household poet, Miss Eliza Cook, writes thus:—

A cheer for the snow, the drifting snow;
Smoother and purer than Beauty's brow;
The creature of thought scarce likes to tread
On the delicate carpet so richly spread.
With feathery wreaths the forest is bound,
And the hills are with glittering diadems crowned;
'Tis the fairest scene we can have below;
Sing, Welcome then, to the drifting snow!

Hard pieces of ice falling in showers is called Hail. The sudden ascent of moist air into the upper regions, where it encounters a cold current is, probably the most reasonable view of the cause.

Hailstones vary in shape and size, and when cut across are found to be composed of alternate layers of clean and opaque ice enveloping a white nucleus. Many of them seem to be agglomerations of several hailstones: they vary in size from the smallest shot to several inches in diameter; they are generally oval or round in shape, but sometimes thin, flat, irregularly globular, angular, or pyramidal.

Sleet is only a modification of snow: when aqueous globules freeze in the higher regions of the atmosphere, they aggregate together and form flakes of snow, and when they have partly thawed, and become again frozen, they constitute sleet.

When the surface of the earth is dried, and the temperature gets below the freezing point, the vapour is not only precipitated, but it is also frozen; hence the origin of Hoar-frost, or frozen night dew.

The first frost

Silvers, with lilliputian crystalets,
The sparse crisp blades in croft and meadow holm,
And whitens the blue tint upon the sloe
With bloom of feath'ry hoar-dust.

The occurrence of hoar-frost is a proof that the temperature of the ground has fallen below 32 deg., as well as below the dew-point temperature; as in the case of dew, every thing that prevents the radiation of heat arrests the formation of hoar-frost. During the chilly nights of spring, plants that are sheltered by trees are less likely to be frozen than those that are fully exposed, and a slight covering of straw, or paper, or netting, will often afford effectual protection. In the great vine-growing districts of the Continent, the vines are frequently saved from the effects of frost by enveloping them during the night in a cloud of smoke.

The air exercises a very important influence in keeping up the mean temperature of the earth, because the earth gives back at night much of the heat received during the day, and its upward progress is very considerably impeded by this element—that is to say, by the watery atoms floating in the air, although these small atoms form but a very minor portion of the atmosphere. Take, for instance, one hundred parts. We shall find that 99½ consist of oxygen and nitrogen, and the remaining half-part is carbonic acid, ammonia, and water. The latter is extremely minute in quantity, but most obstructive in quality. Every atom of oxygen opposes a certain barrier, but a molecule of water is said to oppose a force 16,000 times greater than that of oxygen. If we had no atmosphere at all, the rays of the sun would be very intense where they actually struck, but so rapid would be the loss of heat by radiation that the whole earth would be kept permanently below freezing. No liquid material of any known kind could exist on its surface.

I have thus, as succinctly as possible, given you an idea of Frost and its allies. In conclusion, I will quote from a paper of Professor Birks on "Physical Science."

"Nature is one vast mirror, in which we may see the dim reflection of a nobler field of thought than the conflict of jarring atoms, or integrals of atomic force can ever supply. We need first to gauge downwards that we may presently look upwards; and, turning from the shadow to the substance, from things seen and temporal to the unseen and eternal, may veil our faces before the vision of a greatness that is unsearchable and a goodness that is unspeakable."

ORCHIDS IN FLOWER

IN THE COLLECTION OF J. T. PEACOCK, ESQ., SUDBURY HOUSE, HAMMERSMITH.

- | | |
|--|--|
| ADA AURANTIACA. | Miltonia cuneata. |
| Angraecum citratum. | Mormodes lentiginosa. |
| Bletia hyacinthina. | Odontoglossum Alexandræ, O. A. |
| Cattleya citrina, C. Trianae, C. Trianae | grandiflorum, O. Andersoni, O. |
| Atalanta, C. Trianae virginalis. | bictonense, O. Cervantesi, O. cir- |
| Cœlogyne barbata, C. cristata. | rhosum, O. cordatum, O. Edwardsi, |
| Colax jugosus. | O. gloriosum, O. Halli, O. Pesca- |
| Cymbidium eburneum. | tori, O. phalaenopsis, O. pulchel- |
| Cypripedium Argus, C. barbatum, C. | lum, O. Roezli, O. rosenm, O. Rossi |
| b. biflorum, C. b. nigrum, C. b. | majus, O. R. cœrulescens, O. R. |
| superbum, C. Boxalli, C. Harris- | pallida, O. R. viridis, O. Rückei- |
| anum, C. Hartwegi, C. insigne, | anum, O. tripudians, O. triumphans, |
| C. niveum, C. Roezli, C. Sedeni, | O. vexillarium, O. Wallisi. |
| C. villosum. | Oncidium ampliatum majus, O. Caven- |
| Dendrobium aggregatum majus, D. | dishi, O. cucullatum, O. cheiro- |
| Cambridgeanum, D. chrysotoxum, | phorum, O. concolor, O. Krameri, |
| D. c. superbum, D. crassinode, D. | O. macranthum, O. sarcoodes, O. |
| c. Barberiana, D. crepidatum, D. | serratum, O. sphacelatum, O. |
| Dalhousianum, D. densiflorum, D. | trilingue, O. unguiculatum. |
| macrophyllum giganteum, D. nobile, | Phajus grandifolius, P. Wallichii. |
| D. n. cœrulescens, D. n. inter- | Phalaenopsis amabilis, P. grandiflora, |
| medium, D. Piérardi, D. primu- | P. Luddemanniana, P. rosea, P. |
| linum, D. Wardianum. | Schilleriana. |
| Epidendrum cochleatum, E. fragrans. | Pilumna fragrans. |
| Lælia anceps, L. pedunculis. | Pleione Hookeriana. |
| Leptotes bicolor. | Sobralia macrantha. |
| Lycaste aromatica, L. Skinneri, L. S. | Sophronites grandiflora. |
| rosea. | Trichopilia suavis. |
| Masdevallia ignea, M. Lindeni. | Vanda tricolor. |
| Maxillaria venusta. | Zygopetalum crinitum, Z. c. cœruleum. |

NOTES ON FUCHSIAS.—No. IX.

FUCHSIA VENUSTA.

In a notice of this plant in *Flore des Serres*, December, 1849 (t. 538), reference is made to the occasional outbreak of extravagant tastes in horticulture, and the demand for a blue fuchsia is cited in illustration. Many of our readers will remember that a few years since Mr. Bull brought out a garden fuchsia under the name "True Blue," the corolla of which came so near in colour to that of cobalt as known to artists that the simple fact made an end of the allegation of extravagance of taste on the part of any one in respect of this particular flower. This remark will prepare the reader for a statement to the effect that *Fuchsia venusta* has a blue flower, but the truth is, there is not a shadow of blue

deep rich green, the flowers light pinky red, the tips of the calyx lobes or sepals green. A well-grown specimen will justify by its beauty all the care required to produce it.

FUCHSIA CORDIFOLIA.

This comes near to *F. splendens* in some of its characters, but is a much grander plant in every respect. It was first met with by Mr. Hartweg on Ketuch, a volcano of Guatemala, at the altitude of 10,000 feet above the sea. It is nearly hardy, and when grown in a high temperature produces puny flowers, whereas when treated as a cool greenhouse plant, and put out in a rich border for the summer, it acquires a very fine character, and is one of the most distinct of fuchsias.

It is a shrubby plant; the leaves are cordate, serrate, of a rich deep green colour. The flowers are borne on long curved peduncles and are



FUCHSIA CORDIFOLIA.

in its composition, and therefore we are lost to account for the strange discursion of the writer referred to. *Fuchsia venusta* was raised from seed in the nurseries of M. Linden, and first flowered there in the year 1847. It was discovered by Humboldt and Bonpland in New Granada, where it clothes with luxuriant and lovely vegetation altitudes of five to eight thousand feet. It is a plant of robust growth, the leaves are somewhat elongated, but must be described as elliptic; the flowers are also elongated, the tube being cylindrical and terminating in calyx lobes of the same length as the corolla, which has divergent divisions—a somewhat unusual character—and therefore far away from the florist's notion of a proper fuchsia. The colouring of the plant is distinct, but in no way remarkable; the young stems are red or purple, the leaves

themselves long, with an almost equal cylindrical tube, which expands somewhat abruptly into short calyx lobes enclosing a shorter corolla. The colouring is peculiar, the tube is rich crimson, shading into orange where the expansion takes place, and the tips of the sepals are green. This also is the colour of the corolla, and it contrasts in the most pleasing, though peculiar, manner with the crimson and orange tints of the tube and sepals.

All fuchsia fruits are catable and make tolerable (or intolerable) tarts. This appears to supply a particularly good fruit, as it is freely eaten by the Guatemalose, who call it "Melocotoncito." It appears to have been first flowered by Messrs. Young, of Epsom, and *Parton's Magazine of Botany*, ix., 99.

GROWING LETTUCE FOR EXHIBITION.

By AN EXHIBITOR.

In giving briefly the details of my practice in growing lettuce for exhibition I have two objects in view: the first to assist those who may really want to grow lettuces for exhibition purposes; and secondly, to assist amateur growers who do not exactly know the conditions necessary to secure them.

BEST VARIETIES.

Most people have their favourite sorts for exhibition and supplying

POSITION AND SOIL.

It cannot be too plainly stated that care must be taken in selecting the position for the bed. To grow lettuces successfully they must have full exposure to light and air. I prefer to select a position for them in the largest quarters of the kitchen garden, where the air and light play equally on all sides. I tried to grow my lettuces for a year or two on a border that was shaded by a high wall, but I signally failed to obtain fair-sized hearts. It may be perhaps more difficult to grow them in a light peaty soil without some amount of shade, but in my case, where the soil is heavy, I find it best to give them open quarters. The character of the season influences the quality somewhat. I cannot grow them so large



FUCHSIA VENUSTA.

the table, but according to my experience there is not a great choice. There are plenty of names, but there are in reality but a few distinct kinds of summer lettuce fit for exhibition purposes. I have grown a good many of the so-called new kinds, but have not yet found one to beat a good selection of the Paris Cos, which is known in the London market gardens as the London Market. Carters' Giant White Cos is a fine selection of the Paris Cos. It is proper to remark here that it is necessary to select a good white Cos variety for this purpose: its name is of no consequence; what is wanted is a sort that is known not to run to seed quickly, and of which, when fully grown, a single specimen will turn the scale at from 4 to 5 lbs.

in a hot dry summer as in a more moderate one, when the weather alternately wet and dry at short intervals.

THE SOIL.

Of course nearly every cultivator will be obliged to take the soil as he finds it. But a deep mellow loam is the best for the production of summer lettuce, and where it is not already thoroughly rich it must be made so. If I had to deal with a poor soil, I would take out a trench fifty feet long, twelve inches deep, and one foot wide. In the bottom of the trench I would place a three-inch layer of short well-rotted manure; then I would put on it three inches of soil, and upon this another layer

of manure. On this being done, I would fill up with more soil to the level of the surface. But I should prefer to have a spot that had been well manured and deeply dug during the winter. In any case it is of no use to attempt to grow creditable examples in a poor soil; for to ensure success it must be both rich and deep.

WHEN TO SOW THE SEED.

The time of sowing in a great measure depends on the time the show takes place at which they are to be exhibited. Reckoning from the beginning of April, it will take from twelve to fifteen weeks to secure large specimens; from the beginning of May, a period of two to three weeks less will suffice. But soil, climate, and the state of the weather will all influence the growth of the plants somewhat. I always sow at two different times, at intervals of eight or ten days, to make sure of securing a supply. This does not give much trouble, as a large number is not necessary. I find a score of plants ample to select from, and to obtain this number I sow the seed in a shallow drill, the drill being about thirty-six feet long, which after the plants are thinned out gives them plenty of room.

THE AFTER MANAGEMENT.

Should the weather be dry after the seed is sown, the ground must be watered every evening with a can to which a fine rose has been attached. A look-out must be kept where there are slugs, the best way being to watch of an evening and in the morning. As soon as the plants are an inch high thin them out to six inches apart, and gently stir the surface round those that are left. In dry weather they must have supplies of moderately strong liquid manure, which should be given at least every other day, and in sufficient quantity to thoroughly moisten the soil about the roots. The plants must be thinned out to a distance of eighteen inches apart as soon as they get five or six leaves each. This distance will only give room enough for the development of the plants on all sides. To give the plants the full benefit of the water, a ridge of earth three inches high should be drawn up on each side of the row at a distance of six inches from it. This will form a trench, in which the liquid manure may be poured without any risk of its running to waste. I quite agree with mulching the ground on each side of the row with a layer of cocoa refuse, if it can be had, but I cannot secure it in sufficient quantities for that purpose; and I have discontinued the use of manure and short grass, because they harbour the slugs, and as slugs disfigure the leaves they must be kept away. It only remains now to say, that with a view to obtain large and firm-hearted lettuce it is a good plan to put a tie round each, even if they are the self-hearting sorts. If four are wanted to exhibit on any particular date, ten or twelve should be prepared, so as to give plenty of opportunity for selecting. Only the very roughest leaves should be removed, and all dirt must be carefully washed from the outside leaves.

CONSTRUCTION OF HORTICULTURAL BUILDINGS.

By F. A. FAWKES, F.R.H.S., Author of "Horticultural Buildings Illustrated."

Third of a series of Lectures delivered before the Crystal Palace Schools of Landscape Gardening and Practical Horticulture.

I HAVE hitherto been speaking almost exclusively of growing houses, or houses employed for the cultivation and forcing of plants, flowers, and fruit. With your kind permission I will say a few words regarding conservatories, or houses in which the produce of the growing houses requires to be shown.

At the outset we must have several points in view. 1st. A conservatory or showhouse must be regarded as one of the reception rooms of the dwelling house. 2nd. We must endeavour to make it approximate architecturally, both inside and outside, to the other portion of the dwelling house.

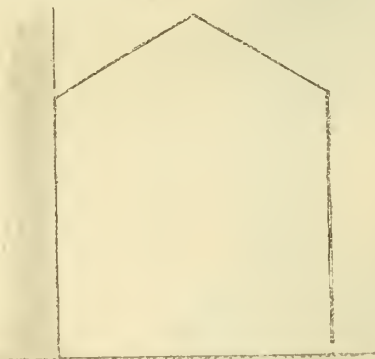


FIG. 41.—PLAIN SPAN CONSERVATORY AGAINST DWELLING HOUSE.

3rd. This being so, we must regard the functions of growing and showing as quite separate. If we disregard these points, no end of dissatisfaction will ensue.

In a growing house the glass roof frequently requires to be brought as near the plants as possible; in a showing house high eaves are usually necessary. In a growing house 5 ft. to eaves is a very general height; in a showing house they may frequently with advantage be 10 ft. high. We can generally have a choice of aspect for a growing house. A conservatory is often required where the sun cannot reach it. For instance, in order to obtain a good aspect for a growing house, it may be placed in the open, whereas the site for a conservatory is generally determined by a situation to which immediate access is required from a drawing room. A growing house may have scantling as light and as unobstructive to the sun's rays as you please; a showing house may require to be built heavier, with more obstructive scantling.

I am perfectly aware that many persons are not able to have more than

one house for every purpose, in which case a compromise must be effected in the most judicious manner which the local circumstances of the case may direct.

It being therefore clear that growing and showing houses possess separate functions, we are able to take greater latitude with our conservatories from an artistic point of view than we otherwise could. I have known many gardeners who have seen a design of a conservatory and have immediately condemned it because it was perfectly unsuitable for growing plants in. Perhaps the roof was too high, perhaps some of the lights were cut up into small panes, and there was too great a proportion of sashbar to admit the proper amount of light; perhaps there was a little tinted cathedral lead glazing, or a projecting gable which further obstructed light. The condemnation of such a structure for growing purposes might be perfectly just. The condemnation of the same structure for showing purposes might be as perfectly unjust.

Once we have a just appreciation of the functions of a conservatory, a great deal of the difficulty attending the proper designs to adopt will disappear. While in designing a conservatory each case must of course be treated on its own merits, an indication of some general principles will serve to guide us, and may prove of value.

We will first look at the construction, or exterior, and then at the interior treatment of conservatories. If you can, look up to a conservatory, not down to it, when you are in a garden; that is to say, the floor level should be, if it can, a step or two above the ground level. This however is generally determined by the next point, which is of great importance, namely, that a conservatory floor should be practically on the same level as the floor of the dwelling house communicating with it; that is to say, although there may be a fall into a conservatory sufficient to receive a mat and to prevent water from running into the dwelling house, this fall should not exceed

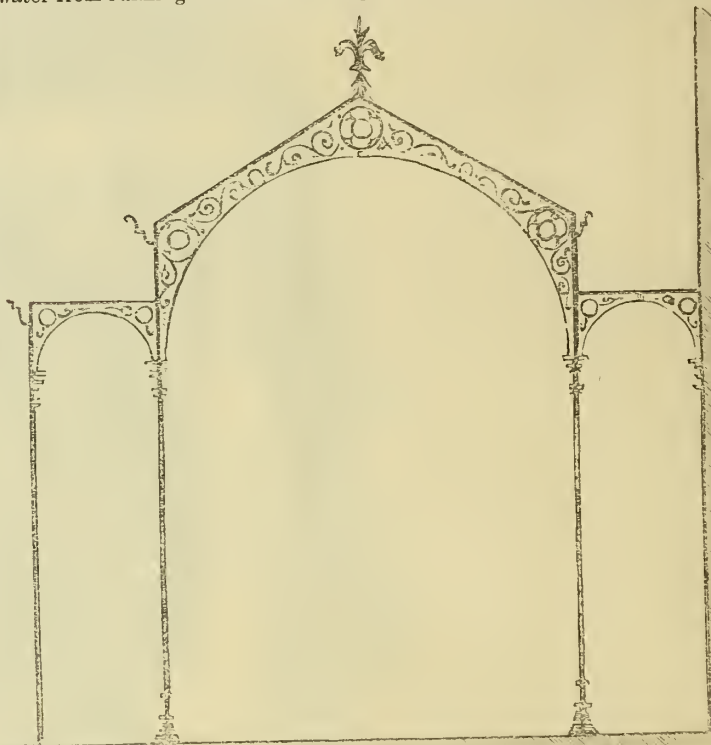


FIG. 42.—ORNAMENTAL SPAN CONSERVATORY AGAINST DWELLING HOUSE.

about two inches. A decided step or two down into a conservatory is as objectionable as a serious change of levels between a hall and a dining room.

Avoid valley gutters next the wall of a dwelling house if you can; if you cannot, let the gutter be a good wide one, sufficient for a man to walk up easily in order to clear away the leaves, &c., which may accumulate. If possible let the roof of a conservatory meet the brickwork of a dwelling house either at an upward inclination or at right angles, and not at a downward inclination.

When possible have a short corridor, no matter how short, between the conservatory and the dwelling house, so that two sets of doors, closing efficiently, may prevent any moist air entering the dwelling house. If this be not possible, by all means let the door of communication be made to close as tightly as you can. Avoid circular work, for the reasons given before. Avoid a complicated roof. A simple gable may be treated very effectively.

Sufficient interest should be created by the broad lines of a conservatory without having recourse to fussy details or meretricious ornament. Ornament the construction, never construct the ornament. Do not have unmeaning features. Neither ornament nor effect should be strained, but should be perfectly natural. There should be rest for the eye, not irritation. I wonder when the world will look upon art and simplicity in their true bearings, instead of running after the man whose distinguishing characteristic is, "the cram in all the details I can" style of architecture.

If you have a lean-to roof, for instance, and you wish to introduce a gable, let the gable project, even if it only be a few inches. This will emphasize the lines of your ornament. Better still, let the lines be further emphasized by raising the gable above the eaves. You can also, if you like, lead the eye up to this raised gable by introducing brackets at the corners. This raised gable may be also introduced when you wish to have a doorway and there is not sufficient head-room to the eaves; or it may be introduced to vary the monotony of a long range of otherwise plain low growing houses.

Sometimes a semi-octagon bay may advantageously be thrown out from another roof, but it should be a true semi-octagon, or a flat weak appearance

will result. If a lantern roof be used, then if the end of the roof be octagonal the corresponding end of the lantern should be octagonal too.

If it be necessary to place a span-roof house by the side of a dwelling house, as in Fig. 41, this may be effected in a pleasing manner, as shown in Fig. 42. The principals and posts may be, say, five feet apart, when, if there are many of them, a pleasing perspective may be obtained.

When speaking of perspective view, I may mention that if the roof be at an angle of 30 deg. three brackets, all equal, will produce a perfect semi-circle, and will materially tie and support the roof. A roof of 30 deg. pitch forms part of a hexagon. A succession of these forms a very pleasing perspective effect. In a conservatory the distance apart of the principals depends upon the size and proportions of the structure, but five feet is a very convenient width for the bays between the mullions. These bays or spaces may often be filled up in a medium-sized conservatory in the following way:—A transom, transom light over, and beneath two framed lights opening casement fashion. Casements may be worked with ordinary set-ops, just the same as lights hinged from the top, and have the advantage that they can always be opened against the wind. These casements with hinged ventilators in the roof will generally form all the ventilation required in a conservatory. The light over transom may, if ornamentation be required, be filled up with tinted cathedral glass, lead glazed (Fig. 43); or with small panes, the sashbars being worked into a pattern, or with a light cast-iron ornament in front of the glass.

The casement light itself may have one piece of glass; or if plate glass be not used, and the opening is too long for a single piece of sheet glass, then the casement light may require small squares of glass along the top, or along the top and bottom. In either case the line of sight (which occurs about the centre of the casement) is not obstructed by the cross bars.

corners, sometimes with perforated ornamental iron castings, sometimes shaped in various ways.

When cresting is employed, it should be made of cast iron, not zinc, or it will have a thin weak appearance. Personally, I like to have cresting nowhere except on the ridge, never at the eaves over the gutter, nor up the sides or ends.

Finials should be well defined, not having an inclination to spread too much, especially near the top. They should not be too short (mistakes are often made on this point). Their base should be so designed that the eye is led up to them.

The spaces occupied by projecting gables, bays, doorways, &c., should, if possible, be cut up in a geometrically uniform manner, and it is often advantageous from the point of economy as well as design for them to form multiples of some fixed dimension.

The forms of conservatories and the features in the design may be varied indefinitely, but the foregoing remarks must be taken as suggestive, and as indicating in some slight degree the train of thought which you may pursue in designing conservatories.

(The lecturer copiously illustrated the foregoing remarks by sketches on the blackboard and by diagrams.)

So far as the interior treatment of conservatories is concerned, the intimation I have given you that a conservatory should be regarded as one of the reception rooms of the dwelling house will have prepared the way for my advice to you, to avoid filling up the interior with staging. Let there be beds and borders, but do not let any supports for the plants be seen if possible. Let there be an ample paved space—not a mere path, but a space so that a table and chair or two may be placed in it. Let the conservatory be regarded more as a lounge than a mere place to walk round. This space



FIG. 44.—RBL MOSAIC PAVEMENT, DESIGNED BY MESSRS. BURKE AND CO.



FIG. 43.—PANEL OF LEAD-GLAZING, DESIGNED BY W. RAMSEY.

If the height to the eaves be, say, 10 ft., composed of 2 ft. wall, 6 ft. casement, 2 ft. transom light (including plates and cills), and the width of the casement lights about 2 ft. 6 in., then, whenever doors occur, their upper part may be treated like the casements and occupy the same space, the tops of the doors coming up to the transom. If, on the other hand, the height to the eaves be only about 8 ft., made up of 2 ft. wall, 4 ft. 6 in. casement,

may be paved with marble mosaic (Fig. 44.) or encaustic tiles, or if these are too costly some of the cheaper tiles. If the size and nature of the conservatory will admit, then rockwork, a fountain, or even a little sculpture, may find a place in it. Baskets of hanging foliage look pretty; bare walls may have creepers upon them, and if staging round the sides or over hot-water pipes is employed, then the space under such staging may be hidden by wood diagonal trellis or ornamental iron castings, or perforated tiles. If one side of a large conservatory be composed of the wall of the dwelling house, and there be means for easily effecting it, an open fireplace against such a wall would not be an unsightly object. A grass mat or two thrown down here and there, and a parrot on a stand, might form pleasing features. Sometimes there may happen to be an awkward recess in the brickwork: of this an aviary might be formed.

If shading be required in a conservatory, the vertical sashes may very well have South African grass curtains hung in front of them. This material is not affected by sun or damp and looks artistic and suitable. In fact, a judicious combination of art with nature may intensify the enjoyment derived from a conservatory, and the beauties of the plants and flowers may absolutely be enhanced by the introduction of such artistic accessories as I have spoken of.

(To be continued.)

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7s. 6d. and 1s. 11d., labelled, "JAMES EPPS AND CO., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

and 1 ft. 6 in. transom light, then, when doors occur, they may rise above the transom and reach the eaves.

Various devices are also used to ornament the heads of the sashes. Sometimes they are made circular, sometimes with little wood brackets in the

The House, Garden, and Poultry Yard.

NATURE.

As a fond mother when the day is o'er,
Leads by the hand her little child to bed,
Half-willing, half-reluctant to be led,
And leave his broken playthings on the floor,
Still gazing at them through the open door,
Nor wholly reassured and comforted
By promises of others in their stead,
Which though more splendid may not please him more :
So Nature deals with us, and takes away
Our playthings one by one, and by the hand
Leads us to rest so gently, that we go
Scarce knowing if we wish to go or stay,
Being too full of sleep to understand
How far the unknown transcends the what we know.

LONGFELLOW.

THE HOUSE.

To render the exterior of the residence as bright and attractive as possible, the window boxes and the vases in balconies should now be furnished with hyacinths, tulips, and other spring-flowering bulbs that have been grown in cool structures. In arranging them it is preferable to fill each box or vase with one class of bulbs; more especially is it desirable to keep the hyacinths and tulips separate, for not only is there a considerable difference in the duration of the flowers, but the colours of the tulips are in some instances so brilliant that they would overpower the more delicate tints of the hyacinths. If it can be conveniently done, the bulbs should be placed in the boxes or vases in the pots in which they are growing, as they can then be more readily removed for replacement with bulbs or other decorative plants. But they can be turned out of the pots and have the soil removed from about the roots when the flowers are expanded without being materially injured; therefore, if it is desired to pack the bulbs closer together in the boxes than is possible when they are in the pots, there need be no hesitation in removing them from the pots and reducing the ball of soil according as may be found necessary. The evergreen shrubs which have formed the winter furniture of the boxes should be at once planted for the summer in a suitable situation in the reserve ground.

THE GARDEN.

ANNUALS for the conservatory raised from seed sown early in March must not be overlooked, as it is of the highest importance to be in good time in pricking out the young plants, for if they are much drawn they cannot make good pot plants. A light, rich, perfectly sweet soil, containing a fair proportion of sharp sand, will alone ensure plants worth having. It is also important to put them in small pots as soon as possible, and to shift them on to larger and larger pots until they have sufficient pot room for flowering, after which shift no more. As soon as these pots are filled with roots, give very weak liquid manure constantly until the plants are in flower, and then discontinue it, watering with pure soft water only. Many of the commonest annuals are worthy of careful culture for flowering early, but we have in view in this paragraph such fine subjects as balsams, globe amaranths, ipomæas, thunbergias, &c.

CAMELLIAS require careful attention at the present moment. As soon as the new growth begins there is an end of bloom, and any unopened buds that may remain may as well be removed. The temperature for growing plants should be 65 deg. by day and 55 deg. by night, the atmosphere moist, and the position shady. But there must be no coddling; give air at all favourable opportunities, or the new growth will be long and weak, and the next season's bloom of necessity inferior.

CHRYSANTHEMUMS struck from cuttings now will make fine decorative plants, but there is no time to lose.

EVERGREENS.—This is an excellent time to move them and to plant evergreens in beds, borders, and hedges. If the weather is dry water freely, or, better still, mulch heavily; after planting, give no water at the root, but syringe overhead two or three times a day while they are making new growth.

GREENHOUSE.—A general clearance may now be made of all such plants as can be removed to turf pits, frames, and other cool receptacles. This will make more room for spring flowers, and give a better chance to pelargoniums and other specimen plants now growing into shape and size. Hitherto shading has not been wanted, but it will be henceforth, and should be brought into requisition without much delay.

HEATHS AND NEW HOLLAND PLANTS.—Repot as required, using fibry peat and plenty of drainage. Newly-potted plants to be carefully watered until they begin to make new growth, which is always a sign they have taken hold of the new soil.

KITCHEN GARDEN.—There cannot be too much vigilance now in keeping down weeds, hoeing between crops, earthing-up peas and beans, and promoting growth by any other means that suggest themselves, such as top-dressings of soot and guano, &c., &c. Our climate affords us but a short season, and it is our duty to make the very most of it.

POTATOES IN FRAMES require frequent attention now, for if kept needlessly close the haulm will be drawn, and the tubers will not swell properly. On the other hand, a decided chill will sadly check the growth. When the sun shines gaily the lights should be taken off, and as the day declines they should be put on again in good time, and whenever it is safe the lights should be tilted. The grand thing is to catch all the sunshine possible, and this can only be done by those who are ever on the alert.

VEGETABLE MARROW SEED sown now will produce almost as early as those sown a fortnight or a month since. It is best to grow the plants on singly in pots, as they are shorter and stronger when turned out than if grown several in a pot and allowed to sprawl about and spindle away their strength.

WINTER GREENS to be sown now in large breadths for the main crop, especially Brussels Sprouts, Collards, Scotch Kale, and Savoy.

THE POULTRY YARD.

IN many cases the question will arise as to making the first start in poultry keeping, and in respect of this it is proper to say here that a very considerable proportion of eggs sold at fancy prices for setting are absolutely worthless, and it is waste of time, as well as waste of money, to speculate in them. There are plenty of good eggs on sale of course, but the safe procedure for the inexperienced is to buy the birds ready made; and of almost any breed fair samples may be obtained without having to pay fancy prices. The selection of a breed must be determined by the taste, convenience, and requirements of the purchaser, and the only general advice that can be given is to buy young birds that are bright and vigorous and tolerably pure in respect of breeding. The way of the world is generally the right way; therefore, as Brahmas, Cochins, Dorkings, Hamburgs, and Houdans are the most popular, it may be understood that they take the lead for usefulness. Where the range is restricted and fliers would be objectionable, the choice must lie between Cochins and Brahmas. Apart however from the question of flying, there can be no doubt of the superiority about the coloured Dorkings, especially on a warm dry soil; for they produce an abundance of eggs, sit well, and make a first-rate appearance on the table. But if such active birds as Dorkings are objectionable, Brahmas will be the best substitute; they lay well, sit well, and make good chickens, but are certainly inferior to Dorkings as table birds. Now these two most useful of all breeds produce the best cross that has yet been seen, and therefore if two breeds are kept in any yard there cannot be a better selection for the purpose than Dorkings and Brahmas.

NO VEGETABLES.

THE reappearance upon our tables of seakale and asparagus—our only two eatable greenstuffs—naturally raises once more the perennial question, Why have we in England no vegetables? To doubt the fact is impossible—at least to anybody who knows what real vegetables are like. "Sir," said an American stranger at a restaurant in the Strand one day, "Sir, this is the one thing you can raise in your country and we can't raise in ours—a mutton chop; but then you never tasted green peas in all your life." That antithesis puts the great vegetable question in a nutshell. It is impossible in the same country to have good meat and good vegetables. For the best beef and mutton are a product of the soft tender English greensward, which only exists in a few countries along the Atlantic seaboard of Europe, and owes its origin to the constant rainfall sent across to us, with or without "dangerous energy," by the proprietors of the *New York Herald*. If it were not for the westerly breezes, with their continuous succession of showers, degenerating in Scotland, Ireland, and the Lake district into an almost ceaseless drizzle, England would not be as green and fresh looking as she is. Now, the effects of this prevalent westerly wind are felt only in north-western France, Belgium, and Holland, the Scandinavian countries, and the British Isles. Hence, it is here alone that you can get really good beef and mutton. Where the grass grows rank and dry, the meat grows stringy and tasteless, to match its pabulum. Travelling south or east, from London as a centre, the steaks remain passable at Paris and Cologne; they begin to toughen at Lyons and Berlin; and they become quite uneatable in the leg of Italy and in eastern Europe, though in Switzerland and the Lombardic plain they decidedly improve with the irrigation supplied by melting snow. On the Riviera, indeed, as everybody knows, native meat is absolutely unknown: the beef comes from Milan, the chickens come from Toulouse, and the mutton comes only too often from the convenient domestic goat of the immediate district. Roast kid is highly poetical and picturesquely suggestive of local colouring in Horace; but it fails to satisfy the yearning spirit at a modern table d'hôte.

The same causes which give us good meat, however, deny us in England the possibility of good fruit and vegetables. For while the herbage requires copious rain, the fruits, seeds, pods, flowers, buds, and other miscellaneous objects which we class from the culinary point of view as vegetables all require copious sunlight. That is why we have none of them. Our only good vegetables are such as very young rhubarb, seakale, asparagus, and celery, which are the blanched sprouting shoots of perennial plants. These mostly come in springtime, and as they are none the worse, or even all the better, for a little wholesome soaking, they manage to survive our climate well enough in the long run. But most other vegetables are more or less fruity in their nature; and really to taste these one must go to America or Italy—for choice the first. Of thoroughgoing fruity vegetables—such as the tomato—we in England know nothing. We never have sun enough to ripen them properly; and even with all the appliances of modern gardeners, they never get thoroughly red and soft throughout in our gardens as they do in the open air under a Canadian or Italian sky. They always have a half-green taste, and are wholly lacking in the true rich tomato flavour. Indeed, the tinned American specimens, though tasting of the solder of course, are better savoured after all than our poor starved unless English things. As to purple egg-fruit and green chow-chows, we know them not at all; while the profusion of rich red-fleshed water melons and primrose-skinned squashes and golden pumpkins in a Massachusetts market would astonish Covent Garden, and set some nascent Turner to work with all the pigments on his palette to try his hand at a new and many-coloured subject. These things require the sun to ripen them, and we see his face here as a rule for some two and a half hours weekly, as duly registered at Glynde Place, Lewes. Then, again, there are the winter cherries, the sweet potatoes, and, best of all earthly vegetables, green Indian corn eaten off the cob with fresh butter, and likeliest to nectar of all mortal delicacies. As for pulse generally, our beans are all stringy; we have neither the variety nor the tenderness of the American bean. Our peas have some good points—for English peas; but they are not half so large, or luscious, or melting, as American peas. They take too long growing, and have got old and hard before they are big enough to pick. The delicious crinkly eatable-pod pea would be impossible here; it would have got tough and sinewy a month before it was ready for cooking. We grow buckwheat to feed our pheasants, but it never ripens as it ought, and buckwheat pancakes at breakfast will doubtless be an unknown luxury with us for ever.

In the matter of leafy vegetables we can do a little better, but not enough to boast about. We are strong in salads; our climate provides us with plenty of fresh green lettuce, and plenty of slugs, too, to hide in its

recesses. But endive does not flourish; it is a scrubby-looking plant in England; though we make up for it in cresses and the lesser salad stuffs. Our roots, too, are good: who will deny the British farmer the glory of his turnips, his beets, and his mangold wurzel? When it comes to edible flowers, however, we are helplessly left in the lurch. Our top artichokes are the hardest and poorest in the world; they contain a maximum of fibrous uneatable bract and a minimum of soft starchy pulp. In the south of France, Italy, and America you can often eat the whole flower-head, choke and all; in England you can only extract a pitiful pittance of a soft mouthful off the base of each great leathery scale. It would be impossible to dress English artichokes in fried batter as they do so deliciously at Florence: one might as well eat fried hoots. Our cauliflowers and broccoli are not nearly as good as the American: they are neither so white nor so delicate in flavour. We can grow cucumbers (under glass), because cucumbers are eaten green; but what a miserable farce are our vegetable marrows! What is true of vegetables is even more true of fruits. To be sure, our English hothouse grapes are the best in the world; but for strawberries, raspberries, currants, gooseberries, plums, and cherries, we must go to America. Our peaches are a success; our apples are a national failure; and our pears are a standing insult to the human intelligence. But we may at least congratulate ourselves that with the aid of glass and stoves we can obtain heat and light enough to grow the best pine-apples in the world at the moderate cost of one guinea apiece. In Jamaica they usually sell at two for three-halfpence.—*Fall Mall Gazette*.

ART OF PRUNING WALL TREES.

BEHEAD new-grafted trees in Spring,
Ere the first Cuckoo tries to sing;
But leave four swelling buds to grow,
With wide diverging arms below,
Or fix one central trunk erect,
And on each side its boughs deflect.
In summer hours, from fertile stems,
Rub off the superfluous gems,
But when unfruitful branches rise
In proud luxuriance to the skies,
Exsert the exuberant growths, or bind
A wiry ringlet round the rind,
Or seize with shreds the leafy birth
And bend it parallel to earth.

When from their winter lodge escape
The swelling fig, or clustering grape,
Pinch off the summit shoots that rise
Two joints above the fertile eyes;
But when, with branches wide and tall,
The vine shall crowd your trellis'd wall,
Or when, from strong external roots,
Each rafter owns three vigorous shoots,
Watch, and as grows the ascending wood,
Lop at two joints the lateral bud
So shall each bud a cluster bear,
To charm the next succeeding year,
And as the spiral tendrils cling
Deck with festoons the brow of Spring.
But when the wintry cold prevails
Attend with chisel, knife, and nails;
Of pears, plums, cherries, apples, figs,
Stretch at full length the tender twigs;
Vine, nectarine, apricot, and peach,
Cut off one third, or half of each,
And as each widening branch extends
Leave a full span between the ends.
When crowded growths less space allow,
Close lop them from the parent bough,
And when they are too weak or few,
Prune out old wood and train in new.
So as each tree your wall receives,
Fair fruits shall blush amid the leaves.

From *JESSE'S Favourite Haunts and Rural Scenes*.

Literature.

Familiar Garden Flowers, by SHIRLEY HIBBERD, has reached Part 38, in which are figures and descriptions of the Honeysuckle and the Commelina. Some interesting bits of biography are scattered through this work in connexion with commemorative names of plants. Thus we have had biographical notices of Zinn, Commelin, Lonicer, Tradescant, and some other little-known botanical worthies, in recent numbers, and several others are scattered through the pages of the first and second series.

House and Home has been remodelled, and is a remarkably good penny paper on health and household affairs. In the first number of the new series are papers by Dr. Richardson, Mr. Thomas Beggs, Mr. S. C. Hall, the Rev. — Wagstaff, and Mr. Baillie, of the Ruskin Society. The portrait and biography of Mrs. Gladstone will give universal interest to this sheet, and the story called "Madame Dunoyer" will suit young readers who are as yet not much concerned about domestic affairs.

The Gardener's Dictionary. By GEORGE W. JOHNSON, revised by N. E. BROWN, of the Royal Herbarium, Kew. (Bell and Sons.)—This well-known work has been many times reprinted, and is now presented to public notice in a form which we cannot doubt will be generally approved. The new supplement by Mr. Brown extends to no less than 164 pages, and contains many new articles, as well as new plant lists, and additions to old plant lists. Amongst the new subjects treated occur the Sirex, or false horret; Testacella, or shell slug; Trama, or auricula aphid (which often occurs on the roots of *Lysimachia nummularis*); *Welwitschia*; Raspberry Moth; Pinebud Tortrix; *Phylloxera*; Asparagus Beetle; Golden-eye Fly, &c. The supplement is a bit of thoroughly good work.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY—SPRING EXHIBITION, MARCH 28.

THE exhibition at South Kensington on Tuesday last was fully up to the average of the shows held at corresponding periods of previous years, and the large conservatory, which was well filled with seasonable subjects of a high-class character, presented a most attractive appearance. Chief amongst the contributions were the magnificent collections of hyacinths from Messrs. J. Veitch and Sons, Messrs. W. Cutbush and Sons, and Messrs. Osborn and Sons; the collections of orchids and amaryllis from Mr. B. S. Williams; the amaryllis from H. Little, Esq.; the bank of cyclamens from Mr. Clarke, and the collection of rhododendrons from Messrs. H. Lane and Son.

The collection of hyacinths exhibited by Messrs. J. Veitch and Sons, King's Road, Chelsea, consisted of upwards of two hundred examples furnished with massive and highly-finished spikes. All the finest of the established varieties were represented, and in the collection were several novelties, on four of which certificates of the first class were conferred. The most noteworthy of the established sorts were Snowball, Mont Blanc, La Grandesse, white; Garibaldi, Von Schiller, Lady Palmerston, Vuurbaak, Queen of the Reds, Mr. Stanley, Koh-i-noor, Macaulay, red; King of the Blues, Duke of Connaught, Electra, Grand Maitre, Blondin, and Grand Bleu, blue. A silver gilt medal was awarded. Messrs. Osborn and Son, Fulham, staged about one hundred and fifty hyacinths, and a goodly number of tulips, polyanthus, and narcissi, all in capital condition, and were awarded a silver gilt Flora medal. Messrs. W. Cutbush and Son, Highgate and Barnet, contributed a fine collection of hyacinths, an excellent group of azaleas, and a splendid lot of tulips, and were awarded the silver Flora medal. Messrs. Lane and Son, Great Berkhamstead, were awarded the silver Flora medal for their splendid bank of azaleas; and a medal of like value was awarded Messrs. Henry Williams and Sons, Fortis Green, for a collection of well-grown hyacinths and several large specimens of the lily of the valley. A silver gilt Flora medal was voted Mr. Clarke, Twickenham, for a large and splendid bank of cyclamens, comprising about 250 well-grown examples; and a silver Banksian medal was awarded to Captain Patton, Alpha Road, St. John's Wood, for a group of hyacinths, tulips, and *Dielytra spectabilis*.

Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, contributed a large and most attractive group, consisting chiefly of orchids and amaryllis. Amongst the orchids were fine examples of *Ada aurantiaca*, *Dendrobium crassinode*, *D. Wardianum*, *Odontoglossum Pescatorei*, *O. vexillarium*, *O. Alexandrae*, *Dendrochilum glumaceum*, and *Cypripedium Argus*. The amaryllis included fine specimens of *Leeana*, a splendid variety, the flowers of medium size, superb form, and a brilliant scarlet colour; *Dr. Masters*, *Firefly*, *Regina*, and *Orange Gem*, all of which are of splendid quality. The silver Flora medal was awarded. Messrs. Barr and Sugden, 12, King Street, Covent Garden, W.C., had a large and fine collection of daffodils, and Mr. Aldous, Gloucester Road, South Kensington, sent a stand for the drawing room dressed with daffodils, and a table bouquet formed with these flowers. From Chiswick came an attractive bank of cinerarias, and a beautiful group consisting of azaleas and excellent specimens of *Begonia manicata*, which is seldom seen in such good condition.

The only competitor for the prizes offered by "An Amateur" for amaryllis was Mr. Wiggins, gardener to Henry Little, Esq., Hillingdon Place, near Uxbridge, who staged remarkably good examples, comprising several promising seedlings. The collection of six, for which the first prize was deservedly awarded, consisted of *Hereward*, dark scarlet; *Drapeau Royal*, creamy white veined with crimson; *Orpheus*, creamy white veined with red; *Leah*, crimson; *Stella*, red-crimson, and *Queen Victoria*, scarlet with white margin. The first prizes for the best dark and the best white variety staged in the collection of six were awarded to Mr. Wiggins for *Hereward* and *Orpheus* respectively. The first prize for the best seedling amaryllis was awarded to Mr. Wiggins for *Hercules*, a large scarlet flower of superb quality. Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was the only exhibitor in the class for nine hyacinths and nine tulips, and staged a most excellent collection, for which he deservedly received the premier award.

From Messrs. H. Cannell and Sons, Swanley, came *Victory cineraria*, a superb self variety, the flowers two and three-quarter inches in diameter, very stout in substance and perfect in form, and of a rich magenta-crimson colour. The same firm also sent half a dozen examples of the pretty little *Spirea Thunbergi*, which is admirably adapted for conservatory decoration early in the season. Mr. A. Waterer, Knap Hill, Woking, sent a group of well-flowered specimens of *Deutzia candidissima* fl. pl., one of the most beautiful of the deutzias, although not much known; it is rather bold and decidedly elegant in growth, and produces a profusion of racemes of large double flowers of the purest white. In effectiveness it is far superior to the well-known *D. gracilis*. Mr. H. Bennett, Sunbury, sent several new roses, of which the Earl of Pembroke, a rich rosy red flower, was particularly promising. Messrs. Paul and Son, Cheshunt, sent a well-flowered example of *Rose Helen Paul*, a very promising variety, raised by M. Lacharme, and bearing large globular flowers of a delicate pink colour. From Mr. George, Putney Heath, came a beautiful dwarf abutilon under the name of *Scarlet Gem*, which is remarkable for its free-branching habit and profusion of flowering. Mr. R. Dean, Ealing and Bedford, contributed a pan of *Spergula pilifera aurea*, a form with bright yellow leafage, and *Polyanthus Premier*, an attractive fancy variety with bright yellow flowers with rich orange centre. Mr. Ford, Leonardslee, Horsham, staged a large and attractive collection of apples, consisting of dishes of about fifty varieties, all of which were in a capital state of preservation. Cultural commendations were voted to Mr. Gaiger, Burton Close, Bakewell, and Mr. H. Parr, Givons Grove, Leatherhead, for good specimens of *Lycaste Skinneri* and *Cologyne ocellata* respectively. The Continental Company of Horticulture of Ghent exhibited examples of *Gynura aurantiaca*, a distinct plant, the leaves of which are covered with a violet-coloured pubescence. It is said to be a good bedding plant, but as shown it did not appear likely to prove of much value for that purpose.

There was a large assemblage of novelties, and First-class Certificates were granted as under:—

To Messrs. J. Veitch and Sons for

Hyacinth Challenger.—Single. A beautiful variety, the spikes stout and well arranged, the pips large, and the colour rich claret with black stripe down the centre of the segments.

Hyacinth Leo.—Double. A very distinct variety, the flowers of immense size, very double, and of a creamy white, the segments striped with white.

Hyacinth Enchantress.—Single. The spikes very fine, the pips large and of beautiful form; the ground delicate lilac tinted with violet at the tips of the segments.

Hyacinth Delicata.—Single. The spikes massive and well arranged, the pips very large and of beautiful form; the colour cream white with a salmon-pink bar along each petal.

Pinguicula caudata.—A striking Mexican species with large handsome flowers of a lovely rose colour.

Amaryllis The Giant.—A very strong-growing variety, the scapes nearly three feet in height and about five inches in diameter. The flowers are large and of good form, and richly feathered with crimson on a creamy white ground; the bulb shown had three scapes, each bearing five flowers, and presented a striking appearance.

Amaryllis Duke of Albany.—A very effective variety with large and well-formed flowers; the colour brilliant scarlet with greenish white star in the centre.

Rhododendron Favourite.—A beautiful variety of the R. Taylori type, bearing large flowers of a deep carmine-pink colour in large handsome trusses.

Rhododendron Aurora.—A superb variety, the flowers tubular and of large size, and borne in noble trusses; the colour deep orange, with violet shading round the mouth of the tube.

Leea amabilis.—A very beautiful stove shrub from Borneo; the leaves are large and pinnate, and of a rich bronzy green, with silvery band down the centre of each leaflet.

Odontoglossum Pescatorei Veitchei.—An exquisitely beautiful variety of this well-known orchid, in which the sepals and petals are richly barred with bright rose-purple.

Odontoglossum Lecanum.—A distinct species with large flowers; the sepals and petals long and rather narrow, and densely spotted with crimson; the labellum white, yellow at the base, and marked with brown blotch.

To Mr. Woolfield, gardener to W. Lee, Esq., Downside, Leatherhead, for *Odontoglossum Cervantesi decorum*.—A very beautiful variety, remarkable for the rich markings of the sepals and petals.

Masdevallia Shuttleworthi.—A charming species of dwarf growth, with purple and green flowers.

To the General Horticultural Company for

Adiantum Victorie.—A dwarf-growing form of the most elegant character; the fronds comparatively small, and the pinnules are as large as those of A. farleyense, and exceptionally stout.

To Mr. A. Waterer for

Andromeda japonica.—A hardy shrub of elegant growth, and bearing large elegant branched racemes of greenish white flowers.

To Mr. H. Bennett for

Rose Her Majesty.—A pleasing variety, evidently belonging to the hybrid perpetual section; the flowers are large, of good shape, and of a bright pink colour, but quite destitute of perfume.

To Messrs. Paul and Son for

Primrose Crussei fl. pl.—A fine double form of *Primula acaulis* with large flowers of a rich rosy purple colour.

To Messrs. Low and Co., Clapton, for

Phalenopsis Stuartiana.—A very striking species, with marbled foliage and beautifully-spotted flowers.

ROYAL BOTANIC SOCIETY.—FIRST SPRING EXHIBITION, MARCH 29.

The Royal Botanic Society held the first of its spring exhibitions for the current year on Wednesday last, and the display produced was so extensive and good that it fully justified the general opinion that it was one of the best March shows that has yet been held at Regent's Park. The corridor on the north side of the gardens was filled to repletion, and the available space in the large conservatory was fully occupied, and the whole of the productions staged were more or less meritorious. As at the show of the Royal Horticultural Society held on the day previous, the most important features were formed by the hyacinths, which were again staged in immense numbers and in grand condition by Messrs. J. Veitch and Sons, Messrs. W. Cutbush and Son, Messrs. Osborn and Sons, and Messrs. H. Williams and Son. There was also a spirited competition for the prizes offered for those and other spring flowers. Cyclamens were sufficiently numerous to form a striking feature, and in quality were so good as to leave but little to be desired.

HYACINTHS had two classes provided for them, and in both the competition was very keen. In that open to nurserymen Messrs. W. Cutbush and Son, Highgate and Barnet, were first with examples remarkable for the large size and high finish of the spikes and the neatness of the foliage. The most important of the varieties represented in the collection were Von Schiller, Mont Blanc, The Sultan, Lord Macaulay, Marie, Gigantoa, La Grandesse, and De Candolle. Messrs. Osborn and Sons, Fulham, were a good second. Mr. S. Hill, Manor Park Nurseries, Forest Gate, was a close third. Messrs. H. Williams and Son, and Mr. Wood, Haverstock Hill, also exhibited well in the class. At the head of the competitors in the corresponding class for amateurs was Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, with splendid specimens of La Grandesse, Von Schiller, General Havelock, Grandeur à Morvillo, De Candolle, Koh-i-noor, King of the Blues, Czar Peter, Fabiola, and Blondin; Mr. H. Eason second. Silver medals were awarded Messrs. J. Veitch and Sons, Messrs. W. Cutbush and Son, and Messrs. Osborn and Sons, for their collections of hyacinths; and Messrs. J. Carter and Co., High Holborn, were awarded the large bronze medal for a collection of hyacinths and other bulbous flowers.

TULIPS, POLYANTHUS, NARCISSI, and LILY OF THE VALLEY were all strongly represented both in point of numbers and quality. In the trade

class for twelve pots of tulips Messrs Osborn and Sons were first with remarkably good specimens of Vermilion Brilliant, Joost Van Vondel, Keizerskroon, and White Joost, the finest of all the white tulips; Mr. H. a good second. For twelve pots of tulips open to amateurs Mr. J. Douglas was first with excellent examples of Proserpine, Vermilion Brilliant, White Joost Van Vondel, and Keizerskroon; Mr. Boulwood, gardener to Captain Patton, St. John's Wood, second, and Mr. Eason third. Messrs. Osborn and Sons were also first for twelve pots of polyanthus narcissi, and staged Jaune Suprême, Lord Canning, Sir W. Scott, and Grand Monarque, the latter a beautiful white variety with lemon cup, and one of the best of the section; Mr. S. Hill second. The Lily of the valley was grandly shown by Messrs. H. Williams and Son, Messrs. Gregory and Evans, Sidecup, and Mr. J. Douglas, who were first, second, and third respectively in the class provided for this beautiful flower.

CYCLAMENS and PRIMULAS were unequal in merit, for the first-mentioned were staged in superb style and the primulas were only moderately good, owing to their season being now practically over. The best collection of six primulas was that shown by Messrs. H. Williams and Son, and the plants, for so late in the season, were nicely flowered. In both classes provided for twelve cyclamens Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, who, it need hardly be said, staged first-class specimens, was first. In the open class Mr. H. B. Smith, Ealing, was second with a good collection. Silver medals were awarded to Mr. Wiggins and Mr. Smith for their collections of cyclamens contributed to the open class.

AMARYLLIS and LACHENALIAS were not largely shown, but those staged were exceedingly good. Mr. Wiggins was first for six amaryllis with excellent specimens, and Mr. Butler was second. The only exhibitor of Lachenalias was Mr. Eason, whose specimens have seldom been equalled.

STOVE and GREENHOUSE PLANTS were fairly good for so early, and in the class for twelve several neat groups were staged. Messrs. Peed and Son, Norbury Nurseries, Streatham, were first with medium-sized and nicely-flowered specimens of Epacris Eclipse, Imatophyllum miniatum grandiflorum, Erica effusa, Azalea Roi Léopold, and other good things. Mr. G. Wheeler, St. John's Lodge, Regent's Park, was second with a capital collection, and Mr. Butler was third. In the trade class for six azaleas Messrs. Peed and Son and Messrs. W. Cutbush and Son were the prizetakers, and in the corresponding class for amateurs Mr. Wiggins, Mr. G. Wheeler, and Mr. Butler were first, second, and third respectively.

DEUTZIAS were represented by two capital collections, one from Mr. J. Douglas, who was first, and the other from Mr. Wiggins, who occupied the second place. The plants forming the first-prize group were of immense size and densely flowered, but owing to the stiff manner in which they were trained they were shorn of much of their beauty. Mr. Wiggins was second with smaller examples.

MISCELLANEOUS CONTRIBUTIONS included, in addition to those to which reference has been already made, a fine group of orchids and other choice subjects from Mr. B. S. Williams, Upper Holloway, a collection of early-flowering pelargoniums from Messrs. Gregory and Evans, an attractive bank of rhododendrons and hardy azaleas from Messrs. H. Lane and Son, Great Berkhamstead, and a collection of seedling abutilons from Mr. George, Putney Heath. Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, staged several fine boxes of roses; the Cranston Nursery Co., Hereford, sent several stands of roses, and plants and cut blooms of the beautiful new Hoya globulosa; Messrs. Sutton and Sons, Reading, exhibited a beautiful new double-flowered cineraria under the name of Rosamond, and bearing large well-formed flowers of a rich purple colour; Mr. Heims sent a good example of Cymbidium eburneum Dayanum and half a dozen plants of the brilliantly-coloured Sophronites grandiflora; Messrs. Barr and Sugden, King Street, Covent Garden, sent a large and interesting collection of daffodils, and Mr. Odell, of Hillingdon, staged a group of cinerarias.

NEW PLANTS and FLOWERS were very numerous, and a large number of awards were made. Botanical Certificates were granted to Messrs. J. Veitch and Sons for *Odontoglossum Pescatorei Veitchei*, *Dendrobium Falconeri giganteum*, *Leea amabilis*, *Columnea Kabyeri*, *Asparagus plumosus nanus*, *Primula obconica*, a species recently introduced from China, and bearing bluish lilac flowers, and *Pinguicula caudata*. To Mr. W. Bull, Chelsea, for *Odontoglossum Halli nigrum*, *O. Pescatorei album*, *Cypripedium insigne aureum*, *Alsophila Rebecca*, and *Dracaena fragrans variegata*. To Mr. B. S. Williams, for *Davallia faniuclaeum*, *Adiantum Lathomi*, *Dieffenbachia majestica*, *Asparagus plumosus*, and *Zygopetalum Cloyi*. To Messrs. H. Low and Co. for *Phalenopsis Stuartiana* and *P. Stuartiana nobilis*. Floricultural Certificates were granted to H. Little, Esq., for *White Gem*, *Crimson Gem*, *Tinted Gem*, *Rose Queen*, and *Striatum* cyclamens, and *Madame de Greve* azalea. To Messrs. J. Veitch and Sons for *Charles Dickens*, *Surprise*, *Delicata*, *Duke of Albany*, and *Challenger* hyacinths; *The Giant*, *Duke of Albany*, *Shakespeare*, and *Indian Chief* amaryllis, and *Favourite* rhododendron. To Mr. B. S. Williams for *Dr. Masters* amaryllis. To Mr. Todman for *Mr. F. Cobert* azalea. To Messrs. Paul and Son for *Crousi fl. pl.* primrose; and to Mr. George for *Enpress* and *Brilliant* abutilons.

THE AUSTRALIAN HARVEST.—From South Australia it is reported that owing to the dry weather the harvest has been of an uneven character, and distress prevails among many of the settlers. The fruit crops in Queensland have suffered from the drought. The vines however have borne well, though the berries of the grapes are, from want of rain, particularly small this year. In Victoria the harvest has been decidedly good, but in the London district the stock have suffered severely from want of water.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

UTILITY AND LUXURY.—A quarter of a century's experience has taught the public that there is but one Toilet Soap possessed of those merits combined. Eminent dermatologists testify that there is but ONE Soap which so cleanses the skin that its dermatalogical health, action is insured. Medical officers of health everywhere recognize but one Soap as a preventive of infectious disease. Householders who seek a luxurious bath see that no other Soap enters their bathroom. It can be bought everywhere. Ask for WRIGHT'S COAL TAR SOAP, and refuse worthless imitations.—[ADVT.]

Notes of Observation.

TODEA SUPERBA NOT HARDY.

I AM not aware that any one has said that this New Zealand fern is quite hardy; but I have heard it said that it will bear a certain amount of frost without harm, and I do not wish to dispute the statement. But I have had under my notice some plants that thrived in a cold fernery for several years previous to 1880 and 1881. But the hard winters of those two years were too much for them, as they are now dead. Indeed, they were evidently dead twelve months ago, but they were left undisturbed to see if they would recover. This information may be of some service to those who cultivate this fern, and induce them to provide sufficient shelter for their plants against severe frost. In the same structure was a plant of *Dicksonia antarctica*, which was killed by the frost in the winter of 1880-81. It is proper to remark that the fernery is a substantial glass structure. J. C. C.

THE WHITE RIBES.

The white Ribes is so seldom seen that it is worth while to direct the attention to it of those who are fond of hardy flowering shrubs. It is really a desirable shrub to grow, as it is so distinct from the red one so often met with. We have several bushes in gardens here which are highly attractive. It is very accommodating, as it is not particular as to soil or situation. It flowers at the same time as the red kind, and is quite equal to it in habit and duration. I wish some one would give us a good handy book on hardy flowering shrubs in a form that would convey such information as their merits deserve. So far as I know, there is no book specially devoted to hardy shrubs, which is much to be regretted, for these subjects are not so well understood as they should be. JOSEPH MACDONALD.

NEW NOTES ON HYACINTHUS CANDICANS.

When looking through the houses in Mr. Godding's nursery at Taunton a few days since, I was much surprised to find that he had struck out a quite new path in the cultivation of this fine subject, for he had it then in vigorous growth and just ready to throw up its flower spikes. The plants were growing in a warm house, and, except that the leaves are a little more elongated and in colour more glaucous, they were quite as healthy and vigorous as when grown in the open. The bulbs had been planted in deep pots and large pans. I have grown it for the past ten years, and have flowered many hundred seedlings, but it never struck me that it would be of any use for blooming early under glass. Mr. Godding has to meet a constant demand for white flowers for wreaths, &c., and knowing the value of this hyacinthus for that purpose, it is his intention to have it in flower for the greater part of the year, and from the result of his experience so far I do not see any difficulty in the matter, as the bulbs he has now in a forward state will mature their growth and have sufficient rest to enable him to pot them again in August. By keeping over some strong roots until the end of next June I fancy it will be no hard task to have the flowers throughout the whole year. To me it seems quite clear that *Hyacinthus candicans* is most in favour with those who are engaged in furnishing white flowers for special purposes. It is useful for the mixed border, but in my opinion it is not striking; but its white flowers, when the dark anthers are dexterously cut out, no doubt are very valuable in the hands of a clever bouquetist. It is proper to remark that Mr. Godding's plants were growing in an intermediate temperature, the bulbs being planted as soon as they had ripened in the autumn. In this nursery the pansy finds a home, for Mr. Godding is a great admirer of this beautiful flower. It is certain from the condition of his stock of plants that he takes great interest in it, as much in fact for his own pleasure as for trade purposes. I have heard it many times remarked that the zonal pelargonium is nowhere better grown in specimen form than in the West of England; having seen Mr. Godding's specimens in preparation for the coming season, I have no hesitation in saying that there is no fear that he will not do his part in maintaining the prestige of west country growers of this flower. J. C. C.

EARLY BEATRICE PEACH.

This useful variety is with me very early this year. We gathered our first ripe fruit on the 18th of March, and on the 22nd I sent away two dozen. The house was started on the 8th of December. In the year 1874 the first ripe peach was gathered March 31, and it obtained a cultural certificate at South Kensington. In that season we started the house on the 1st of December, 1873. We are therefore thirteen days earlier in 1882 than in 1874, although for this season we started seven days later. We stand at 567 feet above sea level, and I think securing fruit so early is highly creditable to my gardener. Naseby Woolleys, Northamptonshire.

GEORGE ASHBY ASHBY.

Replies to Queries.

Hot-water Pipes.—J. P.—If the vines are close to the wall, the pipes should be about twelve inches from it. In the conservatory the pipes should be seven or eight inches above the floor.

Globe Artichokes.—R. F. M.—Plants of the globe artichoke can be obtained of most of the leading nurserymen. The present is the best season of the year for planting them. Previous to planting have the soil liberally manured and deeply dug over, and if the dry weather sets in after the plants are put out supply them with water once or twice a week, and cover the surface soil with a thin coat of short litter.

Names of Plants.—J. W. H.—No. 1, *Barkeria Skinneri superbum*; 2, *Dendrobium nobile*; 3, *Dendrobium nobile pendulum*, which is also known as Rücker's variety of *Dendrobium nobile*. H. W.—The large narcissus is *Ajax maximus*; the smaller yellow flower is the typical *Ajax* or *Pseudo-narcissus*; the pale flower is *Moschatus*. R. Priest.—1, *Sedum agavoides*; 2, *Echeveria pumila*; 3, *Kleinia repens*; 4, *Pachyphytum bracteosum*. Flint Jack.—Your lichens are out of our line, and if you will send your name and address we will return the parcel. We cannot advise you what to do with them, and we imagine that the most ardent student of lichens will not care to name your badly-packed lot of thirty-five specimens. J. Harding.—1, *Lomaria alpina*; 2, *Lygodium scandens*; 3, *Blechnum gracile*.

DESCRIPTIVE LIST OF DWARF BEDDING DAHLIAS.

By MAX DEEGEN, Dahlienzüchter, Kostritz, Germany.

VARIETIES of my own raising have in the following list the dates of introduction attached. Those without the dates prefixed have been introduced by other raisers.

Trau und Schau (1875).—Pure egg-white, often lightly shaded in the centre with lilac, beautiful rose shape. Height 22 inches.

Rothköpfchen (1875).—Fiery red shaded with gold. Height 36 inches.

J. Wübbers (1875).—Snow-white. Extra. Height 28 inches.

W. Schemmann (1879).—Orange, peculiar shaped petals tipped with red. Height 26 inches.

L. Nicolay (1879).—Light buff, best rose shape. Bouquet. Matador. Height 28 inches.

E. Nolte (1875).—Silver lilac. Bouquet. Height 28 inches.

Deutscher Turnergruss.—Deep blood-red tipped with white. Height 36 inches.

J. Jacobi (1879).—Pure citron-yellow. Height 38 inches.

Deutscher Reichsgoldstern.—Bright scarlet, outsides and notched tips of petals golden coloured. Very choice aster shape. Height 38 inches.

Theodor Heymann (1875).—Deep blood-red with dark centre. Height 23 inches.

Liebesflamme (1875).—Fiery cochineal-red, best bright red. Bouquet, for groups and pot culture. Height 20 inches.

Gruss an Frankfurt.—White edged with red. Height 36 inches.

Hermann Grube (1875).—Lilac, large quilled petals with violet-purple, base and outside and whitish tips. Beautiful dwarf variety. Height 34 inches.

Geht nicht vorbei (1875).—Rose colour richly flamed with purple and silvery margins, conchiform petals. Height 26 inches.

Perle von Daaden.—Fiery vermilion-scarlet. Height 28 inches.

Chrysanthemum Aster (1875).—Vermilion-red, beautifully notched petals, extra fine. Height 36 inches.

Ich täusche nicht (1875).—Lovely bright orange-buff. Height 36 inches.

Secrétaire G. Dittich (1875).—Bright lake-red, choice. Height 26 inches.

Prachtroschen.—Vermilion-carmine tipped with white. Choice aster-shaped bouquet. Height 24 inches.

Hofgärtner Grossheim (1880).—Light blood-red shading off into yellow at the margins. Height 36 inches.

Bräutenschmuck (1875).—Egg-white; the smallest white bouquet, very compact rose shape; choice. Height 28 inches.

W. Witt (1880).—Light blood-red, fine. Height 36 inches.

Mac Trzeński (1880).—Citron-yellow, tips and centre shaded with violet purple. Height 34 inches.

A. G. Feierabend's (1880).—Tan-yellow with flamed carmine tips, cell shaped. Height 28 inches.

Vilmorin, Andreux et Cie. (1875).—Lilac with purple about the centre; beautiful pearl-shaped blooms. Height 36 inches.

Jules Vogt (1880).—White with rich purple markings. Height 16 inches.

Eduard Mirike.—Golden yellow tipped with scarlet, with whitish points and scarlet and gold margins. Very beautiful. Height 32 inches.

August Malke (1875).—Reddish purple, with pure white single petals or pure white middles. Height 28 inches.

Anton Grabowiecki (1880).—Purplish rose, with purple-crimson backs. A peculiar colour. Height 36 inches.

Johann v. Seillard (1880).—Dark blood-red tipped with white. Height 16 inches.

C. Schlund (1880).—Light ochreous yellow, with tripartite tips to petals; aster shape. Height 36 inches.

Inspector W. Roth (1880).—Fine yellow tipped with delicate lilac and blush outside. Height 24 inches.

Jose Marques Loureiro (1880).—Brilliant purple tipped with white. Matador. Height 36 inches.

Forstmeister Elias (1880).—Yellow richly striped with purplish crimson. Height 36 inches.

Sammet Kappchen (1875).—Fine dark crimson-purple with lighter reddish purple margins. Fine conchiform Matador. Height 26 inches.

Mich. Hermann (1880).—White finely striped with purple. Height 34 inches.

Dr. Adolph Blankenhorn (1880).—White striped or banded with golden red. Bouquet. Height 36 inches.

Wilh. Vict. Prinzess von Preussen.—Golden yellow, the margins flamed with bright coppery red or golden brown, with copper-red and white tips. A very abundant bloomer. Height 32 inches.

Krug von Nidda.—Milk-white richly striped with carmine. Extra quality. Height 32 inches.

Charlotte Prinzess von Preussen.—Most beautiful pure white. Extra fine bloomer. Height 36 inches.

Dr. Hirschbrunn (1880).—Pure lilac-rose, yellow aciculate tips. Height 28 inches.

Suoboda's Neffe (1880).—Beautiful pure sulphur-yellow boldly tipped with clear white. Bouquet. Height 32 inches.

Carl Comes (1880).—Pinkish yellow richly punctuated and striped with purple. Height 26 inches.

Waldemar Schutz (1876).—Pure scarlet. Extra fine Matador. Height 36 inches.

O. Rudzick (1880).—Pure light sulphur-yellow. Bouquet. Height 24 inches.

N. Rohde (1876).—Saffron passing in middle of petals into golden yellow Extra fine Bouquet. Height 30 inches.

Heinrich Noack (1880).—Red-brown. Fine-shaped Bouquet. Height 34 inches.

Friedr. Schmitt (1880).—Golden brown with carmine variegation. Fine early Bouquet. Height 36 inches.

Th. Kerkow (1876).—Lovely crimson with broad tan-streaked tips; very free bloomer. Height 34 inches.

Ferdinand Sohler (1880).—Blood-red, sometimes tipped with white. Height 36 inches.

Halbentz und Engelmann (1876).—Colour variable, sometimes deep crimson-purple with broad white centre, and here and there a white stripe in middle of petals, sometimes a uniform crimson-purple; very effective for bouquets and pots. Height 36 inches.

Julius Sturm.—Light ochineal-red with lake-red outside; very finely quilled. Height 28 inches.

Prinzessin Liebiez (1876).—Clear blush-white with purple stripes; a fine early bouquet. Height 28 inches.

Hofgärtner Jahn (1880).—Purple-earmine, fine shape. Height 34 inches.

Reverförster A. Jäschke (1876).—Yellow variegated with violet. Rosiform Matador. Height 36 inches.

A. J. Barron (1880).—Brilliant pure sulphur-yellow. In colour and form a first-class Matador. Height 36 inches.

F. Franke (1876).—Milk-white, a very free-blooming Bouquet. Height 32 inches.

J. C. A. Stanze (1876).—Orange-buff, exceedingly free-blooming Bouquet. Height 32 inches.

Godber Bahnen (1880).—Light yellow Bouquet, tips flamed with purple. Height 36 inches.

Dr. Strousberg.—Fine buff with greenish yellow edging, extra. Height 32 inches.

Moritz de la Vigne (1881).—Light buff with purple membranous margins. A rosiform Matador. Height 36 inches.

Joseph Becker (1881).—Lilac with bluish variegation. A quilled rosiform Bouquet. Height 34 inches.

Amalie Härtelt (1876).—Pale golden yellow with reddish purple centre, tips edged with the latter. Very free-blooming Bouquet. Height 34 inches.

George Funke.—Bright lake-red with tan margins. Extra. Height 32 inches.

Mar. Milrandis (1881).—Milk-white, bluish lilac centre. Elegant and free-blooming rosiform Bouquet. Height 34 inches.

A. D. Livoni (1881).—Fine dark lilac Bouquet. Height 28 inches.

Graf Erbach-Schönberg (1881).—Bright fiery red, with an occasional white petal. Height 32 inches.

Ernst Herger (1876).—Soft buff, lightly shaded with violet, sometimes passing into white at the tips. Novelty in colour. Very fine early free-blooming Matador. Height 36 inches.

Fr. von Westernhagen (1881).—Purple-crimson Bouquet. Height 24 in.

Blumenfalter (1876).—Purest rose, the petals cornet-shaped and interfolded; a novelty in form and beautiful in colour. Bouquet. Height 33 inches.

C. Ruckwitz (1881).—Light reddish yellow, fine colour. Height 24 inches.

Bern. Barth (1881).—Light yellow, free-blooming Bouquet. Height 34 inches.

F. Steinert (1881).—Lilac rosiform Bouquet. Height 34 inches.

Lieschen Vierthaler.—White, with reddish brown variegation. A rosiform pyramid. Height 32 inches.

E. Westenius.—White, with peach-lilac tips and centre. Height 32 inches.

Kleine Goëlse.—Golden yellow Bouquet, with lake and orange margins and flesh-coloured tips. Height 32 inches.

J. J. Van Loghem.—Pale silvery rose with white centre and darker rose-coloured stripes. Rosiform Bouquet. Height 32 inches.

A. Sternberg (1881).—Fine orange. Height 34 inches.

Thekla Winterstein (1876).—Pure white, aster shape with serrated tips. A free-blooming Bouquet. Height 38 inches.

Ferdinand Darbig (1881).—Maroon-crimson. Height 36 inches.

Gieb Acht (1876).—Fine purple inside, passing into white at tips. Brilliant lilliputian-flowered Matador. Height 38 inches.

Professor Dr. Münster (1881).—Lively scarlet Bouquet. Matador. Height 36 inches.

Julius Posth (1881).—Pure citron-yellow. A brilliant coloured Matador of the first merit. In the newest strains the florets are more erect, and the flower assumes a characteristic fir-cone shape. Height 36 inches.

Dr. Conventz (1881).—A medley of fine saffron-yellow, red and white streaks. A beautiful Matador. Height 44 inches.

J. Meyne.—Large effective blooms of brilliant yellow, marked vermillion at the tips. Matador. Height 24 inches.

Henriette Deegen (1881).—Pure white blooms of the new fir-cone type. A Matador of foremost rank. Height 36 inches.

Adolph Wagner.—Light ochreous yellow, richly speckled and streaked with purplish earmine. Extra fine variety. Height 30 inches.

L. Schereck (1876).—Pure white, free-blooming Bouquet. Height 30 inches.

Carl Jentsch (1876).—Satiny white bouquet. Height 32 inches.

J. Gustav Gerbig (1876).—Deep rose colour. Very choice. Height 38 inches.

Hermann Starcke (1882).—Ochreous brown, fine shape. Height 24 inches.

Franz Reinholdt (1882).—Crimson with white tips or centre. Bouquet. Height 32 inches.

F. Michel (1877).—Blood-red Bouquet. Height 18 inches.

W. Kunkel (1882).—Pure white, conchiform. Bouquet. Height 32 inches.

Gehr. von Namen (1882).—Delicate ochreous tint with blush-white tips. Very delicate colour. Lilliputian-flowered Matador. Height 36 inches.

Freiherr Kammerherr von Wintzingerode-Knorr (1877).—Soft rosy lilac, with well-marked white centre. A bicoloured Matador of the first class. Bouquet, suited for pot culture. Height 36 inches.

J. de Jonge (1882).—Golden yellow, extra early and free-blooming Matador. Excellent for pots and nosegays. Height 32 inches.

Carl Dewitz (1882).—Pure yellow, early free-blooming Matador. Height 30 inches.

A. G. Sutherland Roijaards (1882).—Citron-yellow, very early and abundant dwarf blooms. Height 30 inches.

Med. Rath Dr. Güppert (1877).—Violet-purple, the deeply tripartite tips of petals punctuated with gold. The newest aster-shape Matador. Height 36 inches.

Schleiben und Frank (1882).—Yellow tipped with carmine. Beautiful miniature globe-shaped flowers. Early and free blooming. Excellent for pot culture. Height 32 inches.

F. W. Schüttler (1882).—Pure yellow, fir-cone shaped blooms with thickly-set petals. Bloom well placed and abundant. A Matador of finest class. Height 36 inches.

Heb. Fuhrmann (1882).—Brick-red, early and free-blooming Bouquet. Height 36 inches.

Theodor Wolter (1882).—Yellow ground, purplish red centre and tips, fine. Height 36 inches.

Max Deegen's Weissé (1882).—Pure white, its symmetry of form and fullness rendering it the best as well as the newest of white dahlias. The blooms are of medium size, well set on, and very abundant; admirably adapted for groups, pots, or nosegays. Height 36 inches.

Kleine Lieben Meine.—White edged with violet-purple. Height 32 inches.

Professor Dr. Wislizenus (1878).—Pure white. Height 36 inches.

Zwergprinzessin Georgine (1878).—Brownish red, fine colour, good bloomer. Height 36 inches.

New Plants, Flowers, and Fruits.

CRYPTANTHUS BEUCKERI (*Belgique Horticole*, 1881, pl. 17).—An interesting plant with elegant leafage richly blotched with green and ruddy orange.

QUESNELIA VAN HOUTTEANA (*B. H.*, 1881, p. 18).—A fine bromeliad, native of Brazil; the inflorescence a close spike, the bracts tipped with red.

DRACENA MASSANGIANA (*B. H.*, 1881, p. 16).—Although promoted to the rank of a species, this is a variety of *D. fragrans*; the leaves are broad, pendent, dark green with stripes of yellow.

AGLAONEMA PICTUM (*Illustr. Hort.*, 445).—A miniature aroid with elegant ovate leaves, heavily blotched with grey on a ground of dark green.

BEGONIA DIADEMA (*J. H.*, 446).—An extremely elegant species from Borneo; the growth is tree-like, the leaves deeply lobed and richly splashed with white on a ground of rich green.

Markets.

COVENT GARDEN.

FRUIT.			
Apples.....	per ½ sieve	2s. 0d. to 7s. 0d.	
Grapes.....	per lb.	4s. 6d. „ 10s. 6d.	
Lemons.....	per 100	4s. 0d. „ 6s. 0d.	
Oranges.....	„	4s. 0d. „ 8s. 0d.	
Pine-apples, Eng. „	per lb.	1s. 6d. „ 2s. 6d.	
Strawberries „	per lb.	6s. 0d. „ 12s. 0d.	

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Asparagus, French, bun.	4s. 0d. „ 6s. 0d.
Asparagus, English, bun.	7s. 6d. „ 10s. 6d.
Asparagus, Spruce, per bun.	1s. 0d. „ 0s. 0d.
Barbe de Capucin „	0s. 6d. „ 0s. 9d.
Beans, French „ per 100	1s. 6d. „ 2s. 6d.
Beet „ per dozen	1s. 0d. „ 1s. 6d.
Cabbages „ per doz.	1s. 0d. „ 2s. 0d.
Carrots „ per bunch	0s. 4d. „ 0s. 6d.
Cauliflowers, Eng. per dz.	2s. 0d. „ 3s. 0d.
Celery „ per bundle	1s. 6d. „ 2s. 6d.
Cucumbers „ each	1s. 0d. „ 1s. 6d.
Endive „ per doz.	1s. 0d. „ 2s. 6d.
Garlic „ per lb.	0s. 2d. „ 0s. 4d.
Herbs „ per bunch	0s. 2d. „ 0s. 4d.
Horse-radish, per bundle	3s. 0d. „ 4s. 0d.
Leeks „ per bunch	0s. 3d. „ 0s. 6d.
Lettuces, Cabbage, per dz.	0s. 6d. „ 1s. 6d.
Lettuces, Cos. „	0s. 6d. „ 1s. 0d.
Mint, Green „ per bunch	0s. 9d. „ 1s. 0d.
Mushrooms „ per basket	1s. 6d. „ 2s. 0d.
Onions „ per bushel	4s. 0d. „ 5s. 0d.
Onion Spring, per bunch	0s. 4d. „ 0s. 6d.
Parsley „ per doz.	1s. 0d. „ 1s. 6d.
Parsnips „ per doz.	0s. 9d. „ 1s. 0d.
Peas „ per lb.	0s. 3d. „ 0s. 6d.
Potatoes, New „ per bunch	0s. 1d. „ 0s. 4d.
Radishes „ per bunch	0s. 6d. „ 0s. 8d.
Rhubarb „ per bundle	1s. 6d. „ 2s. 0d.
Salsify „ per bunch	2s. 0d. „ 2s. 6d.
Seakale „ per pun.	0s. 3d. „ 0s. 4d.
Small Salading „	2s. 0d. „ 3s. 0d.
Spinach „ per bushel	1s. 0d. „ 1s. 3d.
Tomatoes „ per lb.	1s. 0d. „ 1s. 3d.
Turnips „ per bunch	0s. 4d. „ 0s. 6d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Azaleas „ per doz. sprays	0s. 9d. „ 1s. 0d.
Bouvardias „ per bunch	1s. 0d. „ 1s. 6d.
Camellias „ per doz.	1s. 6d. „ 3s. 6d.
Carnations „ per doz. blms.	1s. 0d. „ 2s. 0d.
Cinerarias „ per doz. bun.	7s. 6d. „ 10s. 6d.
Cyclamens „ per doz. blms.	0s. 3d. „ 0s. 6d.
Deutzia „ per doz. bun.	5s. 0d. „ 10s. 0d.
Encharis „ per doz.	4s. 0d. „ 6s. 0d.
Gardenias „ per doz. blooms	5s. 0d. „ 10s. 0d.
Heliotropiums „ sprays	0s. 6d. „ 1s. 0d.
Hyacinths „ spikes	5s. 0d. „ 8s. 0d.
Lapagerias „ per doz. blooms	1s. 0d. „ 6s. 0d.
Lilac, French, per bunch	5s. 0d. „ 8s. 0d.
Lily of the Valley, per doz. spikes	1s. 0d. „ 1s. 6d.
Marguerites „ per doz. bun.	4s. 0d. „ 6s. 0d.
Mignonette „	4s. 0d. „ 8s. 0d.
Polargoniums, Zonal, per doz. trusses	0s. 9d. „ 1s. 6d.
Polargoniums „	1s. 0d. „ 1s. 6d.
Primroses „ per doz. bun.	0s. 9d. „ 1s. 0d.
Primulas, double, per bun.	1s. 0d. „ 1s. 6d.

FLOWERS—Continued.

Primulas, Single, dz. bun.	6s. 0d. „ 9s. 0d.
Roses „ per doz.	3s. 0d. „ 7s. 6d.
Roses, Tea „	2s. 0d. „ 3s. 0d.
Tropæolum, per doz. bun.	1s. 0d. „ 3s. 0d.
Tulips, per doz. blooms	1s. 0d. „ 1s. 6d.
Violets „ per doz. bun.	1s. 0d. „ 1s. 6d.
Violets, French, per bun.	2s. 0d. „ 5s. 0d.

CORN.—MARK LANE.

Wheat, Red, new „ per qr.	35s. to 50s.
Wheat, White, new „	35s. „ 53s.
Flour, town-made whites, per sack of 230lbs.	40s. „ 47s.
Flour, households „	38s. „ 39s.
Flour, country households, best makes	35s. „ 41s.
Flour, Norfolk and other seconds	32s. „ 34s.
Barley, Malt „ per qr.	30s. „ 50s.
Barley, Grinding „	20s. „ 30s.
Malt, English „	35s. „ 50s.
Malt, Scotch „	38s. „ 43s.
Malt, old „	28s. „ 35s.
Malt, brown „	30s. „ 32s.
Oats, English „	22s. „ 30s.
Oats, Irish „	22s. „ 26s.
Oats, Scotch „	22s. „ 30s.
Rye „	42s. „ 45s.
Tares „	60s. „ 80s.
Beans, English, Mazagan „	36s. „ 40s.
Beans, Tick „	38s. „ 44s.
Beans, Winter „	39s. „ 44s.
Peas, Grey „	30s. „ 36s.
Peas, Maple „	40s. „ 45s.
Peas, White „	36s. „ 44s.

SEEDS.

Mustard, brown, per bush. „	9s. to 16s. 0d.
Mustard, white „	5s. „ 14s. 0d.
Canary, per quarter „	45s. „ 50s. 0d.
Canary, fine „	52s. „ 56s. 0d.
Cloverseed, red, old, per cwt.	40s. „ 70s. 0d.
Cloverseed, red, new „	60s. „ 120s. 0d.
Coriander, per cwt. „	23s. „ 25s. 0d.
Hempseed, small, per 336 lb.	35s. „ 36s. 0d.
Hempseed, Dutch „	36s. „ 37s. 0d.
Tares, winter, new, per bush.	6s. 6d. „ 8s. 6d.
Trefoil, per cwt. „	18s. „ 21s. 0d.
Trefoil, new, per cwt. „	27s. „ 38s. 0d.
Ryegrass, Italian, per qr. „	24s. „ 31s. 0d.
Linseed, sowing, per quarter „	61s. „ 68s. 0d.
Linseed, crushing, per qr. „	50s. „ 54s. 0d.
Rapeseed, now, per quarter „	54s. „ 62s. 0d.
Caraway, Calcutta, per cwt.	27s. „ 30s. 0d.
Alsike, per cwt. „	50s. „ 90s. 0d.

COAL MARKET.

East Wylam „	15s. 0d.
Wallsend Lumbton „	14s. 0d.
„ Wear „	13s. 0d.
„ Chilton Tees „	13s. 6d.
„ Thornley „	14s. 3d.

MONEY MARKET.

Consols, 3 per cent. „	101½ to 101½
Reduced 3 per cent. „	100½ „ 100½

TRADE CATALOGUES.

HEINRICH KERLER, ULM.—*Catalogue No. 63, of Botanical Books.*

C. S. PALMER, 100, SOUTHAMPTON ROW, HOLBORN.—*Catalogue of Books, Part 23.*

RAWLINGS BROS., OLD CHURCH, ROMFORD.—*Descriptive Catalogue of Dahlias, 1882.*

CHARLES TURNER, ROYAL NURSERIES, SLOUGH.—*General Spring Catalogue, 1882.*

JONES AND NORTH, HOPE NURSERY, LOAMPIT-VALE LEWISHAM, KENT.—*Descriptive Catalogue for 1882.*

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any other earthy matter calculated to produce gall stones or gout deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. Imp. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths after Noon.	Sets.	Rises, Morn.	Sets, Morn.	London Bridge.		Liverpool Dock.					
			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
1882															
9	S	Easter Sunday.	5 29	1 34	6 44	0 11	8 30	5 5	5 25	2 12	2 30	47° 2	Amaryllis insignis, s.	Scarlet.	18 2
10	M	Bank Holiday.	5 13	1 17	6 45	1 1	9 33	5 48	6 13	2 50	3 13	47° 3	pardunum, s.	Cream & Red.	99
11	Tu	(Last Quarter, 6h. 30m. morn.	5 16	1 1	6 46	1 42	10 46	6 40	7 12	3 38	4 5	47° 5	Anthurium Scherzerianum, s.	Scarlet.	101
12	W	Oxford Easter Term begins.	5 13	0 45	6 43	2 17	After.	7 45	8 25	4 37	5 10	47° 6	Bouvardia illogarth, G.	Carmine.	102
13	Th	Handel (composer) died, 1759.	5 11	0 29	6 50	2 47	1 25	9 7	9 53	5 50	6 32	47° 7	Chorozoma cornutum splen, G.	Orange & Red.	103
14	F	Cambridge Easter Term begins.	5 9	0 14	6 52	3 13	2 46	10 32	11 7	7 18	7 57	47° 9	Fritillaria imperialis, H.	Yellow.	104
15	S	Length of Day, 13h. 49m.	5 7	before	6 53	3 38	4 10	11 40	—	8 32	9 5	48° 1	Primula marginata, H.	Lilac.	105

The Gardeners' Magazine.

SATURDAY, APRIL 8, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, APRIL 11.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

Auction Sales for the Ensuing Week.

WEDNESDAY, APRIL 12, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Collection of Orchids.

THURSDAY, APRIL 13, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, APRIL 15, at 12.30 p.m.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Stove and Greenhouse and Hardy Plants.

THE GLORY OF THE SPRING is an annual revelation, always new and fresh and a cause of wonder, as though it had never been seen before. We have, indeed, seen it as many times as the years we count, or nearly so, but it is a novelty none the less, and a surprise that never fails to arouse our interest and fill us with delight. The outdoor world had in some degree passed out of mind by reason of the natural dullness of the winter; but it is now reasserting its existence, and its exceeding freshness suggests to us that life is in itself a miracle that overpasses all possible powers of philosophical explanation. Within the past week a new creation has come into being before our eyes, and with such suddenness that we might doubt its reality were we not rich in memories of spring-times as green and golden and flowery as the present, and as early too and as full of pleasant promise. So we do not doubt the reality, and we trust to our own idea as to its beauty; for if a new school of æsthetes should arise and declare the colour of new grass hideous we should but pity the poor creatures and leave them in their morbid minority to rave against green, as their prototypes have raved against red, and have declared chickweed and groundsel more glorious than the spicy hyacinth, the flaming tulip, or the glowing equestrian star. If we could not make liberal allowance for the eccentric ones who seek to separate themselves from the community of blessed human sympathies, we might be tempted to ask about the origin of the exquisite beauty that is displayed around us, and that is now fast expanding and heightening every day. But we do not ask for the simple reason that we are thoroughly satisfied it comes to us from above. This is the lesson of the blue sky, and the golden sunshine, and the verdure, and the song, that in the aggregate constitute the Glory of the Spring that is now spreading around as on every hand. It might serve the purpose of the superficial to say that between what the earth gives and what the heaven gives there is a great gulf fixed. The earth emits sulphureous fires and mephitic vapours, and the discordant sounds of the volcano and the earthquake. But the heaven, now so blue and bright, so kind and warm, will in due time give us lightning and thunder, beyond parallel at once alarming and sublime. It will be best to regard the rumblings from below and the reverberations from above as audible exponents of almighty power and beneficence than to attempt to draw any line of demarcation between good and evil forces of which we know absolutely nothing in the abstract. If the line be drawn at all, its course will more likely lie through the heart of man than between the heaven

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and the earth. But this is spring-time, and those who act upon the proper inspiration of the season will be filled with comfort, and in no mood at all to touch a thesis of any narrow philosophy. The sun is hastening towards the zenith, and every day witnesses an augmentation of his power. The zenith, indeed, he will not in these regions reach; but he will go high enough to make the face of the world gay for us and to perfect more or less the labours of our hands in the field and the garden. His business just now appears to be to prove to us that the Spring is less an abstraction than an Entity, and one of the most spiritual kind, though strictly material in all its cheerful vindication of the benignity that beautifies creative power. The machine that grinds old people young is not of much value, because it only carries one set of dolls upwards and another set downwards. But here is a machine in action that will really accomplish the end desired, and the machinist is the Lord himself, who made heaven and earth, and all that in them is. Let who will go forth into the sunshine now, where some green thing may be seen, it matters not how in its way it may be poor and small if it have but the touch of Spring upon it, and the weight of years will fall away; the accumulated cares of life will be banished by the surprise and gladness that heaven and earth are charged with for our renewal in body and soul. Is perpetual youth possible, then? Yes, it is; but only on the condition that we accept the gifts of Heaven as manifested on the earth in the largest spirit of Hope, and Love, and Charity.

THE SEASON.—In our issue for February 25, we made note of the dates of flowering of crocuses in a certain garden. By that test the season was found to be three weeks—or, to be more precise, just twenty-three days—earlier than last year. In the same garden the poet's narciss came into flower twenty-four days in advance of last year. Judged by this test, there has been one day gained between February 25 and April 8. In remarks on the subject in our issue for February 11, we expressed a fear that spring frosts might prove destructive in proportion to the forwardness of vegetation. We confess the fear still haunts us, for we have to face the possibilities of seven weeks ere it will be reasonable to say, or prudent to believe, that the freezing season is over. When the 25th of May is past we may be secure against frost until some time in September, or say the 8th of October; but in the meantime a blast from the east may produce incalculable mischief. So far as to the look from the point of view of the possible. The facts immediately before us are altogether of an agreeable complexion. The promise of a plentiful season is by no means indefinite. The grass did grow in January when, according to the proverb, it should not; but it appears to be none the worse for it. The cereals look well, and are scarcely anywhere "winter proud." Of garden vegetables there is abundance, and the markets are well supplied. As regards the fruit crop, there is no reason at present for dolefulness. If the season will but go on as it began, this will be a great year for all stone fruits, from peaches to plums, and a middling season for apples and pears and nuts. The spring came in with blustering wind and snow, but the halcyon days quickly returned, and the slight touch of unkind weather appears to have wrought but little harm. It will be well to remember the old adage that we must not holla until we are out of the wood, but we may nevertheless encourage a hopeful frame of mind both as to the seven weeks of possible wind, snow, rain, and frost, and also as to the summer that should follow. There is no particular reason that we know of why the elements, having been so tender, should suddenly turn round upon us. A warm winter was due according to averages, and we have had one. Now a hot summer is due by the same rule, and we will not only hope for it, but expect it and prepare for it.

BASINGSTOKE HORTICULTURAL SOCIETY.—The sixth exhibition will take place on Thursday, August 17.

MR. JAMES GROSS, florist, of Redditch, has been elected a second time a member of the School Board of Redditch.

MR. SHIRLEY HIBBERD WILL GIVE A LECTURE ON THE HISTORY OF THE AURICULA, in connexion with the National Auricula Society's Exhibition, at South Kensington, April 25.

THE HISTORY OF FLORICULTURE IN BELGIUM is the subject of an essay by Professor E. Morren in the *Belgique Horticole* for February, 1882. The paper is adorned with a view of the great conservatory and winter garden of the Palace at Laeken.

PADDINGTON PARK progresses the wrong way, for the Select Committee of the House of Commons has rejected the Paddington Park Bill. The promoters, however, do not despair of accomplishing their object, although the present check is discouraging.

SOUTHAMPTON HORTICULTURAL SOCIETY.—The exhibitions announced comprise the usual summer show, Saturday and Monday, August 5 and 7; and Chrysanthemum and Fruit Show and Exhibition of cage birds, Tuesday and Wednesday, November 14 and 15.

THE SPRING SHOW AT THE HIGHGATE NURSERIES OF MESSRS. W. CUTBUSH AND SON is at once gay and good. It comprises early tulips, narcissi, hyacinths, amaryllis, and forced shrubs, such as azaleas, deutzias, &c. Ramblers in the northern suburbs will do well to drop in.

AURICULA MABEL, a grey-edged variety, raised by Mr. Douglas, is admirably figured in the April number of the *Florist and Pomologist*. The new and beautiful *Phalenopsis Stuartiana* is the subject also of an effective plate, the characters of this distinct orchid being clearly delineated.

"HOT-WATER HEATING" is the title of a new work nearly ready for publication by Mr. F. A. Fawkes, whose admirable lectures on plant-house construction are now passing through these pages. It will treat of heating greenhouses, churches, schoolrooms, mansions, &c., on the low-pressure system.

THE DOUBLE WHITE COROLLA FUCHSIA EDELWEISS, on which we reported last year, is now offered in commerce by Messrs. Hender and Son, of Plymouth. It is undoubtedly the finest variety of its class, and has all the characters of a show plant as well as a surprise for the conservatory. We recommend fuchsia growers—whose name is Legion—to secure it at once.

THE LIME AND ELM TREES in London were leafless a week ago, but are now very green, and add in a conspicuous manner to the cheerful appearance of the parks and gardens. All kinds of fruit trees save apples are flowering freely. As regards gay leafage, the horse-chestnut is the most conspicuous of all the trees at the present moment.

A NEW ANTISEPTIC has been introduced to public notice by Professor Barff in a paper read at a meeting of the Society of Arts. It is a compound of boracic acid and glycerine. When diluted for use it can be sold at one shilling per gallon, and a gallon will preserve as much meat as can be surrounded by it in any containing vessel. Samples of meat were shown that had been preserved for three months in open vessels, and were still in perfect condition.

"PAXTON'S FLOWER GARDEN," Part 20, just published, contains admirable figures in colour of *Blandfordia flava* and *Vanda carulea*. The orchid is perhaps one of the most difficult subjects that can be found for a coloured plate, and the difficulties have been fairly well surmounted. We have seen a more decided tone of blue in the flowers than is here given, but the picture is admirable for all that. Veitch's white calceolaria is presented by a woodcut; it is an interesting plant.

THE CROWN HOTEL AT BROXBORNE is reported to be very gay in the spring attire of its celebrated gardens. There are but few places where rest and refreshment are always at command that offer so many attractions of river, meadow, garden, and woodland, as the famous Crown Hotel of Mr. Benningfield. Now that "outing" occupies the thoughts of those who are in populous cities pent, it may be well to remember that Broxbourne is only fifteen miles distant from London, and is the centre of a most interesting district.

EPPING FOREST.—The incorporation with the forest of the grounds of Wanstead House will probably not be completed for some six or eight weeks. It is proposed to adorn some part of the forest with an obelisk constructed of the materials of old Temple Bar, to commemorate the Queen's visit. It will occur to many that a better use for Temple Bar would be to restore it as a memorial gateway.

THE PETITION FOR WINDING UP THE GENERAL HORTICULTURAL COMPANY came before the Chancery Division on Tuesday. In this case a petition was presented by a creditor for the winding up of this company, which now carries on the well-known business of Mr. Wills, the florist, in Regent Street, and elsewhere. The company was represented to be doing a large business, and it was stated that the shareholders and the bulk of the creditors desired the company to continue its business, on the idea that it would be ultimately successful. The petitioner did not object, and accordingly, notwithstanding the opposition of certain creditors, his Lordship, considering it to be in the interest of all parties, directed the petition to stand over for three months, and in the meantime continued two provisional liquidators, Messrs. Staggs and Smith, appointed yesterday, for the purpose of carrying on the business of the company. Mr. Burton Buckley appeared for the petitioner; Mr. Crossley, Q.C., and Mr. Gazdar for the company; Mr. Charles Brown for shareholders, Mr. Whitehorne, Q.C., for the creditors opposing; and Mr. Bramwell Davis for a creditor who assented to the petition standing over.

THE PASSION FLOWER is well known to have been so named by the explorers of the New World from the fancied resemblance different parts of it bore to the instruments of Christ's Passion. Among the recent acquisitions of the British Museum is a curious broadside, "Faict à Paris par I. V. E. 1637, avec privilege du Roy," and headed "Copie de la fleur de Passion qui croist dans les Indes Occidentales." Beneath this heading is represented a sprig of the plant with an expanded flower, which, however, the lively faith of the artist has idealized almost beyond recognition. Underneath we are told "Cette fleur de la passion, presentee a nostre Saint Pero, a esté apportée de Rome par Monsieur Lecharron, Doyen de l'Eglise Royale de Saint Germain de l'Auxerois, & donnée au public, en faveur des ames devotes." A minute description of the plant, "autrement nommée Grannadille," follows, and the resemblance of its various portions to the lance, the pillar of flagellation, &c., is pointed out. The text concludes with this exhortation: "Faisons donc naistre cette fleur au milieu de nos cœurs, donnons luy l'air de nos soupirs, arrosons la de l'onde de nos larmes, si nous voulons en savourer le fruit dans l'estat de la gloire."—*Athenæum*.

CHRYSANTHEMUMS.

By S. BARLOW, Esq., Stakehill House, near Manchester.

As it is now quite time, while the plants are young, to complete all collections intended for blooming in the coming season, perhaps a few brief notes of my experience may not be unwelcome to many of your readers.

Coming into bloom in time to meet the late autumn flowers, and remaining with us long enough—as it did with me last season—to greet the early snowdrop, it cheers and brightens one's existence throughout the most dreary and gloomy time of the year. The chrysanthemum is truly invaluable.

The last season was an exceptionally good one for the chrysanthemum in this foggy, smoky, and acrid atmospheric region; the mild weather from early November to the middle of January allowed ventilation to be freely applied, and to this is doubtless attributable the ability to keep the plants free from mildew and to prolong the bloom. There were good blooms at Stakehill early in October, and on the 26th January this year I cut my last bloom from a plant of Hero of Stoke Newington, which plant deserves special mention. On New Year's Day it had twenty-three buds and blooms in all stages, from fully-expanded four inches in diameter to buds showing colour, all of which bloomed out, and the plant at the last only showed slight traces of mildew. About the middle of January I cut down—with the exception of the Hero before mentioned—all my remaining stock of plants, and was enabled to deck the dinner table with fair blooms of Dick Turpin, Fleur de Marie, Gluck, Ethel, Madame Montels, Peter the Great, and Miss Margaret. I ought perhaps to state that my collection consisted of 242 plants in three houses.

It is no part of these notes to dwell upon the cultivation of the chrysanthemum, or to give a description of the varieties, but simply to give a short account of my experience during last season, and to add for the guidance of others a list of the plants I have selected and am growing for the coming season's bloom. In this list I have discarded many well-known varieties for their habits of growth, and mainly because they are too weak to support the blooms in an erect position; such are Prince of Wales, Dr. Brock, Beverley, and others. The selection is based on an experience in growing the chrysanthemum for some twenty years, and carefully noting them each season. The number of plants given to each variety indicates the relative positions which they hold in my estimation. The list is fairly representative and includes all classes and colours, except the very early bloomers.

COLLECTION OF CHRYSANTHEMUMS FOR 1882.

Incurved Varieties.

10 Mrs. George Rundle.	4 Lady Talfourd.
6 George Glenney.	4 Jardin des Plantes.
6 Mrs. Dixon.	3 Princess Teck.
6 Pink Venus.	3 Hero of Stoke Newington.
6 Blonde Beauty.	2 Lady Slade.
6 Barbara.	2 Beethoven.
6 Empress of India.	2 Lady Hardinge.
4 Antonelli.	2 Prince Alfred.
4 Nil Desperandum.	2 Little Pet.
4 White Eve.	2 Queen of England.
4 Golden Empress of India.	2 Golden Queen of England.

Recurved Varieties.

6 Sœur Melanie.	2 President or Dr. Murray.
4 Progne.	2 Ariadne.
4 Julie Lagravère.	2 Jewess.
2 Dr. Sharpe.	

Japanese Varieties.

10 James Salter.	2 Peter the Great.
6 Elaine.	2 Ethel.
2 Fair Maid of Guernsey.	

Pompones.

6 Mrs. Dix.	3 Golden Ste. Thais.
6 Argentine.	3 Aurora Borealis.
4 Model of Perfection.	3 Snowdrop.
4 Saint Michael.	3 Miss Wheeler.
3 Mdlle. Marthe.	2 White Cedo Nulli.
3 Golden Mdlle. Marthe.	2 Golden Cedo Nulli.
3 Bob.	2 Lilac Cedo Nulli.
3 Sainte Thais.	

Large Anemone-flowered.

2 Gluck.	2 Miss Margaret.
4 Fleur de Marie.	

Anemone Pompones.

4 Madame Montels.	3 Antinous.
4 Jean Hachette.	3 Mr. Astic.
4 Dick Turpin.	2 Marie Stuart.

To dwell upon the merits of each would be a very long and much more than a "twice-told tale," but an exception is justly due to that gem of a pompon Argentine, which I see is omitted in the lists of well-known dealers, and I fear is not so well known as its merits deserve. This variety is a pure white, with well-formed flowers, and has a habit of blooming quite unique, for it produces its flowers in spikes of from seven to fifteen blooms each. It needs no disbudbing, as each bud from the terminal to the lowest on the stem produces a perfect flower. Of course the lower flowers are smaller, but still useful for cutting; it has also the further great property of keeping its blooms fresh and lively longer than any other variety that I am acquainted with. I had spikes last season, each flower fully opened, which kept their beauty undiminished for over four weeks. It would be a good investment for those who grow flowers for sale to grow Argentine in quantity.

CONSTRUCTION OF HORTICULTURAL BUILDINGS.

By F. A. FAWKES, F.R.H.S., Author of "Horticultural Buildings Illustrated."

Third of a series of Lectures delivered before the Crystal Palace Schools of Landscape Gardening and Practical Horticulture.

(Continued from page 163.)

WE will now touch upon the interesting and important subject of heating. There are various ways of heating horticultural buildings—by fermenting materials, flues, hot-air stoves, gas stoves, lamps, high pressure hot water, steam, and low pressure hot water. I shall dismiss all but the last with a very few words. Fermenting materials by themselves are perfectly insufficient and inefficient. Flues are liable to promote excessive heat, as well as concentration of heat; are also liable to admit the products of combustion to the plants, and cannot be manipulated with sufficient ease. Hot-air stoves are liable to much the same objections as flues. Gas stoves, in addition to other fatal objections, are very costly to keep in work. Lamps are out of the question, except in the very smallest and rudest of greenhouses. High-pressure hot water and steam are both inconvenient and both concentrate the heat. This leaves us low-pressure hot water, which provides the most suitable and efficient means yet known for raising the temperature in horticultural buildings.

I want to place before you in outline the whole subject in as few words as possible and as clearly as I can. I will therefore assume for the moment that you know nothing whatever of hot-water heating, either in principle or application. The principle of hot-water heating lies in the fact that hot

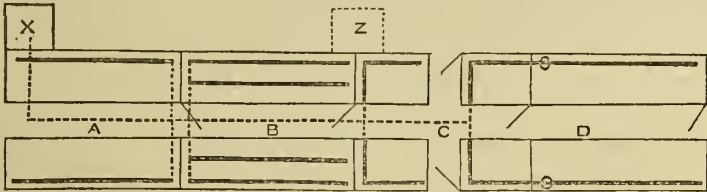


FIG. 45.—GROUND PLAN OF ARRANGEMENT OF HOT-WATER MAINS AND PIPES. A, Plant Stove; B, Cucumber and Melon House; C, Greenhouse; D, Orchard House; X, Boiler (which may be placed at Z if necessary).

water rises and cold water sinks, simply because cold water is heavier than hot water; and when cold water and hot water are in contact in the same vessel the cold water in sinking pushes the hot water to the top. This is because water over 39.2 deg. Fah. expands, or increases in volume, as the temperature is raised.

Take a vessel of water—anything you like, a tea-kettle or saucepan—nearly fill it with cold water, and place the vessel on the kitchen fire. What takes place? The stratum of water next the source of heat expands, because of its temperature being raised. A given bulk of this heated water weighing less than a corresponding bulk of the colder water above it rises to the top of the vessel. The next stratum of water nearest the source of heat has its temperature raised, rises, and the process goes on till the whole of the water



FIG. 46.—SECTION OF INDIA-RUBBER RING JOINT. A, Ring before; B, Ring after insertion between Socket and Spigot.

is heated. In fact, there exist two columns of water—one rising the other sinking—much in the same way that if on one side of a pair of scales you place a one-pound weight, and on the other side a two-pound weight, the one-pound weight would rise, the two-pound weight sink. But in a tea-kettle or saucepan these two columns of water are intermingled. Let us try and separate them. Now, if we can so contrive our apparatus containing these two columns of water that the heated water as it rises is conducted to the place we wish to heat, is there allowed to part with its heat, and is then conducted back to the source of heat, we shall have effected our purpose. In

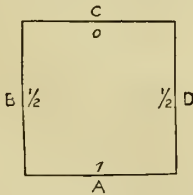


FIG. 47.—VERTICAL SECTION OF BOILER, SHOWING EFFECTIVE HEATING SURFACE.

point of fact, such a purpose is effected by the ordinary low-pressure hot-water heating apparatus.

We thus see that we can in a very easy manner impart heat to our greenhouses and conservatories by placing in them pipes, and by filling and automatically replenishing such pipes with hot water. This in the abstract is, I think, by this time pretty clear to you; but the first important point which thrusts itself upon us is, In what manner can we produce in our glasshouses any given heat we want? For inasmuch as the water in a low-pressure heating apparatus is open to the atmosphere the water can never rise higher than the boiling point, 212 deg. F., or practically 200 deg. in the pipes; and further, to prevent concentration of heat and excessive waste of water by evaporation, should certainly never be maintained so high as even 200 deg. The maximum temperature required in a glasshouse should always depend wholly and solely upon the amount of pipe in that house. Neither the proximity of the boiler nor the degree at which it is driven should be allowed to influence the required temperature.

I could give you a great many calculations for ascertaining the amount of pipe to produce different given temperatures, but these are almost too

complicated for every-day practice. I will however give you a table deduced not only from various calculations, but from experience, by which you can readily tell the amount required. To use this table you simply have to find the actual atmospheric cubic contents of the building in feet.

Radiating pipes in horticultural structures are nearly always 4 in. diameter, cast iron. These are found the most suitable.

Temperature of internal air registered.	Lean-to's sheltered. Small proportional cooling area.	Spans exposed. Large proportional cooling area.
	Feet of 4 in. pipe per 1,000 cubic feet of actual atmospheric contents.	Feet of 4 in. pipe per 1,000 cubic feet of actual atmospheric contents.
Conservatories and Greenhouses, keep frost out	30 to 35	35 to 40
Vineries, &c., 55 to 65 deg.	40 ,, 50	45 ,, 55
Plant Stoves, &c., 60 to 70 deg.	50 ,, 60	55 ,, 65
Forcing Houses, 65 to 80 deg.	55 ,, 65	60 ,, 70

Other things being equal, much will depend upon the aspect of the house—whether it be span or lean-to, whether it have shelter from the north, whether it be attached to a dwelling house, whether it join other heated houses or not. The foregoing table, however, gives sufficient margin for these incidental conditions. I am often told that I have a fault in specifying a larger quantity of pipe than necessary, but I can assure you that it is a very good fault; for one of the greatest advantages of this low-pressure system lies in the fact that a high temperature of radiating surface cannot be attained. Even 200 deg., the practical maximum limit of pipe temperature, is much too high for an efficient apparatus; therefore you will always be right in arguing that a large quantity of pipe having a comparatively low radiating temperature is much better than the minimum quantity of pipe driven to its maximum limit. Not only is plant life benefited by this course, but a boiler can be worked so much more economically if it be worked moderately than if it be forced, as it would have to do if the water were heated to its maximum temperature in the radiating pipes.

The quantity of pipe which I have enumerated is of course supposing such pipe is freely exposed in the structure. If it is in trenches covered by gratings, you may reckon that nearly 30 per cent. more pipe will be required.

For pipes through beds, as bottom heat, for cucumbers, &c., you may allow the following quantities:—

For a bed 1 foot 6 inches wide 2 rows of 2 inch pipe.	
2 feet	2 ,, 3 ,, ,,
3 ,,	2 ,, 4 ,, ,,
4 ,,	3 ,, 4 ,, ,,
5 ,,	4 ,, 4 ,, ,,

So much for the actual quantity of pipe. The next point is the best position for such pipe. You may take it as a general rule that the air requires to be heated immediately on its entrance into a house, in order that cold air may not strike the plants; consequently, pipes should be placed near the outer walls or cooling surface, and if possible immediately under or in front of the inlet ventilators. While however, having this in view, you should also remember that the heating surface should be distributed as much as possible, so as to avoid concentration of heat, so that, as a general rule, whatever pipes are used should be continued throughout the whole length of a house, and if the house is wide in proportion to its length then the pipes may be continued at the ends, or transversely as well as longitudinally.

So far we have been speaking of one set of heating pipes only, that is to say, a boiler and apparatus for heating one house. It frequently becomes necessary to heat several houses, or different parts of the same house; in fact, to have various sets of radiating pipes. These can be all fed from one boiler, and can all be worked perfectly independently of each other, if a supply main flow and return are used in the following manner. We will suppose that we have a range of, say, four span houses—a plant stove, a cucumber house, a greenhouse, and an orchard house—and that there are some transverse doors, as well as doors between each of the houses.

We must so arrange our heating apparatus that each house has its sufficient quantity of heat, that each house can be heated separately and independently, that no dip in the pipes takes place; for dipping under doorways means arrest of the circulation; and that, in fact, the heat may be adjusted, moderated, or entirely shut off in any one house without affecting the remainder.

Let us see how this can be done by referring to the diagram (Fig 45). In this way a number of houses can be fed from one main and one boiler, but if the apparatus becomes very complicated it is found judicious to employ several mains, and perhaps several boilers.

You will thus see that the more the heating pipes are exposed to the atmosphere they are required to heat the more efficiently will they work, but that, as the mains are simply used to convey heat from the boiler to the radiating pipes, it is essential that they be protected in such a manner that they may radiate the minimum amount of heat. Where such main pipes pass through an open space, such as a cellar, they may be lagged with felt, silicate cotton, or other similar bad conductor. When however the mains pass through the ground, the best means of protecting them is to lay them in a hollow brick trench covered in at the top. In this way they will have a jacket of quiescent air, which, as you know, is one of the worst conductors of heat we can employ. You will also see that within reasonable limits the boiler may be at any distance from its work. Of course, however well cased the mains may be, some heat is radiated from them; so that the nearer the boiler is to its work the better. Still it is convenient to know that to accommodate the position of a chimney, or to obviate the necessity to build one where it will be unsightly, the boiler may be at some distance from the houses it has to heat. Short mains between the boiler and its work are usually made of 2 in. pipe, but never of smaller diameter than this. If there is a good distance between the two, 3 in. or even 4 in. may advantageously be used in order to decrease the friction of circulation. Horizontal radiating as well as main pipes should have a rise of at least half an inch in every 9 ft. to promote circulation. Contractions and bends promote friction, and should be avoided as much as possible.

The boiler should be well below its work. In anything beyond a very small apparatus indeed there should be a palpable rise between the inlet and outlet of boiler and the heating pipes with which they are connected. The greater this rise the higher will be the two columns of water with which

you have to deal; the higher the two columns of water the greater will be the difference between the weights of the two columns; and the greater the difference between their weights the greater will be the power of the column of cold water to force the column of hot water upwards—in other words, the easier and quicker will be the circulation. You cannot be too particular in having the boiler well below its work.

The valves usually used in hot-water heating are throttle valves. Some engineers, when they wish to modify or stop the circulation, fix valves on the flow pipe only, but I have always found it best to fix valves on the return as well as the flow pipe. Such valves however only impede the flow of water—do not resist the pressure. Personally, I should always prefer to use high-pressure stop valves instead of throttle valves; they are much more efficient, and if an accident takes place they will shut the water entirely off, and save a great deal of trouble and loss of time. If high-pressure valves are used, however, they must have a full, straight, unobstructed passage when open, or they will seriously impede the circulation of the water.

Water, when its temperature is raised from 40 deg. to 212 deg. expands about one-twenty-third of its bulk; consequently provision must be made in a hot-water heating apparatus for the expansion. This is provided for by a cistern situated above the apparatus. Inasmuch however as the water in the pipes never, or should not ever, attain 212 deg., and the water before heating is usually more than 40 deg., it is found in practice that provision need not be made for the expansion of more than one-thirtieth of the bulk of water.

To enable you to calculate the size of such cisterns I may mention that

100 feet run of 2-inch pipe contains about 13½ gallons.

“ “ 3 “ “ “ 30½ “
“ “ 4 “ “ “ 54½ “

Although the water in the pipes should never boil, yet evaporation, and consequent loss of water takes place; this cistern should therefore be connected with the bottom of the boiler, or a return pipe near the boiler, and will consequently serve as a supply cistern. Soft water should always, if practicable, be used in boilers, so that there may not be so much liability to incrustation. If air be not allowed to escape from the pipes circulation will be impeded; consequently there should be an air outlet at the highest point of the pipes in each series, or in one series if there happen to be a rise in more than one place, with a depression between, an air outlet should be provided at the highest point of each rise. The air outlet may be either in the form of a small tube rising eight or nine feet above the apparatus, or, if this is inconvenient, a small tap; the former however is self-acting and is to be preferred. The taps can only act when turned on, therefore require attention at least twice a day.

The most usual pipes for hot-water work are those having socket and spigot ends. These may be joined together with cement, red and white lead, iron filings, or indiarubber rings. For usual greenhouse work the latter are the best (Fig. 46). Pipes with flanges are sometimes used, but not often.

You may frequently be called upon to decide what boiler you shall use, and you will of course desire to choose the best. There are such a great number of good boilers in the market that I think I cannot do better than indicate to you some principles which may guide you in the selection of a boiler and the proper size of that boiler.

In the first place, the power of a boiler primarily depends upon the area of the heating surface and the description and position of that heating surface. Heating surface is only considered fully effective when it is flat and horizontal and the fire is beneath it. Vertical surfaces are calculated at 50 per cent. of efficiency, and horizontal surfaces beneath the flame are not calculated at all (Fig. 47).

Again, you will notice the fire directly impinges upon this heating surface. When, instead of the actual flame, merely hot air impinges upon the boiler, as in the case of flues in saddle boilers, only about one-third of the actual heating surface is taken as efficient. Having measured then the effective heating area of your boiler, you may calculate that each square foot of such effective area will heat about 40 to 50 ft. four-inch pipe, 55 to 66 ft. three-inch pipe, or 80 to 100 ft. two-inch pipe. Again, all the makers of boilers give on their lists the amount of pipe which they estimate each of their boilers will heat. For efficient economical heating you must never put on to a boiler more than about 60 per cent. of the maximum length of pipe which the makers guarantee such a boiler will heat.

If you see on a list that a certain boiler will heat 300 ft. of four-inch pipe, do not put on more than 200 ft.; conversely, if you have 400 ft. four-inch pipe to heat you should put on a boiler which the makers guarantee will heat 600 ft. four-inch pipe. This rule may be said to apply to any make of boiler.

Having reference then to what I have said about heating surface, that boiler may, other things being equal, be considered the most efficient which space for space has the largest amount of surface exposed to the action of the fire in proportion to the amount of water contained. Cast-iron boilers again are better than wrought, as they do not promote so much incrustation. Boilers are generally divided into saddle and tubular.

To sum up the merits of boilers, and from my own experience, I gather that cast are better than wrought, tubular are better than saddle, horizontal tubes are better than vertical; for boilers should have the maximum proportionate amount of effective direct heating area. They should be adapted for extracting the maximum amount of heat from the fuel; they should be capable of being easily stoked and cleaned; they should be adapted for burning easily the fuel most readily obtained in the neighbourhood; they should present, other things being equal, the minimum obstruction to the upward passage of the water in circulation, and the flow pipe or pipes should be at the highest part of the boiler, the return pipe or pipes at the lowest.

In conclusion, I may mention what is doubtless by this time patent to you, that a knowledge of the construction of horticultural buildings embraces, and in fact necessitates, a knowledge of some details of a great many trades—the excavator, the mason, the bricklayer, the joiner, the smith, the engineer, the hot-water fitter, the painter, the glazier, &c. I have in a very cursory and imperfect manner explained to you as many of these details as I could introduce in the time at my disposal. It is for you to follow up this interesting subject in the course of your professional career, and to bring to bear upon it your horticultural experience. As Lord Brougham once said, “It is very necessary for your success in life that you know something of everything;” but it is quite as necessary that you should know everything of something.

The House, Garden, and Apiary.

RESURGAM.

From depth to height, from height to loftier height,
The climber sets his foot and sets his face,
Tracks lingering sunbeams to their halting place,
And counts the last pulsations of the light.
Strenuous thro' day and unsurprised by night
He runs a race with Time and wins the race,
Emptied and stripped of all save only Grace,
Will, Love, a threefold panoply of might.
Darkness descends for light he toiled to seek:
He stumbles on the darkened mountain-head,
Left breathless in the unbreathable pure air,
Made freeman of the living and the dead:—
He wots not he has topped the topmost peak,
But the returning sun will find him there.

CHRISTIANA G. ROSSETTI

THE HOUSE

THE woodlark has for some time past given us so freely of his cheerful song that we are bound to say a word in his praise. We have always reckoned it a most constant and familiar garden friend in our suburban groves five miles distant from London city northwards, and have often been surprised to find it was regarded as a *rara avis* by persons to whom it had given freely of its music for any number of years. It feeds exclusively on insects except when the ground is frozen, and then, like other insectivorous birds, it will eat soft vegetable substances. As regards its food, it is one of the very best of the feathered friends of man, for it never touches fruit, but hunts for wireworms, caterpillars, and other of the insect enemies of the farm and garden. As for its song, it is richer, sweeter, softer than that of the skylark, but less powerful, and without the shrill sprightliness of the sky-cleaving “bird of the wilderness.” It is less a musician than the nightingale, blackcap, or fauvet, but its mellifluousness is delicious nevertheless, for in this respect it is the equal of the robin, though a superior songster to the rich wild warbler of the ruddy vest. The woodlark bears confinement well if reared from the nest, but full-grown birds pine away when put into confinement, and it is as foolish as it is cruel to confine them. As an insectivorous bird, it must be fed on soft food. In addition to the universal paste, occasional feasts of fresh curd, fresh ants' eggs, meal worms, and minced meat quite free from fibre should be provided. Bechstein records having seen “two woodlarks that had been kept in a cage eight years, very healthy and gay, with their feet quite free from disease, and singing perfectly. Their food consisted of crumbs of white bread and pounded hempseed mixed together; a piece of white bread, enough for the day, soaked in milk, which was poured boiling over it every morning, was also furnished; and finally some ants' eggs, given two or three times a day as a treat.

THE GARDEN.

ASPARAGUS BEDS should have due attention and be made quite clean, and where it is intended to make new plantations the work must be pushed on at once, or the season will be too far advanced for it to be done with much chance of successful results.

BEDDING PLANTS that were raised from cuttings struck early will now be in a forward state, and their pots full of roots. Shift any that are wanted large for centres of beds and back rows of borders. This is a good time to put in cuttings of bedding *tropæolums*, which flower best and grow more moderately when struck late and planted out in poor soil.

CABBAGE.—A sowing of two or three sorts now will furnish a supply of useful plants to fill up vacant plots as summer crops are taken off.

CARDOONS should be sown on land deeply dug and heavily manured, in rows four feet apart, the seeds in clumps of three each, eighteen inches apart. They are sometimes sown in trenches, but it is best to grow them on the level, as they do not require moisture to the extent of celery, and the blanching can be as effectually accomplished by banking earth up round the stems as by filling in trenches.

CAULIFLOWERS should now be planted out from frames at every favourable opportunity. If cold weather should follow, a large proportion of the plants will be destroyed unless protected, and there is no cheaper protection than empty flower pots. Abundant manuring is the most important of all the agencies in the production of good cauliflowers, particularly during the summer season.

CELERY.—Sow for the late supply in seed pans and place on a hotbed; but if no convenience of that kind sow on a warm dry border, and it will come up in time to make good plants for a late supply. Useful supplies may be had for flavouring soup by sowing any of the red kinds on a warm border, and when large enough planting them out in beds, six inches apart every way. These need not be earthed up at all, as the earthing is intended to blanch them, and for soup that is not necessary.

CUCUMBERS require careful management at this season of the year. See that the beds are not too moist, or mildew may appear. Add fresh linings, fork up the beds, give air cautiously, stop and train, and use tobacco at the first sign of fly.

ONIONS for salads to be sown frequently. Fork over the beds of main crop, and if no blade appearing, or if the blade is thin, make up your mind whether you ought to sow again. Onions sown last autumn may now be transplanted to rich beds, in rows nine inches apart, and be helped with occasional sprinklings of guano on the surface.

PANSIES.—This is a good time to buy in stock of new kinds, and to sow for pot and border bloom. Cuttings of bedding kinds put in now will make nice plants to bloom all the summer.

SPINACH.—Sow the round-seeded again for succession, and also the prickly or Flanders. These winter sorts do not bolt so soon in hot weather as the round-seeded, and should be preferred for all except the earliest spring sowings.

STOCKS of annual duration comprise the Ten-week and pyramidal types, and afford a great diversity of colours, the most important being particularly rich and pleasing. Properly, the annual stocks are classed as half-hardy,

and it is safest to sow the seed under glass during the next week or ten days, pans or shallow boxes filled with sweet sandy soil being used as seed beds. By the middle of May, when the plants are strong, the pans can be placed in a sheltered spot in the open ground, and when the plants are a little hardened may be transplanted into their permanent places, either in beds or borders. If a cold frame is at disposal it is well to prick the seedlings out into this first, and then they will transplant with balls of soil; but this must depend on the circumstances of the grower. These like a rich soil; it would be difficult to have it too good for them, as there is no comparison between plants grown on a poor border and those grown in luxuriance. A selection of some ten or twelve colours properly arranged will give a bed of surprising beauty, or produce a distinct effect in the mixed border, provided a little taste is shown in their arrangement.

TOMATOES AND CAPSICUMS.—Pot off as fast as needful, and keep them growing vigorously. It is not too late to sow if they have been neglected.

WALL TREES should be carefully examined to gather the first crop of young caterpillars. There is no process like hand-picking, and where to pick will be known by the curl of the leaves. When the trees have advanced sufficiently in growth, disbud and thin fruit, and remember that there is nothing gained in the end by taking too large a crop from a fruitful tree. In disbudding do not remove too many buds at a time. First take off with the finger and thumb those that are obviously ill-placed; a week afterwards select a few for laying in to keep up the furniture with young wood, and remove others that are again evidently not needed. This process will very much reduce the work of summer pruning, and strengthen the shoots left to form bearing wood. Be in no haste to remove tiffany and other shelters from walls; but let the trees have plenty of air, for coddling is most injurious to them.

THE APIARY.

THE bee-keeper who is anxious to make his apiary really profitable must pay unremitting attention to the bees just now. The hives should be disturbed as little as possible at this season of the year, but in the case of many of them an examination is desirable for the purpose of ascertaining their condition, and the time at which they may be expected to swarm. If the hives can be examined without the use of smoke so much the better for the bees, but as they are now remarkably active great care is necessary in handling hives in which the bees have not been frightened by a few whiffs of smoke. Strong hives, from which early swarms are not particularly required may have supers put on as soon as the combs are covered with bees, and from these supers an early supply of honey for the table can be obtained. The supers must have a warm covering of some kind, and their size regulated by the requirements of the apiarian and the strength of the stocks, but in all cases there must be no opening to admit the bees otherwise than from the interior of the hive. In some instances artificial food will still be needful, but if the weather is favourable to the gathering of honey the bees should be left to their own resources.

SPRING FLOWERS AT THE HALE FARM NURSERIES.

OWING to the remarkably mild weather which has been experienced throughout the winter and up to the present moment, many hardy plants that are usually in bloom at the end of March and beginning of April were past their best when we were at the Hale Farm Nurseries a few days since. From the same cause some subjects that in the ordinary course do not produce their flowers until May were rapidly coming forward and promised to be considerably in advance of their usual season. It is worthy of note, in connexion with the influence of the mild weather upon vegetation, that a goodly number of hardy plants flowering in spring will be later than the average. At present they are coming along so slowly that they will not be in bloom so early by a fortnight or three weeks as in most seasons. The most important subjects now in bloom, as for several weeks past, are the daffodils, of which the collection is quite unsurpassed, either as regards its extent or comprehensiveness. How many acres of the nurseries at Tottenham Mr. Ware devotes to these charming flowers we cannot say, but we can state that the area is very large, and that the choicest of the kinds are grown in such large breadths as to be positively startling. The alpine primulas, which are evidently at home at the Hale Farm, are also particularly attractive at the present moment, and the large sheets of the choicer anemones on the rockery and elsewhere suggest how easily the less highly-dressed portions of the pleasure grounds and woodland walks might have their attractions materially enhanced.

Narcissi have special attention paid to them, and throughout March they have formed a feature of great interest and attractiveness, and as many of the kinds are now coming into bloom they will contribute in no small degree to the attractions of the nurseries for some time hence. All the varieties which have a place in the collection are grown in very large breadths, and such fine kinds as *Bicolor Horsfieldi* are cultivated in immense numbers. The Ajax or trumpet section includes some of the most beautiful of the daffodils, and chief amongst them is the noble and very beautiful variety of which the name is given first mentioned. *N. bicolor* is an exceedingly beautiful species, and as it is a fortnight later than *Horsfieldi* it forms a capital succession to it. *N. bicolor primulinus* is a beautiful form, the trumpet of a rich golden yellow colour and the perianth divisions of a primrose. *N. bicolor sulphureus* is also remarkably beautiful, and differs from the preceding chiefly in the perianth divisions being of a delicate sulphur colour. The Emperor Daffodils, or *N. lorifolius maximus*, is a varietal form of great excellence, the flowers of immense size and grand form, and the colours very rich. *N. Humel albidus* is a hybrid of comparatively recent introduction and exceedingly beautiful; the perianth divisions are delicate primrose and of the same length as the trumpet, which is of a bright yellow colour. *M. moschatum* and *M. albicans* are two charming forms with large handsome flowers, of which the perianth is pale white and the trumpet primrose-yellow.

In the section comprising the varieties bearing flowers in which the crown is less than half the length of the perianth divisions, the *N. incomparabilis* varieties were particularly good. Most noteworthy perhaps were *N. i. Leedsi amabilis*, a new form with large white flowers, and *N. i. Leedsi*

superbus, a magnificent variety with white flowers, which has been likened to a gigantic form of the beautiful *N. montanus*, the white Nonpareil Daffodil of Parkinson. *N. i. Leedsi albidus* is a pleasing variety with soft yellow flowers of the most pleasing character, and *N. i. Leedsi expansus* has large white flowers with bright orange and much expanded crown, it is one of the most distinct, and certainly one of the most beautiful varieties in the section. *N. incomparabilis maximus* is a very large and handsome form with white flowers, and *N. Macleai* is a pretty species, the flowers white and sweetly scented. *N. Nelsoni* and its varieties *Aurantius*, *Major* and *Minor*, are all exceedingly beautiful and valuable for their comparatively late flowering. *N. Nelsoni* has large flowers, the perianth white, and the trumpet yellow, and the flowers of *N. Nelsoni aurantius* are white, with bright orange-red crown.

The third section comprises species and varieties bearing flowers of which the crown is one-half the length of the perianth divisions, and includes the beautiful *N. Burbidgei* and its varieties. This fine hybrid has flowers somewhat similar in character to those of the Poet's Narciss, the perianth pale white, the cup yellow, edged with orange-scarlet; it is remarkably effective and very distinct. *N. Burbidgei grandiflorus*, and *N. Burbidgei marginatus* are two pleasing varieties, bearing flowers with white perianths and lemon coloured cups, edged with orange. There yet remains to be noticed one of the most valuable, from a strictly utilitarian point of view, in the collection, and that is the early form of the Poet's Narciss known as *N. poeticus ornatus*. The species so well known does not in ordinary seasons bloom until early in May, when its flowers are sent to market in large quantities. But the variety *Ornatus* blooms from four to five weeks earlier, has flowers of larger size and finer form, and is of immense value for supplying flowers in the early part of the season; whilst in the garden it is remarkably effective, and its pure white flowers relieved by the scarlet margin to the cup present a striking contrast to the many yellow-flowered kinds in bloom at the same time. This year it was in full bloom at Tottenham by the middle of March, and the large breadths are still well-nigh solid with colour.

Alpine Primroses in the frames and on the rockery are flowering freely, and demonstrate how eminently attractive they are when cultivated with a fair degree of success. Amongst those in bloom were *Primula auricula*, a charming species of medium growth and bearing sweet-scented yellow flowers; *P. intermedia*, a fine species with purple-crimson flowers; *P. intermedia Minstrel*, a distinct variety with flowers of a more decided purple colour; *P. marginata*, a distinct species with mealy foliage, the farina forming a distinct white line along the edge of the leaves, the flowers of a deep rose colour; *P. rosea*, a very beautiful species, sufficiently robust in growth to be successfully cultivated in a well-drained border, the flowers borne in large umbels and of a bright rose colour; it is also well suited for pot culture. *P. viscosa nivalis* has white flowers, which are delightfully fragrant and very freely produced in large globular heads.

Anemones were flowering so freely in the rock garden that they contributed in no small degree to its attractiveness. There were three double forms of the Wood Anemone, all of which are remarkably beautiful. *Anemone nemorosa alba plena* has large double pure white flowers; those of *A. nemorosa rosea fl. pl.* are tinted with rose, and *A. nemorosa bracteata fl. pl.* bears flowers which are surrounded with green bracts and have a very distinct and attractive appearance. *A. apennina*, a beautiful species with blue flowers, is now well known, but the masses in the rock garden produced such a striking effect that the temptation to say that it is one of the most beautiful flowers of the spring cannot be resisted. One other anemone must be mentioned, and that is *A. stellata fulgens*, the brilliant scarlet flowers of which produce a peculiarly striking effect early in the spring.

Epigaea repens, a rare and exquisitely beautiful North-American plant, was flowering freely in one of the frames, and no difficulty was experienced in understanding what a fine subject it is for a damp and shady position, and the striking effect it produces when well established. The flowers are of the purest white, and pleasingly relieved by the closely-set bronzy green foliage.

Scoliopsis Biglowi, another North-American plant, thriving best in a moist shady position, is also well worthy of attention, although more remarkable for the singular form of the flowers than for bright colouring. It is very early in flowering: many of the plants in the Hale Farm Nurseries have been in bloom since February, and are likely to continue so for some time longer. The foliage is rich green marbled with darker green, and forms medium-sized tufts. From the centre of these rise the flowers, which in form resemble those of the trilliums, and are of a pale greenish colour regularly striped with purplish crimson.

Trilliums were flowering in capital style, and we made note of *T. grandiflorum*, pure white; *T. erectum*, purple, and *T. sessile*, purple flowers and marbled foliage, as being particularly good.

Fritillarias were contributing their full share to the attractions of the nurseries, and amongst others in bloom were *F. lanceolata*, a handsome species from Oregon, with dark purple flowers; *F. tristis*, a curious little species with blackish flowers; *F. Moggridgi*, a fine form with large handsome bright yellow flowers; and *F. amena*, a pretty yellow-flowered species of medium growth.

Puschkinia scilloides, one of the most beautiful of the spring-flowering bulbs, was blooming finely, and fully established its claims upon cultivators of hardy plants; the flowers, which are produced in elegant spikes, are white shaded with blue.

Iris included several species in bloom, amongst them being the beautiful *I. stylosa*, a rather dwarf-growing species, producing comparatively large light blue flowers, which is well deserving of the most widely-extended culture.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—“By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame.”—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—“JAMES EPPS AND CO., Homeopathic Chemists, London.”—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

THE SNOWDROP NARCISS.

In visiting gardens, and discussing the relative merits of daffodils, we find that the snowdrop narciss may for the present be regarded as a rare and indeed almost unknown plant. In truth it is as old as any in our gardens, and, like many other kinds that are but rarely seen, deserves to be widely distributed. It is described in Parkinson's "Paradisus," page 72, as the White Nompaille Daffodil, *Narcissus montanus*, and is figured at page 71 of the same work, the flower being a very near counterpart to the one on the left in our group, which, it may be proper to remark, was drawn by Mr. Alfred Slocombe from flowers obtained for the purpose from Mr. Barr's collection at Tooting. In Herbert's "Amaryllidaceæ," page 310, it is entered as *Queltia montana*, the *Tros poculiformis* of Haworth, and it is admirably figured in Burbidge's work on the Narcissus, plate xvi. Herbert refers to a variety called *Galanthifolia*; but there are many varieties that may be said to revolve around the typical *montanus*, and these we endeavoured to group under the species in our Catalogue of Narcissi.

The Snowdrop narciss belongs to Baker's group of *Medicoronatæ*. It

ACHIMENES FOR THE CONSERVATORY.

By WILLIAM COLE, The Grove Vineyard, Feltham.

To cultivate achimenes successfully it is essential to subject them to no more artificial heat than is necessary to maintain a steady growth; to provide them with a position in which they will be near the glass, and enjoy a free circulation of air without any risk of being scorched by the sun or injured by cold winds, and to employ a rich and rather open compost. It is too much the practice, especially in the case of young growers, to regard the achimenes as belonging exclusively to the stove. In consequence they are grown in a temperature far beyond their requirements, and screened from every ray of sun, with the result that the growth is long-jointed and spindling, and the flowers are few in number, wanting in substance, and weak in colour. They properly belong to the conservatory, and, excepting in the earlier stages of growth, the temperature to which they are subjected should not be much in excess of that usually maintained in ornamental structures. An important point in their culture is to defer starting the roots until the end of March or beginning of April. They are not often wanted in the conservatory before July, and when they are started at the period mentioned there is



THE SNOWDROP DAFFODIL, *NARCISSUS GALANTHOIDES*.

has flattish glaucous leaves, a one or two flowered scape, the flowers drooping, pure white, and agreeably odorous. The tube is cylindrical, the divisions waved or twisted, the crown cup shaped and slightly plicate. Mr. Baker remarks of it that it does not produce seed in gardens, which in a general way is true. It is understood that Mr. Leeds was indebted to it for some of his crosses, but whether it was employed as a seed or pollen parent is not known. Its likeness to a gigantic snowdrop will enable any one to recognise it when it happily occurs in a collection of narcissi.

BARR'S NARCISSUS.

The section of hybrid narciss classed as species under the designation *Narcissi Barri* comprises a number of very elegant varieties, which are not only serviceable as border and woodland flowers, but of special value also for decorative purposes. Their handsome forms and fine colours will always arrest attention, and the expert in narcissi will quickly read in them their parentage. They are referrible more especially to *N. incomparabilis*, as are those of the kindred group named collectively *N. Burbidgei*, but those under *N. Barri* have a more prominent cup, which is truthfully shown in the figure.

plenty of time for the production of good specimens, and the plants can be brought along chiefly with warmth derived from the sun's rays. In many gardens a beginning is made as early as February, and when the plants are required in bloom at the beginning of the summer for some special purpose, nothing can be said against the practice. But when they are not wanted for the conservatory until the polargoniums and other subjects flowering early in the summer are past their best, it is a mistake to begin so early. Moreover, the structures which afford them the most suitable quarters during the first stage of their growth are usually too fully occupied until the middle or end of April to admit of the achimenes having justice done to them.

For the embellishment of the conservatory they should be grown in pots and baskets, the former for grouping with other subjects on the stages, and the latter for suspending from the roof. I would direct special attention to the adaptability of achimenes for baskets, for as yet their capabilities as basket plants have been only partly developed. I would strongly advise their more general culture in baskets. The roots should be started in precisely the same way for pots and baskets, and the best course to take is that which will be briefly described. First prepare as many pots or shallow pans as may be considered necessary by placing

a layer of crocks in the bottom and filling to within half an inch of the rim with some rather light rich and sandy mixture. Then carefully shake the roots out of the old soil and lay them about an inch apart on the surface of the fresh soil, and cover to a depth of about a third of an inch with the prepared mixture. A moderate watering with a can to which a fine rose is affixed to settle the soil will complete the operation. The pots or pans should then be placed where the roots will have the assistance of a temperature of about 70 deg. A cucumber pit, vinery, or peach house will suit them admirably, but they must not occupy a densely-shaded position, such as under vines or peach trees long after the young plants make their appearance above the surface. On the other hand, they must not be exposed to brilliant sunshine, for the leaves are very susceptible to injury from the sun, and full exposure will in all probability result in serious injury.

The young plants ought not to remain in the pans long after they have attained a height of between one and two inches, and if they can

facilitate the free extension of the roots. In all cases it is advantageous to add a few handfuls of nodules of charcoal or clean crocks broken up small. The peat and loam should be chopped up moderately, and the leaf-mould, manure, sand, and charcoal or crocks be well mixed with them. The baskets should be about twelve inches in diameter, and after the interior has been properly lined with moss, and a small quantity of crocks placed in them, they must be filled with the compost prepared as above advised.

When the pots and baskets are in readiness, carefully lift the plants from the pans and dibble them over the surface at a distance of about two inches apart each way, the outer row to be near the edge of the pot or basket as the case may be. They will require a rather liberal watering to settle the soil, and until they begin to root freely in the new soil they must be kept rather close and be shaded in bright weathr. A moist atmosphere and a light sprinkling of tepid water overhead twice daily will be of considerable assistance. When they are nicely established,



BARR'S DAFFODIL, NARCISSUS BARRI GRANDIFLORUS AURANTIUS.

be potted off before they exceed two inches in height it will not be necessary to find them a new position, should the one occupied be much shaded until after this has been done. From the pans they should be put direct into the baskets or pots in which they are to bloom, for repottings are quite unnecessary, excepting where large exhibition specimens are required. For conservatory decoration examples in six-inch pots are the most suitable, and should have the preference. A few may be grown in five-inch pots if there is a demand for plants to put in vases too small to receive the larger sized pots. In preparing the pots, place a two-inch layer of crocks in the bottom, with a covering of some rough material over them, and fill to within an inch of the rim with the compost. This should consist of two parts turfy loam and one part each of fibrous peat, leaf-mould, well-rotted manure, and sharp silver sand. If the loam is deficient in fibrous matter a small proportion of cocoanut-fibre refuse may be added to assist in keeping the mixture light and open, and thus

they should be placed in a light position near the glass, and be secured from sunlight in bright weather. At other times they ought to be fully exposed, for unless they enjoy a fair share of light they will not be so strong and short-jointed as could be wished. In bright and dull weather alike the ventilation should be liberal without being excessive. Until they are coming into bloom, a light syringing once or twice a day, according as the weather is dull or bright, will be highly beneficial, and, as in the case of other plants, morning and afternoon are the best times for the application of water to the foliage. With reference to the supply of water to the roots, it will suffice to say that it must be moderate until the pots are filled with roots, when it may be increased, but at no stage must it be excessive. As they are coming into bloom, weak liquid manure about twice a week may be applied with advantage.

The little training necessary to ensure well-balanced specimens should be commenced at an early stage, and be proceeded with as the growth

progresses. Those in pots should be provided with neat stakes about twelve inches in length when the plants are about three inches in height, and to these the shoots should be loosely tied as they increase in length. They will, with but few exceptions, reach the tops of the stakes by the time they begin to produce their flowers; and when any of them fail to do so the stakes can be easily shortened. The baskets should from the first be suspended in a suitable position. In training the plants, bring the outer row over the sides, and train them as far as practicable to hide the wires. Those in the centre will require short stakes to support them above the surface, but the best idea of the manner in which the training should be carried out may perhaps be conveyed by the statement that the baskets should, when the plants are in bloom, present the appearance of a globular mass of flowers. It may perhaps be useful to state that after the beginning of May achimenes can be grown in any structure which can be kept rather close, to enable the cultivator to husband the solar heat and maintain the desired degree of warmth.

Some of the finest of the numerous varieties in cultivation are, *Admiration*, *Advance*, *Ambrose Verschaffelt*, *Argus*, *Aurora*, *Celestial*, *Eclipse*, *Grandis*, *Longiflora major*, *Magnet*, *Masterpiece*, *Uberon*, *Pink Perfection*, *Rose Queen*, and *Williamsi*.

PREPARING BEDS FOR DAHLIAS.

IN continuation of my remarks on the propagation and preparation of dahlias, I now purpose offering a few hints on preparing the beds, as the work must have attention in a very short time hence. It is very desirable when the application of manure and the digging of the borders are left until the spring to perform these operations early enough for the ground to be exposed to atmospheric influences two or three weeks previous to putting out the plants. Consequently, as the planting should be done about the third week in May, it is of importance to determine upon the position of the beds or borders, and manure and dig them over either before April is out or in the first week or ten days of the month following.

When the dahlias are grown for the decoration of the flower garden, they must of course be planted in the positions in which they are likely to contribute most to the general effect. In cultivating them for furnishing cut flowers they can have a place in the borders in the pleasure grounds, or be relegated to an out-of-the-way corner, or to a quarter of the kitchen garden as may be the most convenient. But the plants intended for the production of blooms for exhibition purposes must be planted in a very carefully-selected position quite away from pleasure grounds. In the determining the position two essential points must be constantly borne in mind. One is the great importance of shelter, and the other the necessity which exists for supplying the plants abundantly with water during periods of dry weather. The situation should be open, and it must be sheltered particularly from the east and west winds. The latter must be specially guarded against, for when dahlias are fully exposed to their influence there will be a great risk of much injury being done towards the end of the summer, when the finest of the flowers are in course of development. The beds should also be within a convenient distance of the water supply. When the weather is at all dry they must be watered very liberally, and if the water has to be carried a considerable distance the work becomes very heavy, and possibly may be somewhat neglected at a critical stage. The most suitable quarters for dahlias I have yet seen were some I met with in the north a few years ago. These were in the bend of a rather small river, from which an abundance of soft water could be drawn with but little trouble; the soil was naturally moist, and on the north-east and west sides were screens formed with the balsam poplar and about twelve feet in height. Similar screens were also provided across the area at a distance of about two hundred feet apart, and running north and south. It is not always possible to provide quarters for dahlias by the side of a river or brook, but there is not much difficulty in sheltering the quarters assigned them with a poplar screen.

There is no occasion to provide dahlias with fresh quarters every year, and as it is not until the second or third year that the soil can really be worked into first-class condition they should be kept to the same quarters for some time.

In many cases where the number grown is not large efficient protection may be provided, if the situation is not much exposed, by enclosing the quarter with a row of scarlet runners trained to stout sticks eight feet in height, and inserted rather close together in double lines.

Dahlias are such gross feeders that the preparation of the soil for them is no light matter, especially when they are to be planted in the quarter for the first time. It cannot well be too deep or too rich. It ought certainly to be stirred to a depth of two feet, and have a six-inch layer of manure added to it. Good fat manure from the farm or stable yard or from an old hotbed is unquestionably the most suitable, but green or fresh manure from the cow byre or stable will answer admirably. There is no occasion to sweeten this manure, however rank, by throwing it in heaps and turning over, as in the preparation of manure for hotbeds, as the soil will sweeten it sufficiently before the roots of the dahlias come in contact with it. If the supply of manure is not sufficient for so heavy a dressing as is here advised, the quantity available should be supplemented with Clay's Fertilizer, which is the best of all the artificials for dahlias that I have tried. I have employed it with excellent effect during the past two seasons, and have applied it at the rate of two cwt. to a rood, with a light dressing of stable manure, and at the rate of three cwt. without manure. The results in all cases were eminently satisfactory. The fertilizers should be spread evenly over the surface, and if the ground

has been trenched over since it was last cropped it will suffice to dig the soil over one spit in depth. But if it has not been so prepared a different course must be taken. A rather wide trench must be opened out at starting and maintained throughout, and as the top spit is turned over the soil in the bottom of the trench should be forked over, and have a proportion of the manure mixed with it to encourage the roots to strike down and be as far as is desirable beyond the influence of a short period of drought. Some writers advise the whole of the manure to be put into the bottom of the trench, but according to my experience, which has now extended over many years, the practice has but little to recommend it, if it is not decidedly objectionable. It will not be necessary to dress beds in the flower garden in which dahlias are to be planted so liberally as advised above, but the soil must be enriched sufficiently to sustain a vigorous growth. The cultivation of dahlias for exhibition purposes on thin and naturally poor soils will be found very uphill work, and in most cases it will prove very disappointing. Thin or shallow soils may be materially improved by the addition of strong loam, and if loam can be obtained at a reasonable rate a moderate dressing will afford an ample return.

It is yet too early to refer to the details of planting out, but there are one or two points to which allusion must be made for the purpose of enabling the cultivator to have some idea of the space he will require. As regards the number of varieties and the number of plants to be grown, it must be stated that if it is intended to compete in a class for twenty-four blooms, distinct, fifty varieties at least should be selected and not less than two plants of each grown. The safer course would be to grow sixty sorts, and three plants of each. In preparing for a stand of forty-eight, three hundred plants in a hundred varieties will not be too many. The plants must be far enough apart to allow of their full development, and afford space for the cultivator to pass readily between them. They will do very well when five feet apart each way, but the proper distance is six feet, and that I would strongly recommend.

AN OLD DAHLIA FANCIER.

MINSTRELS OF THE SPRING.

How would a blind man know, without human aid, of the changes of the seasons? In this country, and in such a season as the present, he would gain no hint from the prevalence of storms, the chills of winter, or the warmth of spring. On Christmas Day we had May temperature and sunshine, and during February it has been so warm that roses have opened their blooms in the neighbourhood of London. But the blind man, whether a Homer or an *Edipus*, a Huber or a Belisarius, if ever an observer of nature in the days of his proper vision, would be able to count off the months, and sometimes the weeks, by the voices of the birds. True to the almanacs, within a few days, from far to near, and in some cases true almost to an hour, the songsters of the woods and gardens publish their arrival, and their changes of mood, and feeling, and prosperity, in their calls, carols, and utterances of fear, warning, anger, love. There is always a dead pause from the middle of August till the middle of October, when the sparrows and chaffinches have it almost to themselves, to do as they please with the hedgerow and woodside echoes. Then the concert begins again, with the robin as leader, and a succession of performers follow fieldfares, redwings, missel-thrushes, song-thrushes, blackbirds, wrens, and finches of many kinds. But all these make little more than a confused twittering, amidst which rises, distinct and clear, the rich but melancholy warble of the robin, and the loud detached whistlings of blackbirds and thrushes. Yet though our winter music is poor compared with the season when spring and summer mingle among the darkening greenery, we are much better off than is commonly supposed. October brings us the migratory *Merulide*, the fieldfare (*Turdus pilaris*, Will.), the redwing (*T. iliacus*); and the missel-thrush (*T. viscivorus*), which never leaves us, appears as a migratory bird amongst the gardens, where it is seldom seen at other periods of the year. With these we may group the crossbill (*Loxia curvirostra*), with its musical "tutter tutter," the siskin (*Fringilla spinus*), with its incessant small song, so like, in some of its odd passages, the sound of the loom that it is the greatest favorite as a pet among the weavers of Nottingham and elsewhere. The mealy redpole (*Linota canescens*) visits us only in hard winters, and has this season been a scarce bird, and when plentiful its song is but a poor affair; but it has a musical companion in the mountain linnet (*Linota montana*), which sings nearly as well as the common linnet. As for the finches, they literally smother the gardens occasionally, then break up and appear singly, and make a plentiful twittering when food is abundant. There is the common wren (*Anorthura troglodytes*, Niac.), the gold-crested wren (*Regulus auricapillus*, Selby), and the fire-crested wren (*R. ignicapillus*, Mudge), always with us, flitting from bush to bush, rarely mounting among the branches of high trees, and all of them so easily approachable that it would be possible to train quick-sighted nimble boys to take them by the hand. The pied wagtail (*Motacilla alba*) and the greenfinch (*Fringilla chloris*, Temm.) give their occasional touches of music, the first about the margin of the pond, and the second among the orchard trees, where it performs its harsh "chink" with a pertinacity worthy of a softer throat.

These are not all the true winter songsters, but of the rest we can scarcely take note, for they are either rare and local in occurrence, or contribute so little to the concert as to be scarcely worthy of notice. But the opening of the first crocus is the signal for a general outburst. Then the loud blackbird, with his restricted compass and unskilful execution, makes amends for poverty of art by lustiness of expression, and leads the way, as the robin did before, but to a nobler chorus. From every copse and hedgerow now reounds the full melody of the garden thrush, a perfect song, monotonous, yet so full and joyous that we rarely pause to criticise; and above it rises the ouzel's clarion, shrill and decisive, pronouncing that the time of singing birds is come, and the copes are being newly dressed with spanglings of gold and silver. All the winter long I have heard the skylark trilling out his cheerfulest of melodies in the sunny sky over our suburban meadows; and now the sky is on bright days almost dotted with these spiral-flighted songsters, the freest and wildest of all the birds of spring. I like to note at this season how far our poets and painters have

hit or missed the mark in their renderings of nature. That oft-quoted song from Shakspeare's *Midsommer Night's Dream*—

The osel-cock, so black of hue,
With orange tawny bill;
The throistle with his note so true,
The wren with little quill (act. iii., sc. i.)

is next akin to a zoological monograph. "So black of hue" is no haphazard expression; the "osel" is the blackest of all birds, blacker some degrees than the raven; and the "orange-tawny bill" is such a perfect complement of colours that it is unquestionably the most artistically painted of all the British aves. Contrast Shakspeare with Pliny, who tells of blackbirds becoming red in winter, and see how the quaint writer and careless observer confounded the sexes, and made the brown female a transformed and dilapidated gallant. Pliny does not tell of the most curious of all the facts in the history of the blackbird—that it is the most subject to albinism of all the birds of Europe, and a genuine white osel is by no means a rare sight. I remember seeing one when a lad: it was shown for sixpence, along with a three-legged colt, in a stable yard in the Blackfriars Road. There is a cream-coloured specimen in the British Museum, and some years ago there was one in the Zoological Gardens with a black body and a white head. The sparrow is also much subject to albinism, but in a less degree than the blackbird; I saw two white sparrows in the collection of Dr. Hobson, of Leeds, some few years ago.

But is the "osel-cock" of Shakspeare the same as our quarrelsome and loud-spoken blackbird? Some have denied the identity, for no good reason that was ever alleged. Drayton studied nature in the same fields as the great poet, and at the same time, and he classes together two birds that have inevitable companionship—

The throistle, with shrill sharps, as purposely he song
T'wake the lustless sun, or chiding that so long
He was in coming forth, that should the thickets thrill:
The woosel, near at hand, that hath a golden bill.

Poly-Olition, 13.

Not to pass from Shakspeare, too hurriedly—for he is the chief of our spring minstrels, who stood between the winter song of Chaucer and the summer-time of literature, when Milton made our language marvellously vocal—observe the next line—

The throistle, with his note so true.

When the Hon. Daines Barrington classified the chief singing birds as to their comparative excellences, he assigned to the thrush four points of perfection (twenty being the maximum) in all the qualities of mellowness, sprightliness, plaintiveness, compass and execution; and there is but one other bird in that table classed with equal numbers all through, and that is the titlark, a charming songster, which has twelve points in each section. The song of the throistle is essentially true. When you hear now a huge whistle, followed by a discordant jar—that is the osel; when next you hear a mellow, lively, plaintive song, lusty and loud—that is the throistle, the the nightingale of spring. It did not escape the quick perception of Shakspeare that loud and lively music in a regular measure prompts the hearer to dance or sing to the same tune, and in the *Merchant of Venice* Portia describes the susceptible sensitiveness of Monsieur Le Bon: "If a throistle sing, he falls straight a capering"—a passage which might any day form a text for an essay on analogies and sympathies. What now shall we say of the last line of the song, "the wren with little quill"? Let us suppose—a fair supposition in regard to a lad who put a longing eye upon the deer in Lucy's Park—that Shakspeare was in his youth given to the practice of the gentle craft beside the leafy Avon; then he would have prized, as modern anglers do, the tail feathers of the wren as the best of all baits for trout, and the remembrance of the fact would suggest the "little quill" as he grouped together the three liveliest and truest birds of winter and early spring. If any angling reader of this has found excuse for using the gun to obtain wren's tails, we counsel him to adopt the more merciful plan recommended by Mr. Broderip: Set a lad to catch wrens by hand—an easy thing to do—and, having plucked a few of the tail feathers, let the bird go free; he will soon repair the loss, and be none the worse for the robbery.

Modern poets freely use the license allowed them, and many are the violations of truth observable in works which rank among our classics. I have several times during the past winter watched the groups of fieldfares which haunt the quieter parts of our meadows and arable lands, and have compared Scott with Gisborne, to note which had painted nature in the truest colours. The fieldfare arrives early in October, and leaves us some time in April, and never stays beyond the second week in May. Yet Scott in the "Lady of the Lake" describes it as a summer bird—

Beneath the broad and ample bone,
That buckled heart to fear unknown,
A feeble and a timorous guest,
The fieldfare framed her lowly nest.

Gisborne indulges in the extreme of accuracy, reminding one of the "inventory style" of Crabbe, yet his picture is charmingly truthful—

Lo! on yon branch, whose naked spray o'ertops
The oak's still clustering shade, the fieldfares sit,
Torpid and motionless, yet peering round,
Suspicious of deceit.

Walks in a Forest: Winter.

Among our Stoke Newington birds the principal at this season are the commoner species of *Merulidae*, the common wren, the skylark, woodlark, robin, and hedge-sparrow. As for the wrens, they flit about in the hedge-rows like mice, and utter their cheerful miniature song with as much boldness as the bravest of our songsters. Now among the special indications of spring must be noted the occasional appearance of *hen* robins, and everywhere among the songsters pairing time is anticipated through the unusual mildness of the season. Thus we have a commixture of warblers, and at midday, when the blackbirds and thrushes sing with less vigour than at dawn and dusk, the robins and the hedge-sparrows have the welkin almost to themselves. Already the robins have paired and commenced their household work, perhaps to be undone by eastern blasts when the fruit trees are all in blossom. But whoever would now combine literary with ornithological musings may make a scientific study of the "Babes in the Wood."

There have been but few experiences gained as yet in the use of synthesis

in natural history. It is all analysis at present, but in the future of the physical sciences we must hope to see synthetical methods of reasoning turned to as good account in this science as in chemistry, astronomy, and geology. When I look around me at a number of pet birds in cages I cannot resist the temptation to work out general conclusions as to the history of species from the material furnished for the purpose by individuals in a state of confinement. Our common observations about the changes that occur in the habits of animals when brought directly under the influence of man are, after all, very vague and unsatisfactory. I find, as do other folks who keep pet birds, that in a state of confinement the season of song is, in the majority of cases, greatly prolonged; and if it be asked, "Why is this?" the reply is obvious: that shelter, warmth, and abundance of food favour a joyful state, and this the bird expresses in its own way, and so repays us for our attention. We are just emerging out of winter into spring, and the winter has been unusually mild, and many birds whose voices are hushed during the season of frost and snow have been continuously vocal; and the plentifulness of bird music confirms me in the opinion that the comforts of life have very much to do with frequent expressions of joyousness. So, passing from generals to particulars, if we note the kind of food which any particular bird prefers and thrives upon, we have somewhat of a key to its habits and history when in a state of nature. The birds we feed on soft food soonest suffer during hard frost, and so severe winters kill off blackbirds, and thrushes, and larks, and perhaps robins; for then their sustenance ceases to be available, even if plentiful, and is more likely to be scarce in quantity, and therefore doubly unavailable. The sentiment which prefers the free wild song of the uncaged bird is wholesome and to be encouraged, but it is a question if the history of any bird can be truthfully written without the aid of such opportunities for observation as are afforded by the cage and the aviary. Audubon tells of parrots scratching each other's heads when congregating on the branches of their native trees. I believe the statement, because, when I allow a couple of parrots to exchange familiarities, the first thing they invariably do is to engage in mutual scratching, and with extraordinary earnestness. I had some doubts about the size, and shape, and colour of the eggs of the small white cockatoo (*Psittacus sulphureus*), until a bird of mine (strangely called in our household language "the boy") presented me with a couple of eggs—pure white, and the size and shape of plover's eggs. When I reflect upon the mysteries of migration I am strongly tempted to sweep away all the fanciful theories of "mysterious instinct," and reduce the phenomenon to a question of food and temperature; and the conclusions in this direction which caged birds have suggested I find pretty well exemplified in observations of natural events. Let us endeavour to illustrate the case by a few remarks on the minstrels of the winter.

The *Sylvia*, or "warblers," which visit us in spring and depart in autumn, have their counterparts in the *Merulidae*, or thrush tribe, which visit us in autumn and depart in spring. True, many of the noblest of the *Merulidae* are permanent residents, and a few are only partially migratory. One of the most regular of the winter visitants is the fieldfare thrush (*Turdus pilaris*, Will.). It comes in October, and appears in various districts at different dates, as the individuals spread themselves over the country. At Stoke Newington it is a *rara avis*, yet I generally see a few in the early part of November, and thence to the end of March. Very often on mild damp days flocks of fieldfares and redwings (*T. iliacus*, Will.) traverse the flat meadows together, generally in the wake of feeding rooks. In a season like the present these birds are fat and occasionally vocal, their food consisting wholly of insects and molluscs, which they find in greater plenty in the track of the rooks than elsewhere, those expert foragers serving as jackals to indicate the locality of prey. But in a hard winter the fieldfares and redwings soon get thin; snails, and slugs, and insects are scarce, and they betake themselves to the berries of holly, hawberry, ivy, mountain ash, and hawthorn; and however plentiful these are the birds barely secure a subsistence from them, and while trusting to such food are invariably silent. When the Romans fed these birds for the table their food consisted of figs and flour; they might have fed with berries to any extent, and with any variety, and the result would have been complete failure. Now, let any possessor of caged *Merulidae* test the dietary of these birds by giving them abundance to choose from, and what berry will they touch while good "paste" is obtainable, and is there one that will prefer a haw or sloe to a fat slug or wriggling worm? Not one. But give them snails in plenty, and you shall be rewarded with a concert.

In the year 1868 there was a smart discussion in *Notes and Queries* on the interesting question of the "Earliest Bird in the Morning?" "H.W." had heard on the nights of June 8 and 9, at the hour of 2.30, the note of a robin. At 2.45 he heard the unmistakable voice of the cuckoo. "A.A." considers the nightingale as the earliest bird; he gives no date of his observation, but says, "A man employed to watch the fires of a country pottery by night tells me that from twelve to one o'clock all nature is silent; that at the latter hour Philomel begins her song, then the lark, cuckoo, and robin, and then the whole winged choir." Mr. Cuthbert Bede contributes a very interesting paper on the subject, which will be found in 4 S., II., 110. The gist of it is that the nightingale is not the earliest bird, for the simple reason that it sings at all hours, as though never needing sleep at all. "J." says nightingales during warm still weather in May are in full voice from sunset to two in the morning, and he has heard the cuckoo between midnight and one o'clock. S. Redmond says the lark is the earliest bird—in fine weather, it is up before one in the morning; but in this case no date is given. "F.C.H." considers the thrush the earliest bird. To this he adds, "Mr. S. Redmond asks which is the last bird, and if any one can tell him a later than the redbreast." He has perhaps not heard the solitary but very sweet song of the reed-wren, which I have many times listened to with great pleasure on a calm summer's night, between eleven and twelve or later, when the robins were long gone to bed. In Napier's "Food, Use, and Beauty of British Birds" occurs the following passage:—"If the naturalist rises betimes in midsummer, like the French M. Dureau de la Malle, he will find the greenfinch astir at 4½ in the morning, the linnet from 2 to 3, the quail from 2½ to 3, the blackbird from 3½ to 4, the redpole from 3 to 3½, the sparrow from 5 to 5½, the blue tit from 5 to 5½. A strong inducement it is surely to rise early to enjoy the songs of the birds." Finally, on the authority of a Huntingdonshire labourer, Mr. Cuthbert Bede closed the discussion by averring that "the cuckoo is the first bird to be up in the morning, and he goes round and calls the other birds." To that discussion I did not contribute, not being a reader of

Notes and Queries at the time. But I will now do so by saying that, in accordance with my own observations, the song-thrush is the earliest and the sparrow the latest bird to speak in the morning.

Our winter concerts would be very poor were we dependent only on wandering minstrels. The resident songsters keep the echoes of the hedgerows awake, and what a variety of these we have that brave our winters and give us Christmas carols and New Year songs! Since the beginning of December scarce a day has passed that I have not heard the notes of the blackbird (*T. merula*); but in a hard winter he, too, would be mute till the eastern sky showed again some of those saffron bars that indicate the dawn of spring. So the song thrush (*T. hortensis*) has been singing joyously all the winter long, though not in the best tone, and the missel-thrush (*T. viscivorus*) has nearly equalled it very often, and has been unusually plentiful here of late. Now the balance of song is very nicely established between summer and winter. The summer song of the nightingale has a counterpart in the winter and spring song of the garden thrush, a more powerful songster, though so deficient in compass, mellowness, and execution; and in place of the whole tribe of warblers, with the blackcap at their head, we have in winter a number of lively finches and larks, with the robin for captain; and so the months are attended by the several minstrels of the seasons. With every advance of the season the song thrush increases in volume of voice and in volubility of expression. There is such a joyous outpouring of song that the few notes over which the song ranges and its poverty as a composition are unnoticed while we yield to the spirit of gladness which pervades every utterance, and accept quantity for quality, and esteem ourselves happy that the season of awakening has so suitable a voice. But as the garden thrush rises to the full swell of his jubilant melody, the missel-thrush declines in power, and actually improves in sweetness, though it is certainly one of the least musical, though the largest and handsomest of the thrushes. To hear the discordant scream this bird will utter when the wintry storm has just begun to lash the pane, and cause the trees to creak and moan, is to acquire somewhat of a horror of the species. The way in which the songs of birds affect us could best be told by a master of thorough-bass, and one of the essentials to the pleasurable study of ornithology is a knowledge of the laws of musical harmonies. The thrush is, in reality, a poor performer, but he sings in the chromatic scale, and every note tells with full power on the feelings. The song of the robin is remarkable for its compass and sweetness. Barrington assigns to it six points of mellowness, sixteen of sprightliness, twelve of plaintiveness, twelve compass, and twelve execution. Yet with all these excellences it does not affect us so strongly as the poorer performance of the thrush, and the reason is not hard to discover, for the robin sings in the minor key. But we must guard against being led into error in endeavours to analyze bird music according to the laws of harmony. There is no regularity of pitch, no correct concord of measure and rhythm, and often the odd disregard of the bird for principles which the musician considers of the first importance affords us a pleasure to which there is no parallel among the attainments of the human performer. Here it is that Pope's line has a special application, the song bird knows how to—

Snatch a grace beyond the reach of art.

ALPHABETAGAMMA.

Literature.

LIFE IN THE HOLLOW LAND.

The Land of Dykes and Windmills; or, Life in Holland. By FREDERICK SPENCER BIRD. (Low and Co.)—Although the Netherlands or Low Countries have certain physical features in common, they differ in degrees of interest for the English observer. Those of our countrymen who read and travel often become enamoured of the more watery part of the Netherlands, called of old the "hollow land," and now labelled on the map Holland. All things considered, it is probably the most interesting part of Europe. Its origin is a mystery, its preservation a wonder, and its history a romance. What a battle field is this chopped-up tract of sand and water!—man for ever fighting with the elements, and yet finding time and strength to fight innumerable human foes, not only for country and home and bread, but for freedom of thought, religious toleration, and the true principles of enlightened government. He who knows not the history of Holland can never hope to understand the beauty of its grassy prairies, its innumerable stagnant streams, its red-tiled farmhouses, and its cities rich in architectural curiosities, and often embosomed in vocal woods that are as leafy as Valombrosa. The traveller who goes with an empty head to Holland will soon weary of its sameness and tameness; but the student of history, or the man who has only read with care the brilliant works of Motley, will see beauty everywhere, and will know not which has the greatest charm, the green polder or the grim town hall; the innumerable windmills or the mighty works of the engineer that prevent the sea swallowing the land it has so often desolated in its hungry fury. For a certain class of readers this book of "life in Holland" is full of delight, but otherwise perhaps it is "caviare to the general."

Mr. Bird begins with a brief but useful introduction, in which he carries us back to the time of Cæsar, when the miserable inhabitants were learning to construct dykes with basket work, and he soon brings us down to the present times, when millions of piles are used for the purpose; and he tells us these have cost an average of a pound a piece, to say nothing of the earthworks and stoneworks that have been constructed to keep the water out. There is nothing of its kind in the whole world that can equal the six-mile granite dyke at the Helder; but there are wonderful defences on the coast nearest to us, of which few except engineers ever give attention to, or even know of as existing.

Life in Holland is much mitigated by moisture. The land is sand, but it is not for that reason dry as the desert, because when a foundation of three feet depth is dug for a house, it is filled with water in the course of a few hours, and a solid basis is obtained only by driving in piles very close together. The King's Palace, in Amsterdam, though built of marble, rests on 70,000 wooden piles, and it is as square and true as if it stood on a stone bed. This is matter for wonderment, because everywhere, especially in the old cities, the houses are all awry in all sorts of ways; many of them lean over towards the street in the most threatening manner for the foot passen-

gers; while others perhaps lean the other way, with equal threatening to the navigators; for if there is a carriage road on one side of a house, there is sure to be a canal on the other, although often the canal, and the drive, and the avenue run together, and the housewife goes to a ship or boat to buy fish or potatoes, instead of going to a shop or having them genteelly delivered from the tradesmen's carts. Life, we say, is mitigated by moisture. The land is literally full of water, and should the useful windmills cease to turn it would become one vast swamp, and on the polder lands all life would soon be destroyed by consuming inundations. It is, nevertheless true that the people enjoy good health, and might perhaps enjoy better health if they could live with less smoking and drinking. Mr. Bird remarks on the plumpness of the women, and the comparative leanness of the men. But Dutchmen are reputed to be burly fellows, and northwards of Amsterdam, on both sides of the Zuyder Zee, they certainly are stout, and strong, and handsome. But they obtained their fame for fatness in days when schnapps and tobacco were not in everybody's mouth, from the boy of twelve to the man of sixty. But the enemies of health having gained the ascendancy, the men have become lean and melancholy, while the women, who do not smoke and drink, retain and maintain the ancient reputation of the race, and may still be reckoned the most buxom and rosy women in all Europe. They are not all beauties certainly. But regarded in the aggregate they are comfortable and contented looking, and in the most pleasant sense of the term "crummy;" while we fear the husbands, when they can manage forty cigars per diem, become "crusty" and troublesome to manage.

The author of this agreeable book pilots us through all the mazes of a Dutchman's life, and as we follow he enlivens us with stories and anecdotes illustrative of Dutch history and character. We hear of the frugality of this plodding race, and it is amusing to learn that when an ambassador from Philip III. once called the great nobles together, he was startled to observe that every man brought with him a bundle, containing a clean shirt perhaps, but certainly a supply of food to sustain him during the days or weeks over which the business might extend. The much-bedecked Spaniard saw that no King of Spain could hope to subdue such men: their very frugality was a tower of strength, for it would enable them to exhaust the resources of the greatest kingdom the world had ever seen, let alone the costly kingdom of the mediæval Spaniards.

The Dutch have very effective modes of dealing with pauperism, crime, and every kind of naughtiness. Their prisons, poor-houses, and asylums are models of good management. There is much poverty in Holland, but property is peculiarly safe unless it is neglected, in which case it is not safe. Their spin-houses and other places of refuge combine the corrective and the eleemosynary, and very great care is taken in the training of the young. Mr. Bird raises a laugh at the dresses of children in the charity schools, and those dresses are indeed, in many instances, sufficiently grotesque. But a Dutchman will explain the case in a manner that in some part at least justifies the extravagance. He will tell you that there is much drinking, and of the vices that follow in the wake of drink in all the great towns. The sailors of all climes swarm in the seaports, and the natives moisten their insides often to counteract the moisture they are exposed to in the air and the earth. The law forbids the sale of intoxicating drinks to persons of tender years, and, to remove from the keepers of tapperies all excuse in the case of children connected with State or charity supported schools, they are clothed in a garb that cannot be mistaken, and they add that those grotesque costumes are found effectual for protecting the children from other haunts of vice besides the drinking houses, and that it is considered a very serious offence to tamper in any way with the morals of a child clad in any of these curious costumes.

The stern style of the corrective discipline is illustrated by an anecdote as follows:—A Dutch gentleman married a beautiful lady some twenty years younger than himself. The young wife was extravagant and plunged her husband into debt, so that bankruptcy appeared imminent. At last he resolved to attempt her amendment by means of one of the corrective institutions. She had been invited to a grand ball at the house of a lady of rank, and the husband objected to her accepting the invitation because of the expense it would entail; but the wife was obstinate, and resolved to go to the ball in spite of him. He told her that if she persisted she would be excluded from his house for six months, but this made her indignant and the more resolved to brave out his displeasure. And so the husband had no more to say, and the lady made herself ready, and the coach drove to the door, and she stepped inside it in all her splendour of attire. But the husband was on the box, and he drove her to the Verbeterhuis, where she alighted, thinking, in the darkness of the night, that she had arrived at the scene of gaiety, but she found herself in prison, and screamed for her husband to come to her rescue. Great was her surprise when he stepped down from the coachman's box and told her that unless she could mend her ways she must reside for six months in the corrective establishment. The lady fainted of course, and, to cut the story short, she promised to reform, and was restored to her home a wiser and a sadder woman. Between naughtiness and affliction there is of necessity a great gulf fixed, but the sternness of the Dutch character is equally exemplified in an anecdote of Boerhave. This great physician had been called to the charity house at Haarlem to attend a girl who was subject to convulsions. While there he saw several children, one after another, seized with similar fits, and it occurred to him that the other cases arose solely from the effect of imagination, and that by preventing certain impressions on the mind the paroxysm might be avoided. He therefore, in the hearing of the boys and girls, ordered irons to be heated red-hot, and seriously declared that the first who should be seized with a fit again would have to be burnt in the arm. The cruel proposal so frightened the children that they were effectually cured of the dangerous tendency.

The frugality of living for which the Dutch have been celebrated, and to which, no doubt, they in great part owe their preservation as a free people, has long since given way to luxury and fastidiousness. Peace and Plenty will not make Spartans or Stoicks or Nazarenes; but War and Want will make Patriots and Heroes and Martyrs. Having thus made places for a nice group of capital letters, we turn to our author for one more anecdote, and then we will hand over the book to such of our readers as are disposed to invest a few shillings in an edifying discourse.

An old Dutch merchant, of Amsterdam, who had amassed a fortune, resolved to retire and enjoy his country house. But he wished to take formal leave of his city friends, and therefore arranged for them to dine

with him. The guests arrived, but saw no suitable preparations for their reception. There was a plain oak table, covered with a blue cloth, on which were wooden platters and pewter spoons. But they took their seats at this "festive" board, and two old sailors brought in salt herrings, after which came salt beef and boiled cabbage. But the appetites were not roused by this homely fare, and the herrings and beef and cabbage were taken away untouched. Then the blue cloth was removed, and revealed a white cloth of the finest damask, and servants in gorgeous livery appeared to lay a service of silver and gold, and to serve up a sumptuous banquet. Now the real eating began, and all were satisfied. At the proper time the host rose to address them. He said: "Such has been the progress of our Republic. We began with short frugality, by means of which we became wealthy; and we end with luxury, which will beget poverty. We should therefore be satisfied with our beef and greens, that we may not be compelled to return to our cabbage."

Notes of Observation.

PELARGONIUM GROSSULARIFOLIUM.

THE elegance and very pleasant aroma of the foliage of this pelargonium render it of great value for intermixing with flowers in a cut state. Whether employed in the formation of a bouquet for the hand, or in dressing an épergne for the table, I may perhaps be doing some of your readers a service in directing their attention to the species, which is not so very generally grown. The cuttings should be struck in the autumn in the usual way, and the plants be kept through the winter in a structure in which a temperature ranging from 45 deg. to 50 deg. is maintained. In the spring they will require hardening off in precisely the same manner as other pelargoniums intended for bedding. The plants may be put in the centres of small beds or in the mixed border, and they ought to have a rich soil to promote a luxuriant growth. Planted in a good soil they will attain large dimensions in the course of the season, and may be cut from freely. As soon as danger from frost is apprehended in the autumn, lift with a fair amount of care, put them in pots of a suitable size, and place in the greenhouse or other structure in which a similar temperature and rather dry atmosphere are maintained. The plants may be cut from freely throughout the winter.

Epsom.

SETTING OF STRAWBERRIES.

D. B.

I should much like to know from any of your valuable correspondents if forced strawberry plants are fruiting this season as well as usual? Ours are not bearing so well as usual: they produce plenty of bloom, but do not set their fruit, although I have taken care to fertilize the flowers carefully. We usually have some very good fruit by the middle of March, but this year we have had very few. I attribute this unsatisfactory state of things to the crowns not having been sufficiently ripened in the autumn, or to the exceptionally dull weather of the past two months. From my experience this year cold seasons with abundant sunlight are the most favourable for early forcing. The sorts of strawberries I find most useful for pot culture are: Black Prince, for very early work; Eclipse, a great cropper and early; Vicomtesse H. de Thury, La Grosse Sucrée, Keen's Seedling, President, and British Queen, the last-mentioned for late crop.

Cheshire.

W. M.

UNSATISFACTORY HYACINTHS.

It would be considered a service if any of your readers who are thoroughly acquainted with hyacinths would tell me why they are flowering so unsatisfactorily this season. In this neighbourhood, which is a few miles south-east of the metropolis, the nurserymen and florists have suffered rather severely from the bulbs not producing good spikes, and amateurs have complained of their want of success. The bulbs have apparently grown very well until the flowers began to expand, when the bells have assumed a rusty brown colour and withered completely away. I import Dutch bulbs of all kinds, especially hyacinths, from one of the best houses in Holland, and have generally succeeded in growing hyacinths in pots and glasses for sale as well as could be wished. But this year I have had a large number of complete failures both in pots and glasses. In many instances in which the flowers did not shrivel up in the manner described, the top of the spike appeared as if it had received a blow and been much injured thereby; but of course the spikes had not received an injury of that kind. I am quite sure that many other readers of the Magazine would be not less interested in any information that can be given upon the matter than

HYACINTHUS.

Law.

POTATOES DAMAGED BY ACCESS OF SEA WATER.

IN the Queen's Bench Division the case of White v. Arnold was an action for alleged negligence in the conveyance by ship of a large quantity of potatoes from Boston to Penzance. The defendant denied negligence, and said that the potatoes were not in a good condition when shipped. Mr. Crompton and Mr. Dunham (with whom was Mr. H. Matthews, Q.C.) were counsel for the plaintiff; Mr. Charles Hall, Q.C., and Mr. M'Coll were counsel for the defendant. In October, 1880, the plaintiff shipped upon the sailing vessel Nova Rosa, then lying at Boston and bound for Penzance, 2,009 bags of potatoes to be delivered at the latter port. The ship encountered severe gales, and, having lost her anchors, put into Lowestoft and remained there for ten or twelve days, when, fresh anchors having been got, the Nova Rosa proceeded on her voyage, encountering again severe weather, and on arriving at Penzance it was found that the potatoes were, for the most part, wet and rotten and comparatively worthless. The case for the plaintiff was that there was unnecessary delay at Lowestoft, and that the hatches were not caulked and properly battened down and covered with tarpaulins, by reason of which sea water got into the hold and caused the damage in question. The potatoes, with freight, cost about £648, and only yielded on sale £184 16s. 10d. For the defence evidence was given to prove that the ship

was perfectly seaworthy and well adapted for the conveyance of such a cargo; that the rottenness of the potatoes was not caused by sea water, but was attributed to their having been frosted when put on board; and that if any salt water had got into the ship it was owing to the perils of the sea, which were excepted in the bill of lading. During the voyage heavy seas broke over the ship, and on one occasion the captain and mate were washed into the fore rigging. It was also said that there was no negligence in not caulking the hatches, as that was not the practice in coasting vessels, and that the hatches were properly secured and covered with tarpaulins well fastened down, so as to effectually prevent any sea water getting in. As to the delay at Lowestoft, evidence was given that anchors could not be obtained there, and that it was found necessary to send to the manufacturers for new ones; also that as soon as they arrived the vessel was still further detained by contrary winds.

Mr. Justice Hawkins, in summing up, said the substantial questions were these—were the potatoes in good order and condition when shipped, or was there in them a latent defect, either occasioned by frost or discase, which caused them to rot? If they found that the potatoes were shipped in good condition and that by reason of the salt water they got damaged, the plaintiffs were entitled to their verdict—that was, if the salt water entered by reason of the hatches not being properly secured and covered over, or in consequence of the seams not being caulked. If the sea entered by the want of caulking, he should hold that that was not excepted as a peril of the sea.

The Jury, after having been locked up for some time, found that the potatoes were shipped in fairly good condition, and that the damage was caused by sea water penetrating through the main hatches owing to their not being caulked. They also found that the captain took all usual precautions and that the ship passed through severe weather, but not more severe than might have been anticipated at the time of the year—Damages, £463 7s. 8d.

Upon these findings, the learned Judge entered a verdict for the plaintiff for the above amount.

Replies to Queries.

Gymnogramma.—R. P.—It is probable that the drainage is not in proper order, and that in consequence the soil has become somewhat water-logged to the injury of the plant.

Vineries.—H. H. L.—Your vines would need one complete year's growth to derive any benefit from the thinning of the canes. The canes having been so crowded, and the house being occupied with plants, appear to us to account for the present unsatisfactory state of the crop.

Blood.—W. H. P.—Mix the blood with an equal proportion of dry earth, and use the mixture as a dressing for the vine borders and the quarters devoted to vegetables. We would not advise you to employ it in the preparation of composts for stove and greenhouse plants.

Espalier Trellis.—Our correspondent W. M. Cheshire writes to say that the price paid for the posts employed in the construction of his trellis for raspberry canes was one shilling, and not four shillings, which he gave as the cost through a clerical error.

H. D.—We believe you may in strict legality remove the plants, as they may be regarded as the crop of one season. In the matter of shrubs and trees the case is different, for the law declares that they belong to the freehold.

Potato Queen of the Valley.—W. W., Lindal-in-Furness.—This potato is somewhat variable in form, but the majority of the full-sized tubers are oblong and rather flat. The skin is of a pale pink colour. It is properly classed in our synoptical list.

R. Q.—There are no systematic treatises on the subjects you mention; what is known about them must be sought for in works on vegetable physiology. Probably Rhind's "Vegetable Kingdom," published by Blackie and Son, would suit you. There are no plants that absolutely live on insects; there are many that catch and keep them.

R. B.—Your letter is admirably written with the sole exception of the names that are cited, and these being illegible the letter is worthless. It is a quite common occurrence for people to write proper names anyhow, as though they could be guessed at, and then make loud complaint if they are printed incorrectly.

Vines.—Amateur Grape Grower.—The vines are probably attacked by mildew, in which case the application of sulphur to the pipes, as mentioned in your letter, is likely to prove beneficial. If it is mildew, a rather drier state of the atmosphere and more abundant ventilation will be beneficial to the vines.

Names of Plants.—G. M.—No. 1, *Dendrobium Pierardi*; 2, *Dendrobium nobile*; 3, *Saxifraga cordifolia*; 4, *Orobis vernus*. J. E.—2, *Begonia discolor*; 6, *Berberis Darwini*; 8, *Cratægus oxyacantha pyracantha*; 10, *Cupressus Lawsoniana*; 11, *Picea pinsapo*. The other specimens received were insufficient for naming. R. P.—1, *Sedum glaucum*; 2, cannot be named without the flowers; 3, *Begonia grandis*. J. B.—*Amelanchier ovalis*, a variety of the snowy mespilus. G. A. F. Oakland.—*Bombax ceiba*.

Lavender.—D.—Seed of lavender may be obtained at the principal houses. It is advisable to sow it in shallow pans and place in heat. When the seedlings are large enough prick them off into other pans, and as soon as they have recovered, and are beginning to root freely, gradually harden off, and in due course plant out. A sunny position is the most suitable for lavender. The best time for striking cuttings is towards the end of the summer when the new growth has become moderately firm.

Seedling Dahlias.—Amateur.—The seedling dahlias which you describe as being "somewhat crowded in the seed-pans" should at once be pricked off into other pans, or into shallow boxes filled with a rather light and rich compost. Put them between two and three inches apart, and when the leaves begin to touch each other pot them separately, and use three-inch pots. A temperature of about 60 deg. will be the most suitable until they are established in the pots, when they should be removed to the frames and gradually hardened off.

Peach and Nectarine Trees.—Reader of *G. M.*—On the shoots received there are traces of mildew and blister, but not sufficient to show that the trees are in a particularly bad state of health. From your letter, however, it is evident that they are in anything but a satisfactory condition, and on being informed that the roof is covered with vines, we were not surprised to learn that the fruit produced is tasteless, and the trees are gradually dying away. The roots may have penetrated the clay subsoil, but the chief cause of the unhealthiness of the trees is a want of light, and unless you can more fully expose them to the beneficial action of sunlight it will be useless to expect any improvement in the growth or in the quality of the trees. It is quite impossible to grow either peach or nectarine trees under vines where the latter are close enough together to exclude any appreciable portion of the light.

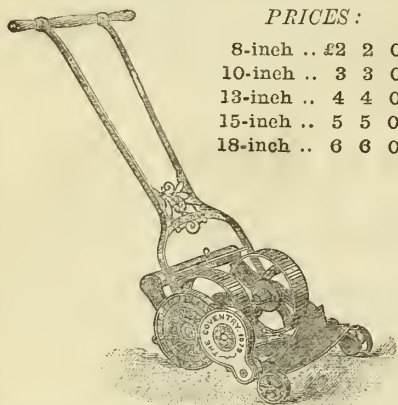
Cucumbers in Greenhouse.—J. W. C.—Cucumbers may be grown successfully during the summer season in a greenhouse. Therefore, the seed should be sown within a few days, and for profit there is not perhaps any variety more suitable than a really good type of Telegraph. It will be necessary to provide a bed of soil about fifteen inches in depth and thirty inches or three feet in width along the front of the house if it is a lean-to, and along each side if a span roof; and it will be a great advantage if the soil can rest upon a layer twelve inches in thickness of rather fresh short stable manure. The surface of the bed should be within two feet or thirty inches of the

lower part of the roof, and if the ordinary stages are not of a suitable height a temporary platform should be provided. The best plan in all cases is to remove the ordinary stages, and fit up a platform with rough boards for supporting the soil. After the plants are put out the house should be kept rather close, and the solar heat utilized as far as practicable by shutting up early. Syringings once or twice a day and rather liberal supplies of water to the roots will be required. For the support of the vines a trellis of wires, cords, or rods, should be formed about twelve inches from the glass.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasants, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by **BOULTON and PAUL, Norwich.** Illustrated Catalogues sent free by post.—[ADVT.]

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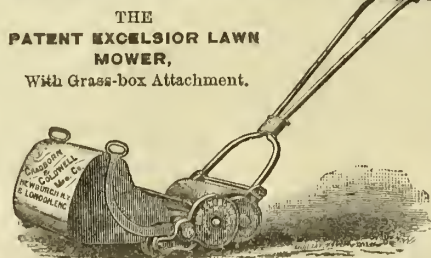
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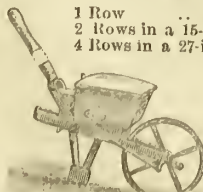
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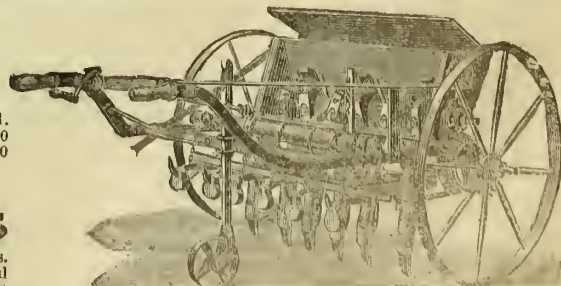


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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.				
16	S	Low Sunday.	5 5	0 15	6 55	4 2	5 31	0 10	0 35	9 35	10 0	48 3	Amaryllis insignis, S.	Scarlet.	106
17	M	Now Moon, 9h. 35m. after.	5 2	0 30	6 57	4 29	6 52	0 59	1 25	10 24	10 50	48 4	Anemone stellata, H.	Scarlet.	107
18	Tu	Abernethy died, 1831.	5 0	0 43	6 59	4 53	8 12	1 45	2 7	11 10	11 52	48 6	Epacris miniata, G.	Scrit. & white.	104
19	W	Death of the Earl of Beaconsfield, 1881.	4 58	0 57	7 0	5 34	9 26	2 30	2 50	11 55	—	48 7	Fritillaria imperialis rubra, H. Red.		109
20	Th	Troedyrhiw Colliery Accident, 1877.	4 50	1 10	7 2	6 15	10 30	3 13	3 35	0 15	0 33	48 8	Myosotis dissitiflora, H.	Blue.	110
21	F	Bishop Heber born, 1783.	4 55	1 22	7 4	7 5	11 26	3 55	4 17	1 0	1 20	49 0	Primula acaulis, H.	Various.	111
22	S	T. H. Bailey died, 1839.	4 53	1 34	7 6	8 0	Morn.	4 37	4 53	1 42	2 2	49 2	Trollius asiaticus, H.	Orange.	112

The Gardeners' Magazine.

SATURDAY, APRIL 15, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (28 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

WEDNESDAY, APRIL 19, AND THURSDAY, APRIL 20.—BIRMINGHAM SPRING FLOWER SHOW SOCIETY.—Annual Exhibition.

THURSDAY, APRIL 20.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Spring Exhibition.

THURSDAY, APRIL 20.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

Auction Sales for the Ensuing Week.

MONDAY, APRIL 17, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

WEDNESDAY, APRIL 19, AND THURSDAY, APRIL 20, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Collection of Orchids.

FRIDAY, APRIL 21, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Liliun auratum, &c.

THE FLOWER MARKETS have been busy, and there has prevailed a somewhat happy adaptation of consumption to supply. The Easter festival is the opening of the flower trade for the season, for from Christmas to Easter there is no "spurt," and during Lent the demand declines towards zero. Easter flowers are perhaps the most precious of all the flowers of the year; and that is one reason probably for the immense demand for them for decorative purposes. It is impossible to forget for a moment the jubilant nature of the Easter celebration, which is inspired by the most comforting doctrine of the Christian faith. Apart from this, which is the real life of the matter, there is an interest to be found in the correspondence of Nature with the teaching of the Resurrection, for in these latitudes the awakening of the world from its winter sleep is not made manifest in all its grand reality until Easter has dawned, and the cheerful peal of bells and the triumphant tones of the anthem have made us emotionally cognizant of the beauty of the flowers in the church. If we were as sure of a good sermon as we are of gay flowers, the Easter Day service would be something to look forward for, as also to remember the whole year round. But the sermon at its best, reflects the infirmity of man; the doctrine represents the light of Heaven as the flowers represent the light of Nature.

The extended and extending employment of flowers in connexion with holy rites is a distinct characteristic of the time. It has its weak as well as its strong points. As King David thought music and dancing proper as expressions of thanksgiving and praise, modern Christians may reasonably claim that it is seemly and spiritually suggestive to decorate the Lord's house at times of spiritual rejoicing, with such exponents of divine love as fruits and flowers. The strong side of the case is seen in the general observance of a truly beautiful and refining custom. The weak side is seen in the way it is done. Generally speaking, the floral decoration of churches is characterized by sound judgment and delicate taste. When success is not achieved it will be found, as a rule, that the artists have thought very little of general plan and leading features and very much of minute detail. In a case of this kind we may look at the font from a reasonable distance, and wonder why there should be so much rapture amongst the young people about a decoration that appears to be a mere muddle. "Ah, but," they say, "take a

No. 885, NEW SERIES.—VOL. XXV.

nearer view, and behold the delicate workmanship." Yes, it is beautiful, and the "Ah, but" explains it all. If architects were to depend on minute details instead of on bold lines and decisive masses, we should weary of cathedrals and temples and palaces as so many trivial toys for big children; but we find the good architectural work to depend on forms and proportions that affect us before we have time to examine details, and therefore the plan is the real creature and the decorative details are its several subsidiary features—say, to sum up briefly, its gold lace and its buttons.

The frequent weakness of the general plan and corresponding minuteness of detail, leads to the employment of flowers that are but ill-fitted for the purpose. A quite model flower for Easter decorations is the "trumpet lily," or arum, its exquisite form and its purity of colour being unique. And it gives the key to the kind of stuff required, which for the most part should be massive and architectural, and suited to bold designs and broad colouring, rather than to weak and unmeaning mosaics. The small stuff that finds favour is very often unsuitable, and a temptation to attempt bad work. It cannot be doubted that flowers of size and substance are, as a rule, the best for the purpose, and favourable to large ideas and to designs consistent with architectural propriety. There can be no objection to delicate details provided they are subordinated to a plan that embodies an idea sufficiently expressed to be understood without an explanation.

For some years past a movement has been in progress for fixing the times of the Easter and Whitsun festivals. The rule that governs them is well known, and need not be explained. It is founded on the original Mosaic law of the Observance of the Passover, and the moon determines the dates. The grower of flowers is in the present day not much concerned with the revolutions of the moon, but the sun commands his constant attention and much of his homage. He, it may be assumed, will incline to the proposal that the "moveable feasts" should cease to be moveable, and it is, we think, not beyond reasonable hope that the Christian Church may see its way to fix the dates of the group of celebrations, of which Lent is the general key, without any sacrifice of their proper traditional connexions or spiritual teaching.

Nor can there be any doubt as to the dates that will be accepted when this important question is finally settled. In the present year the moveable fasts and feasts coincide with authentic chronology, and therefore the dates of this year should be the dates for all time. The crucifixion of our Lord took place on the 15th of Nisan, corresponding precisely with the 7th of April. Good Friday therefore was a proper chronological as well as ceremonial anniversary of the one great fact that constitutes the centre of the celebrations that have heretofore been determined as to their dates by the phases of the moon.

ROYAL HORTICULTURAL SOCIETY.—The following circular, dated March 27, 1882, has been addressed to the Fellows:—"The council think it right to communicate with the Fellows at the earliest opportunity on the effect of the recent decision of the Court of Appeal on the position of the society. Apart from any alteration of the views of the commissioners, the effect of that decision may be stated to be the placing of the society in the same position it would have occupied three years ago, if the debenture holders had not then compelled it to defend the action of ejectment brought by the commissioners against the society, and had released the commissioners and the society from all claims in respect of the £49,700 secured by their debentures. As was explained to the Fellows in the annual reports for the years 1879 and 1880, and at the general meetings in those years, the society was forced to defend the action not only by its duty of protecting to the utmost the interests of the debenture holders, whose only security for the repayment of the interest on the large sum above named was the continuance of the society's tenure of the South Kensington Gardens, but also by the certainty that if this duty was neglected the debenture holders would take proceedings to make it responsible for such neglect. These proceedings would necessarily have resulted in costly litigation, which, if successful, would have rendered the whole property of the society liable for the destruction of the debenture holders' security. The council believe that the effect of the decision of the Court of Appeal is to extinguish all rights of the debenture holders as against the society and the commissioners. The action taken by the council in defending these rights was, as above stated, a duty and a necessity, recognized and approved by the Fellows in general meeting; but, that duty performed, and the defence having failed, it is obvious that the result is in some respects to the advantage

of both the society and the commissioners, and ought to facilitate the formation of arrangements for the future between the two corporations. The council, believing that an arrangement is possible, which would be in strict accordance with the trusts on which the commissioners hold their property, mutually advantageous to the commissioners and the society, and beneficial to the public, are endeavouring, with this object, to enter into negotiations with the commissioners, the result of which will be communicated to the Fellows at the earliest possible time. In the meantime the Fellows may safely assume that no part of the programme for this season will be interfered with."

CROYDON HORTICULTURAL SOCIETY.—The summer show will be held on Wednesday, June 28.

OAK-APPLES are not often seen so early as the 4th of April. A correspondent sends samples gathered at West Cowes. One of them is as large as a filbert.

THE ODONTOGLOTS in Mr. Bull's Nurseries, King's Road, Chelsea, are at the present time very attractive, and particularly worth the attention of the cultivators of orchids.

EARLY-LEAFING CHESTNUTS.—Mr. George Rawlings informs us of a tree at Woodford that showed leaves on the 14th of March, and the circumstance reminds him of a hawthorn in the Lea Bridge Road, on which he has seen new leaves at the unusual season of Christmas.

THE UNEMPLOYED are advised by a newspaper correspondent to cultivate the pyrethrum and prepare from the plant a cheap insect powder. The writer is evidently of opinion that there is neither knowledge nor training needed for the business.

CATLEYA MENDELI JAMESIANUM was the most striking of the new orchids brought before the Floral Committee on Tuesday last. It is remarkable for the precision and brilliancy of its colouring; the æsthetes are bound to be offended with it.

PRIMULA LATIFOLIA, shown by Mr. R. Dean on Tuesday last, is one of the loveliest of its race, the colour of the flowers being of the richest rosy purple. It is a Pyrenean species, and the most dazzling of its race when in flower.

THE DOUBLE PINK BOUVARDIA, referred to in our issue for February 25 (page 85), will be introduced to European cultivators by Messrs. James Carter and Co. It is described as a sport from the double white Alfred Neuner, with all the good qualities of that variety, but differing in colour.

A **CATALOGUE OF NAMED AURICULAS** will be given in our issue for April 29, in connexion with the report of the National Auricula Show, as also of Mr. Hibberd's lecture on the history of the auricula. The list has been some time in preparation, and will include the names and characters of about two hundred and sixty-six varieties of auriculas.

A **HYACINTH THAT FLOWERED UNDERGROUND** was placed before the Scientific Committee of R. H. S. on Tuesday last by Mr. Cummins, gardener to A. H. Smee, Esq., Wallington. The spike in rising had encountered a stone, and as it could not go up it went down and developed its flowers six inches below the surface. The foliage was blanched, but the flowers were richly coloured with the proper blue of Baron Van Tuyll.

TELOPEA SPECIOSISSIMA, a flowering branch of which was sent by Sir G. Macleay to R. H. S. on Tuesday last, was the most interesting subject before the Floral Committee. It was introduced in 1789 from New South Wales, where it is the grandest of the proteads. It was first grown in this country at Nyn Hall, near Barnet. It was soon after grown and flowered at Wychdon Lodge, Staffordshire, and was badly figured in "Maund's Botanist," t. 71.

VALUE OF LAND IN AUSTRALIA.—The well-known Beetaloo station in South Australia, comprising 21,345 acres, held under lease from the Forest Board, with 9,000 sheep, was recently sold at Adelaide for £8,000. Five blocks of land situated in the Northern Territory were offered at the same sale. For one comprising 4,917 square miles only 19s. a mile was offered; for another of 5,058 square miles only 15s. was bid. These offers not being considered sufficient, the lots were withdrawn. A block of 2,640 square miles, situated between Daly Waters and Newcastle Waters, was sold for 5s. a mile.

THE UTILITY OF BEAUTY IN THE LIFE OF A FLOWER.

By the HON. MR. JUSTICE FRY.

IN an address on the above subject Mr. Justice Fry said the question for discussion was whether the beauty of flowers could be accounted for by the usefulness of that beauty to the plants which bore them, and that this question was only part of a larger one, viz., whether the beauty which the world exhibited could be accounted for by the score of its utility. Those questions connected themselves with some of the highest problems of philosophy—with the question whether the system of the universe was intellectual or solely material; for whilst necessity might account for the survival of useful things, it could never account for the existence of things beautiful only and not useful. The existence of beauty in the universe had, therefore, been a stronghold of those who rejected a merely material explanation of the phenomena of the world. But even if beauty were always due to its utility, it was not inconsistent with the notion of its being designed by a Creator—for utility might be the means used to perpetuate and continue the existence of beautiful things. After anticipating certain objections to the whole inquiry on the grounds (1) of the subjective nature of beauty, and (2) of the existence of ugliness as well as beauty in the world, the lecturer adverted to the vastness and complexity and multiplicity of the beauty exhibited by nature, and the difficulty of submitting

it *en masse* to any analysis, and showed how, as regarded the beauty of flowers, Mr. Darwin had attributed its existence to its utility to the plant, this utility arising from its attracting insects to the flower, and so bringing about its fertilization, from which fact Mr. Darwin concluded that flowers had become beautiful because beauty was thus useful to them. In favour of this view it was shown that insects certainly visited the bright-coloured flowers to a vast extent; that flowers were rendered conspicuous sometimes by the size and colour of each flower, sometimes by accumulation into spikes or heads, sometimes by growing in masses and cushions; that large classes of flowers like the orchids depended solely on insect agency, and that the geological record showed a coincident increase in the number of bright flowering plants and of insects likely to frequent them. Beauty, then, was a means of effective fertilization. But the question remained whether it was more beneficial than any other method; whether, therefore, there was any reason to suppose that a plant would become beautiful for the sake of this greater benefit; whether there was, so to speak, any motive to induce it to change from one mode of fertilization to another. He referred to numerous other agencies which effected the fertilization of the plant besides insects—such as the wind, the closing of the corolla in the death or sleep of the blossom. The lecturer then entered into some detail as to a curious class of blossoms which were found to co-exist in many plants with brilliant flowers. These other blossoms never expanded, were inconspicuous, or some ugly, and yet were found to produce as much or more seed than the bright and insect-visited flowers. He further explained the arrangements of several other plants which were beautiful, such as the well-known *stephanotis* of our houses, in which insects or beauty played no part in the work of fertilization. The conclusion drawn from these facts was that in many cases beauty could not be explained by utility, but was what was called a residual phenomenon. It was further noted that there was nothing to show a greater gain from fertilization by insects than by the wind or other means, and that geology bore no evidence of any change from the one method to the other. The lecturer then pointed out that the theory in question only explained conspicuousness in flowers and not beauty, and he showed the vast extent of beauty in flowers which did not even tend to render them conspicuous; and, again, he dwelt on the fact that the inflorescence of many wind-fertilized flowers was only conspicuous as contrasted with their leaves—as, for example, the silver fir and the larch. Mr. Justice Fry then proposed to enlarge the inquiry by observing that petals and sepals were only floral leaves, and that many stalk and root leaves were highly coloured—a fact entirely unexplained in the theory under review. Then, enlarging the view again, there was found a vast display of colour in the fungi and lichens; and, lastly, in the fading tints of autumn, which appeared to demand attention, and had not yet been explained in any theory of utility. The presence of beauty was not a late phenomenon either in the order of Nature or of time—it was not a late birth of evolution—for in a very remarkable degree it characterized the lowest and the earliest organisms, such as the existing diatoms and the corals of the Silurian epoch. The conclusions drawn from the series of observations were (1) that beauty or conspicuousness was one means for bringing about fertilization; (2) that conspicuousness was, however, found where it was not known to be useful; (3) that conspicuousness and beauty were not convertible terms, and that no utility had been suggested for inconspicuous beauty; and, lastly, that there was no evidence of any change from one mode of fertilization—nothing to show that process of becoming conspicuous which was suggested, but that the constancy of wind fertilized flowers in ancient and modern times looked the other way. In a word, the theory under review was held not proven.

New Plants, Flowers, and Fruits.

ROSANOWIA (BIGLANDULARIA) ORNATA (*Flore des Serres*, 2,423).—A fine gesneraceous plant with ample ovate leafage and smallish gloxinia-like flowers, white with pale pink stripes.

CYCLAMEN ATKINSI (*F. d. S.*, 2,425).—A variety of *C. coum*, the flowers white with small crimson spots at the base of the petals.

VIOLA PEDUNCULATA (*F. d. S.*, 2,426).—Habit robust, flowers yellow on long stalks.

AMARYLLIS RETICULATA VITTATA (*F. d. S.*, 2,427).—A fine hybrid, the flowers of medium size richly striped red on a white ground.

STREPTOCARPUS BIFLORO-POLYANTHUS (*F. d. S.*, 2,429).—A gesneraceous plant with handsome leafage and pale blue flowers.

PLEROMA MACRANTHUM (*F. d. S.*, 2,430).—A very fine plant, better known and frequently figured as *Lasiandra macrantha*.

IRIS KEMPFERII VARIETIES (*F. d. S.*, 2,431-36).—A fine series, the prevailing colours grey, purple, and brown, with fantastic stripes and blotches.

SANCHEZIA NOBILIS (*F. d. S.*, 2,437).—A good figure of this showy plant.

PIPEROMIA ARGYRÆA (*F. d. S.*, 2,438).—A handsome stove herb with elegantly-marked shield-shaped leaves.

RHODODENDRON ELLEN COOK (*F. d. S.*, 2,439).—A handsome hybrid, the truss large, flowers rosy red shading to blush, the top petal richly spotted.

SAXIFRAGA PELTATA (*F. d. S.*, 2,441).—A good figure of this handsome plant.

SONERILA SPECIOSA (*F. d. S.*, 2,442).—A melastomaceous plant with reddish purple flowers.

CRINUM GIGANTEUM (*F. d. S.*, 2,443).—A magnificent crinum with pure white flowers.

AZARA GILLIESII (*F. d. S.*, 2,445).—A nearly hardy Chilean shrub, distinct and handsome.

BRYOPHYLLUM PROLIFERUM (*F. d. S.*, 2,446).—A very fine crassulaceous plant with a beautiful inflorescence of a very distinct character.

THUNBERGIA COCCINEA (*F. d. S.*, 2,447).—A grand climbing acanthad with distinct leafage and bold racemes of curious and handsome flowers, purple and orange-red.

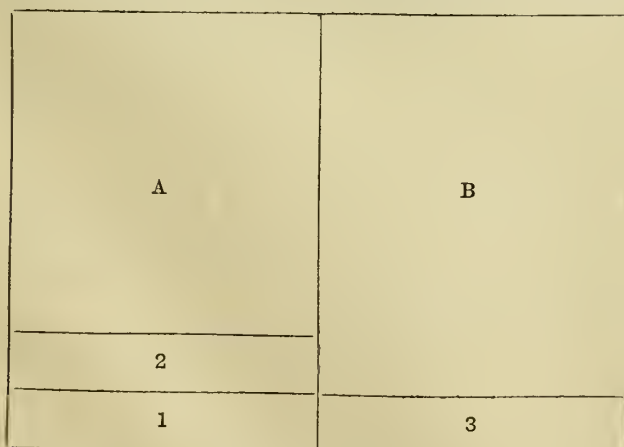
BAPTISIA LEUCOPHEA (*F. d. S.*, 2,449).—A neat fabaceous plant, with showy white or pale yellow flowers.

COMMONPLACE GARDEN WORK.

AMONGST the garden work of a commonplace character there is much of considerable importance, and not a little that is but imperfectly understood by amateurs who are anxious to rank high in the estimation of their friends as horticulturists. Digging, hoeing, and raking the beds and borders of the flower garden and the quarters for vegetables are all commonplace enough; they are, indeed, so much so that the young gardener is often inclined to look upon them with contempt until his knowledge of crocking pots is considered sufficient, and he has a spade, or a hoe, or a rake put in his hand to enable him to acquire other experience. Yet many amateurs are quite unacquainted, otherwise than in the most superficial manner, with the principles of the several operations, and have no very clear idea as to the manner in which they should be performed. This is not at all surprising, and I am not in a fault-finding mood; for it is only by proceeding upon some well-devised course and considerable practice that the requisite knowledge or experience can be acquired. Digging and hoeing are not the most inviting of tasks, and when we remember how the handling of the spade and the hoe for even a short period affects the hands and the back, we shall not feel surprised that their use should be shirked as much as possible, and that any work in which they are required should not be regarded with much pleasure. Yet so much depends upon the manner in which the soil is broken up, and the condition in which the surface is maintained, that those who would derive the fullest possible pleasure and profit from their garden cannot afford to do otherwise than pay due regard to the way in which the commonplace operations referred to can be the most satisfactorily performed. I may not be able to lighten the work to any appreciable extent, but I may perhaps be able to assist the amateur to accomplish it so that he will be able to derive the fullest possible benefit from the labour expended. We will first say a few words about

DIGGING.—In the first place, it must be distinctly stated that to dig a piece of ground in a satisfactory and workman-like manner, without excessive fatigue, a good implement is necessary. Either a spade or a fork may be used for digging any but the lightest of soils; but for these a spade alone is suitable. It is a good plan to have a fork and spade, and they should be the best manufactured; for really good implements are not only easier to use, but they are really the cheapest. I would specially warn the amateur to avoid buying the cheap forks and spades which are offered by the small ironmongers in most of the suburban localities, for they are practically worthless. They are made wholly of iron, and not only require extra pressure to force them into the ground, but they are very liable to bend on being subjected to a little extra strain. I would advise them to make their purchases at a good nursery or seed shop, and to buy tools large enough to do the work, but not so heavy as to require the strength of an ordinary navy to use them. Spades known as No. 2 and No. 3, and costing from five to six shillings each, are the most suitable, and a four-pronged digging fork should have the preference.

There are two points of special importance in digging; the one is to dig deeply, and the other to thoroughly break up the soil as the work proceeds. The actual depth to which the soil should be stirred will depend upon circumstances, but whether the soil is simply dug over to the depth of ten or twelve inches or trenched two feet deep it must be well broken up throughout the entire depth. If the soil is simply turned over in large lumps and made a little fine on the surface, at least one-half of the advantage resulting from the stirring is lost, as the roots cannot readily penetrate the large lumps. Thus the plants are deprived of a considerable portion of the feeding ground. To be able to dig deep and well break up the soil as it is turned over, it is necessary to have a trench about a foot in width for digging, and one two feet wide for trenching. The trench must be opened out when a beginning is made, and maintained until the completion of the work. In digging a strip of ground less than five feet in width, a trench should be opened out at one end, and the soil wheeled to the other end for filling up. But quarters or borders exceeding the width given should be measured off into two or four equal portions, to admit of the work being completed at the same end as that at which it is commenced, to avoid wheeling the soil any distance, and thus economize time and labour. The following diagram will show the way in which the quarter should be laid out for digging and trenching.



Supposing the ground is ten feet wide, divide it into two equal portions (A and B), and along the centre lay down the line and cut a

small furrow to serve as a guide. Then, if the ground is to be trenched, mark off across one end of A a space two feet wide. This space we will designate No. 1, and from it the soil is to be taken out to a depth of 18 inches or two feet, according to the distance of the crude subsoil from the surface. The soil taken from No. 1 is laid in a ridge in the space marked No. 3, or in a convenient position close at hand. It is better to place the soil just outside the area to be turned over, as then the last trench, No. 3, can be opened out without any moving of the loose soil. The opening out of No. 2 trench must now be proceeded with, and in doing this take off the top spit—that is, the surface soil, to the depth of the spade or fork, and throw it into the bottom of trench No. 1. The bottom spit is next to be taken out and put on the top spit. A third space is then marked out, and the soil from it is put in trench No. 2 in the same way as in No. 1. Subsequent trenches are formed and filled up in a precisely similar manner. The process is repeated until the farther end of A is reached, and to fill up the last trench soil is of course taken from a space of a similar width along the upper end of B.

Trenching in the manner advised above should, as a rule, be done in the autumn or winter only, to allow of sufficient time for the weather to sweeten and pulverize the soil brought from the bottom before the ground is cropped. When it has not been done in either of the seasons mentioned, and it is desired in turning the soil over in the spring to afford a greater depth for the roots than would be provided by ordinary digging, bastard trenching should be resorted to. In doing this a space of the same width as before is marked out at No. 1, and the top spit is placed in a ridge at No. 3, or close at hand. There is then a trench two feet in width and twelve inches in depth at No. 1, and the soil in the bottom should be turned over with fork or spade. The top spit from space No. 2 is next thrown into trench No. 1, and the bottom soil is broken up and covered with that from a third space, and so on, until the whole of the plot has been turned. By this form of trenching a depth nearly as great as that by the other is obtained without bringing any crude soil to the surface.

In digging, a trench about one foot wide and the depth of the fork or spade is formed at No. 1; the soil removed is placed in a ridge along No. 3, as in the other operations; and it is replaced, or rather partly so, with the soil from trench No. 2. It is not wholly filled, as trench No. 2 will not be more than four or six inches wide, because a greater quantity of soil cannot well be lifted than is brought up when the spade or fork is thrust into the ground six inches behind the edge. The soil must be thrown to the farther side of the opening, and if this is regularly done as the work proceeds a clear space of twelve inches will be maintained throughout, and it is of greater importance to break up the soil that falls into the bottom of the space, as rough lumps on the surface can be rapidly broken down previous to putting out plants or sowing seeds on the ground. The surface must of course be as level as possible; but this must be left to the eye, for no advice can be given beyond a mere statement of the fact. When manure is applied care should be taken to well mix it with the soil, particularly in trenching, for in the latter case shovelling it into the bottom of the trench is very objectionable.

HOEING ranks next in importance to digging, and the amateur and young gardener should make every effort to become well acquainted with the practical use of the hoe. There are, it must be first stated, two distinct forms of the hoe, which are known respectively as the draw hoe and the Dutch hoe, and of the two the most serviceable is the first mentioned. The Dutch hoe is very useful for destroying weeds in beds and borders in the flower garden, as with it the surface can be stirred by the operator when standing on the grass or walk as the case may be. It is also useful for stirring the soil between the growing crops in the kitchen garden, when the leaves are beginning to meet in the rows, as it can be used with less risk of damaging the leaves than the draw hoe. For hard work and stirring the soil to a depth of two or three inches the draw hoe will be found the most useful, and speaking in a general way should be employed in fully three parts of the work. It would be easy to dwell at some length upon the philosophy of hoeing, but it must suffice to say that the soil does not dry up so quickly at a depth of three or four inches during hot weather, when the surface is loose as when perfectly firm. Flowering plants and kitchen garden crops also make the most satisfactory growth in dry and moist weather alike, when the surface is not allowed to become firm and remain so. For these reasons alone the hoe should be plied freely, but the destruction of weeds will furnish a further incentive to its use. To obtain the best results from the employment of the hoe, whether for stirring the surface or destroying weeds, it must be used at the right moment. Speaking in a general way, the hoe should only be at work in fine weather, when the surface soil is also more or less dry. If the ground is hoed over when moist on the top, for the purpose of loosening the surface, the feet will tread it down nearly as firmly as it was before, and frequently the soil will not be in such good condition. When the ground is weedy it is not often much better than a waste of time to hoe the ground in cool wet weather, for the majority of the weeds will quickly take root again, and grow away as freely as if they had not been disturbed. When it is desired to destroy weeds advantage should be taken of a fine day, when the surface is dry. If the sun is shining brightly so much the better, as the weeds will be quickly dried up. When the weeds are allowed to make much headway before repressive measures are resorted to, the surface should be rather lightly skimmed over to avoid burying them: In hoeing ground that has become foul a depth of from one to two inches will suffice, but when the ground is clean or the weeds just springing up a depth of three inches will not be too great. Weeds present such an objectionable appearance, and are so exhaustive in their effects that every effort should be made to destroy them immediately they make their appear-

ance. It may also be well to state that by taking them at this stage they can be destroyed with one-third of the labour that will be necessary when they have become firmly established. In using the hoe it should be drawn or pushed through the soil without turning it over to any considerable extent, especially if there are many weeds, as a simple loosening of the surface and cutting through the weeds will suffice for all practical purposes. Most crops of the kitchen garden will be much benefited by having the surface stirred about once a fortnight, and an effort ought in all cases to be made to hoe over ground that has been beaten down by the rain as soon as it is dry again. It is essential to avoid hoeing so close to plants as to injure root or stem, or to loosen the soil close to the latter, and it is equally necessary not to draw the soil away from them; in many cases a little soil may be drawn about the stem with advantage. The most useful Dutch hoe is one about four inches in width, and the draw hoe should, unless the soil is very light, be six inches wide; in the latter case it may be eight inches. It is not less necessary to have hoes of good quality than it is to have good spades, for unless they are made of steel and will keep a sharp edge their use will be attended with additional fatigue.

RAKING is much lighter work than either digging or hoeing, and very often it is carried on to an injurious extent. The hoe should be limited to the breaking down of a rough surface, the removal of rather large stones, and of the gathering up of weeds when they have been allowed to remain until they have become of a large size. Very little raking should be done beyond that necessary in the formation of seed beds and the reduction of the large lumps on the surface of quarters or borders in which it is intended to put out lettuce or other plants of comparatively small size. It is a good rule not to rake, under any circumstances, the surface of newly-dug soil until it has become dry, excepting it is very light and friable. On heavy soils it is practically a waste of time to attempt to do so. Ordinary soils can generally be broken down with the rake on the second day after they have been dug. But those strong and heavy require a shower of rain on them or a sprinkling of water after they have become dry before the rake can be employed with advantage. The best practice in dealing with these soils, when it is desired to obtain a fine tilth as quickly as possible, is to allow them to remain two days undisturbed, and in the evening of the second day to give the surface a rather light watering. On the morning of the third day the soil may with but little trouble be broken down as fine as could be desired for the smallest seeds. In planting newly-dug soil that is at all heavy and rough on the surface, mark the space where the rows are to be with the line, and sprinkle them with water, and in the morning break down the lumps, and proceed to put out the plants. The watering and raking over the spaces will not occupy much time, and it will be possible to plant expeditiously and under the most favourable circumstances. The soil over rows of peas and kidney and broad beans ought to be made rather fine, for the lumps afford shelter for the pests that prey upon the various crops, and more injury than would otherwise be the case results in consequence. Two rakes should be provided, one about six inches and the other twelve inches in width.

AN OLD SPADESMAN.

A NOTE ON ABUTILONS.

MANY of the readers of the GARDENERS' MAGAZINE could, I have no doubt, deal with the cultivation of abutilons generally in a more able manner than myself. Therefore I shall confine the few notes I intend penning to a brief description of the manner in which I dealt with an example that came under my care, and I hope the notes will be useful to my fellow gardeners.

In May, 1880, I took the charge of these gardens, which were then in a very wild state, my employer having just taken possession. Amongst a few other subjects was an example of Abutilon Boule de Neige in a very weak state; it, in fact, consisted of two shoots, not very strong, and furnished with very few leaves. Having hardly any accommodation and plenty of work requiring immediate care, very little attention was paid to the abutilon beyond supplying it with water until the following month. In June I cut the two shoots back to within about twelve inches of the base and planted it in a bed of soil outside. It soon broke freely and produced a third main stem from the root, and as it grew rapidly it formed a large shrub in a comparatively short space of time. Towards the autumn I lifted it carefully with a good ball of soil and potted it. A compost of good turfy loam, leaf-mould, and sand was used, and when the potting was completed the plant was removed to a house which had then been recently erected by Mr. Helliwell, of Brighouse, Leeds. It had not bloomed up to that time, but as soon as it had recovered from the check received in being lifted from the bed and put in the pot it began to produce its flowers very freely, and it continued in full bloom for at least ten months without intermission.

In June of last year I again planted it out, and selected a shaded position, thinking to give it a rest. But owing to the very moist weather it continued to grow and produce its flowers. In September it was lifted with care, and potted, and placed in the structure in which it had previously had a place. As I found during the summer season that the flowers were gradually decreasing in size, the plant was supplied with liquid manure soon after it was taken indoors. This stimulant had the desired effect, for it quickly recovered, and about the end of October it was so thickly studded with flowers that anything I could say would give the readers of the Magazine an inadequate idea of its extreme beauty. About that time our harvest festival was held, and amongst other plants that I contributed for the decoration of the church was the specimen abutilon. This was placed

on the communion table, where it had such an attractive appearance that many ladies who were in the church early left their seats to more closely examine it. After the festival the plant was removed from the church to the front hall of my employer's residence, where it remained until the end of January of the current year. The front hall, I may add, is heated, and the abutilon was much admired during the time it was indoors. When removed from the front hall, the specimen was returned to its old quarters, and for a period of five or six weeks kept rather dry at the roots. It was then sprinkled overhead occasionally, and the supply of water to the roots increased as it began to grow freely. At the time of writing it forms a symmetrical bush five feet nine inches in height and five feet three inches in diameter, and is furnished with about two hundred flowers of large size. It is placed on the top of the stage, and therefore occupies a light position. The two shoots taken off in 1880 were struck, and are now beautiful examples, and promise to produce a good display of bloom a short time hence. I have also raised numerous other plants from cuttings, and I have obtained a very fine pink variety from seed sown last year. The abutilons require liberal supplies of liquid manure for the support of their growth, and I supply them regularly with it. The liquid manure I have used has been made by steeping sheep's droppings in water, and apparently nothing better could be desired. The only time when the roots are supplied with clear water is when the plants are at rest and it is desired to keep them as quiet as possible. In bright weather water is required every other day. The house referred to above is employed for both stove and greenhouse plants, and during the winter season a temperature ranging between 55 deg. and 60 deg. is maintained.

Bonvillstone.

R. T.

FRUIT PROSPECTS.

By J. C. CLARKE.

AT what stage in their existence do the leaves of fruit trees cease to be of any use to the formation of fruit buds? This would perhaps have been a proper heading to the communication which follows, as it is with reference to that particular point that I wish to offer a few remarks. I wish to do so because the present prospects of our fruit crops are all that can be desired, and many entertained a fear that the crop was likely to be a poor one, owing to the defoliation of the trees by the memorable frosts and gale of wind on October 14 and 15. Leaves which were quite green were frozen on the trees, and in two or three days completely destroyed. In my long experience in garden management I do not remember having watched with more eager interest the unfolding of the blossoms of fruit trees than in the present year. To me it seemed that the condition of the flowers this spring should be of service in guiding us in our treatment of fruit trees in future years, when circumstances render it necessary to step out of the beaten track.

The misgivings that the fruit crop of this year would suffer from the cause just stated were no doubt based upon the idea that the leaves had not had time to complete their functions. The satisfactory way in which the blossoms are opening and the fruit setting, and the abundance of bloom that all kinds of fruit trees are showing, is sufficient proof that all fears entertained on this point are groundless. At the same time, no one can wonder that cultivators became anxious about the crops, seeing what a trying ordeal the trees passed through, and how we have all been taught to guard the leaves from harm until they fall from the trees. The result naturally up to the present time plainly shows that our knowledge of the functions of leaves is not so complete as it might be, for according to our previous ideas the leaves are as essential to the production of a fruit crop in the last stage of their existence as the first. But the last few months' experience shows that it is not so, and that there is room to make a divergence in our practice from what we have hitherto followed, and prune and plant while the leaves are yet green, if we wish to do so. We only want to know how far it is safe to go. To ignore the use of leaves would be sheer nonsense; but we shall be justified in finding out if we can at what stage in their existence they may be removed without any risk to the next year's crop.

Whether we shall benefit by the experience so gained will depend upon whether we avail ourselves of it, but it can only be in some exceptional cases that it will be necessary to alter our practice. At the same time, it is a point gained to know that if from any cause we wish to prune or divest the fruit trees of their leaves in the second week of October, it will be safe to do so. To the physiologists I should say this subject will be of great interest, as they would understand what the effects of an early defoliation would be if it had been done by any other agency than wind and cold.

It will be remembered that the gale to which I allude was not at all partial in its effects, for the small shrub and the towering tree were alike subjected to its fury, and not any exposed subject escaped. But what is the more remarkable to me is that fruit trees, especially those which stood without shelter in the full force of the storm, are as full of promising blossom on the side of the tree most exposed as they are on the other.

I should probably soon go beyond my depth if I were to discuss the physiological part of the subject, but it would be interesting to know how or in what way physiologists would account for the abundant crop of blossoms on our trees at the present time after being so rudely dealt with by the storm. I may go so far as to say that it seems to me to upset the theory of the functions of leaves to a remarkable degree. At the same time I do not wish to be dogmatic in the matter. I am open to receive any reasonable explanation from

those competent to give an opinion, but I am bound to uphold the fact that, according to all the teachings of modern practice, we have been taught to deal with the leaves of our fruit trees much more gently than is actually necessary. While saying this much I must not be understood as advocating any serious departure from our original treatment. All that I wish to show is that if necessary it is safe to go somewhat out of the beaten track, but do not think we can go far with impunity. To come to the subject of the fruit crop, it is gratifying to be able to say the promise everywhere in this district is very good, very little below that of last year. An abundant crop of apricots is set; peaches and nectarines have bloomed fairly well; all the early pears and plums are flowering in the most satisfactory manner, and the promise in the apple orchards is everywhere most cheering. Cherries and figs are also showing well; the date is too early to admit of much being said about the bush and other small fruits.

THE BELGIAN SCHOOL OF HORTICULTURE AT VILVORDE.

THE Belgian State School of Practical Horticulture, established at Vilvorde, about half-way between Brussels and Mechlin, dates from the year 1849. It has however undergone several subsequent modifications, the most important being in 1875, when the collegiate boarding-house and gardens attached to the school, which previously were private property, were taken over by the Belgian Government, and the school placed on a new and enlarged footing under the directorship of a distinguished practical horticulturist whose name is not unfamiliar to readers of the GARDENERS' MAGAZINE, Professor Gillekens.

According to an official report now before us the school staff consists of a director, professors of garden architecture, botany, chemistry and physics, drawing, languages, book-keeping, &c.; three chiefs of horticultural departments (one for floriculture and market gardening, one for arboriculture, and one for nurseries), a superintendent, a treasurer, and a doctor.

The course of instruction lasts three years. The pupils are partly resident and partly day students, the number of the former being limited to thirty. These pay an annual contribution of 200 francs (about eight guineas) to the establishment, receiving in return board, lodging, and washing free, besides instruction. Provincial bursaries, of the value of 100 to 200 francs per scholastic year, are also open to them. Resident pupils not natives of Belgium pay treble the above amount, i.e., 600 francs (£25) a year. Day pupils pay 100 francs (four guineas) a year each. The whole cost of the establishment, over and above the amounts realized by the contributions of the pupils and the sales of garden produce, is defrayed out of the budget of the Ministry of the Interior.

Adjoining the school buildings, which contain a library and various scientific collections, are grounds covering an area of about 22 English acres, and comprising: 1, a fruit garden with an area of 1 hectare, or 2½ English acres; 2, a kitchen garden of half that size; 3, frames for early forcing; 4, a pinery; 5, four stove houses; 6, four cold and temperate houses; 7, four vine houses; 8, two peach houses; 9, a school garden for perennials; 10, ditto annuals; 11, ditto trees and shrubs; 12, ditto for forest trees; 13, an ornamental garden in the landscape style; 14, delta in the French style; 15, a nursery of timber and ornamental trees. As before mentioned, the course of instruction lasts three years. The pupils are divided into three classes, the course of instruction in each being as follows:—

FIRST YEAR.—*Arboriculture*—Concise notions of plant structure and physiology; vegetation and fructification of fruit-trees; treatment of shoots for fruit-bearers; propagation by seeds, cuttings, grafts, &c.; nomenclature of trees and shrubs. *Market gardening*—Growing kitchen garden produce in the open air. *Floriculture*—Growing annuals, perennials, and bulbs in the open air. *Architecture*—Principles of garden architecture. *Drawing*—Rudiments of freehand drawing. *Botany*—Elementary principles. *French or Flemish Languages*—Syntax and grammatical analysis. Preparation of notes on practical portion of studies. *Arithmetic*—Fractions and applied problems. The students take their share in all the work done in the fruit, kitchen, and ornamental gardens, the arboretums, nurseries, and botanic school—grafting and pruning excepted—under direction of the chiefs of the several horticultural departments.

SECOND YEAR.—*Arboriculture*—Formation and care of fruit-orchards; cultivation and pruning of fruit trees of all kinds; pomology; best sorts of fruit; gathering and keeping ditto; nurseries of trees and shrubs; maladies, insects, vermin. *Market Gardening*—Formation and care of kitchen gardens; soils; best sorts of vegetables; raising plants for seed. *Floriculture*—Cultivation and propagation of plants in peat-earth, in cold frames, and in the orangery; cultivation of aquatic plants in the open and under glass; ditto of plants for windows, garden-vases, &c. *Architecture*—Plans of gardens; preliminary processes; execution of plans. *Drawing*—Drawing from life of leaves, fruit, flowers, &c. *Botany*—General principles of descriptive botany. *Physics*—Elements of physical science and horticultural meteorology. *Geology*—Elementary notions of geology as affecting horticulture. *French or Flemish Languages*—Syntax; exercises; preparation of notes on practical work done. *Arithmetic*—Decimals; the metric system; problems. *Geography*—Notions of physical geography; European geography. The pupils take their share in every description of work done in the fruit, kitchen and ornamental gardens, the arboretum, the nurseries, and coldhouses under direction of the several chiefs of horticultural departments.

THIRD YEAR.—*Arboriculture*—Formation and care of fruit-orchards; forcing of fruit-trees; nurseries of timber-trees; planting and lopping forest-trees; management of osieries, hedges, coppices, &c. *Market Gardening*—Forcing pine-apples and mushrooms. *Floriculture*—Cultivation of hot-house plants; growing flowers for market. *Architecture*—Construction of glass-houses; repetition of second year's instruction. *Drawing*—Drawing, shading, and colouring of plans. *Botany*—Botanic studies of the more important species in cultivation; notions of botanic geography. *Chemistry*—Elementary principles of organic and inorganic chemistry; study of chief manures; French or Flemish language; grammatical difficulties; reports and business correspondence; preparation of notes on

garden work. *Arithmetic*—Interest, bills of parcels, rules of societies, proportion, square-root, practical problems. *Geometry*—Plane. *Book-keeping*—Single entry. The pupils take their share in work of every description done in the fruit, kitchen and ornamental gardens, the arboretum, the botanic school, the nurseries, plant and fruit houses, and forcing grounds under direction of the respective chiefs of the several departments.

The professors are required to make frequent *visa voce* tests daily of the progress of their pupils, and to render notes of the same weekly to the director. Periodical reports of the progress and conduct of each pupil are sent by the director to the parents or guardians of such pupil and to the Minister of the Interior. The class examinations take place in August each year, and are conducted by the professors, in the presence of the director and a member of a committee of visitors appointed by the Minister of the Interior. The examination is partly oral and partly practical. The pupil is required to obtain at least three-eighths of the maximum total points allotted to the subjects of the examination to become entitled to a remove into the next higher class. The examinations for diplomas also take place in August each year, in the presence of a board of examiners appointed by the Minister of the Interior. The examination is then partly in writing, for which nine hours are allowed to each pupil, and partly practical, the time allotted to the latter being at the discretion of the examiners. The maximum number of points allotted to each subject is as follows:—

WRITTEN EXAMINATION.—Culture and management of fruit trees, 120 points; sylviculture and management of ornamental trees and shrubs, 120; market gardening, 120; floriculture, 100; garden architecture, 100; botany, 80; elements of chemistry, physics, and geology, as applied to horticulture, 60; arithmetic, 40; book-keeping, 40; total, 780 points.

PRACTICAL EXAMINATION.—Garden work, including digging, trenching, hoeing, potting, watering, grafting, nailing, packing, &c., 120 points; training, pruning, and naming fruit trees, 120; management of timber and ornamental trees, thinning, lopping, &c., 120; kitchen gardening, and early forcing of pine-apples, &c., 120; flower gardening out of doors, and management of the temperate house, 100; explanation of a garden plan showing flower-beds, walks, lawns, &c., earthwork, structural arrangements, dispositions for planting, &c., 100; execution of a drawing in presence of examiners, 100; total, 780 points.

To obtain a diploma of *capacity*, the candidate must obtain at least four-eighths of the aggregate total points in both examinations. For a diploma of *distinction* the candidate must obtain five-eighths of the total points in the written examination, and five-eighths of the maximum number of points under each individual head in the practical examination. For a diploma of *great distinction* six-eighths of the same; and for a diploma of the *highest distinction* seven-eighths of the same are requisite.

Applicants for admission to the school must not be under seventeen years of age. They must pass an examination in reading and writing, the first four rules of arithmetic, and the first elements of geography, and must produce a certificate of birth, one of good, moral conduct from the communal authorities of their Belgian domicile, and, besides, a medical certificate of fitness for all ordinary kinds of garden labour, all three certificates being duly legalized according to Belgian law.

The interior arrangements have a good deal of the monastic severity common to French and Belgian schools. There is one vacation in the year, from 1st August to 15th September, and a week's leave may be obtained at Christmas or during the first fortnight in May. But at all other times the resident pupils are only allowed outside the grounds on the afternoons of Sundays and fête days until eight p.m. They are only permitted to see visitors in the school parlour, and all parcels sent to them are opened by the school authorities. They rise daily at five a.m. in summer and half-past five a.m. in winter, and retire to bed at nine p.m. They have to brush and clean their own clothes, and, if required, take it in turn to wait in the refectory, where the meals are partaken in common, under the supervision of the superintendent. The fare consists as follows for each pupil:—*Breakfast*—Coffee and milk; 7oz. bread and butter. *Dinner*—Soup; about ¾ lb. meat, or on fast days fish and eggs; 7oz. bread; vegetables; a pint of beer. *Supper*—Vegetables; fruit or cheese; 3oz. bread and butter, and another pint of beer. No food is allowed to be left over from meal to meal. No edibles or drinkables are to be introduced by the pupils, and the use of tobacco and of all games of chance is strictly interdicted. Resident pupils must bring with them the following articles:—

FOR SUNDAYS AND OUT-DAYS.—A uniform cap, a frock-coat, waistcoat and trousers, overcoat, cravat.

FOR WORKING DAYS.—A uniform cap, two suits of flannels for winter, and two suits of canvass for summer wear, a pair of shoes for summer, two pairs of wooden sabots for winter and wet weather, one pair of slippers for indoor wear. Also six shirts, six towels, six pocket-handkerchiefs, two aprons, two sheets, two blankets, a pillow, and a six-feet mattress. Also two pruning hooks, a pruning knife, a grafting knife, a spade, a rake, two hoes, a nail basket, a hammer, and a metre tape, all of school pattern. Books and drawing materials are provided at the pupils' cost. Due provision is made for the religious and moral training of the pupils. Roman Catholic students unite in prayer mornings and evenings, and before and after each meal, and attend Mass on Sunday's and fête-days. Members of other churches are allowed to attend their own places of worship, subject only to such restrictions as may be necessary for school discipline. A choral society has been formed by the pupils, and a library is provided for their use. The punishments for misconduct are of four kinds. 1. Reprimand. 2. Deprivation of indulgencies. 3. Public censure. 4. Temporary or final removal from the school. Final removal can only be by order of the Minister of the Interior on the recommendation of the director.

In addition to the foregoing programme, certain open courses of instruction in horticulture are held annually at the school, which can be attended by any person entering his name for that purpose. The regulations under which those open courses are conducted, and certificates of proficiency granted to those attending them, are prescribed from time to time by the Ministry of the Interior.

PRESERVATION EXTRAORDINARY.—Every one knows that for softening and preserving the Skin, cleansing it from impurity, and thereby ensuring its healthy action, there is nothing equal to WRIGHT'S COAL TAR SOAP. Use it constantly, and you will have neither irritable skin nor a disfigurement of the face from pimples and blotches. Refuse all other Coal Tar Soaps, which are but worthless imitations.—W. V. WRIGHT and COMPANY, 42, Southwark Street.—[ADVT.]

THE PURPLE NUTMEG APPLE.

THIS is a comparatively unknown but extremely interesting little apple. It has been sometimes mistaken for Calville Rouge d'Automne, as also for Mère de Ménage, but is unlike either of those varieties. We adopt the name Purple Nutmeg from having met with it so labelled, but have failed to find any authority for the name. The tree is of robust habit and bears freely. The fruits are of medium size, ovate, much flattened, very prominently ribbed, the ribs forming distinct knobs around the eye, which is then slightly depressed; or obscurely ribbed, the ribs forming a mere puckering round the eye, which is then even with the surface or raised above it. Skin very glossy and wholly of a deep bronzy crimson colour; or with patches and stripes of yellow and deep red on the shaded side, and blackish purple on the other. Stalk of medium stoutness averaging an inch in length, inserted in a slight regular hollow, and often surrounded with a large patch of russet. Eye smallish, always closed, usually even with the knobbed or wrinkled summit, sometimes raised above in the form of a nipple. Flesh greenish, crisp, tender, with somewhat of a Ribston flavour, piquant and agreeable.

This variety has good table and culinary qualities, but is especially deserving of notice because of the beauty of the tree in the later summer

our gardens and orchards are usually located. As it flowers late it often escapes the spring frosts that destroy the pear and plum crops, and as a comparatively low summer temperature suffices for the ripening, the crop does not wholly fail even in a cold wet season. But the aggregate value of the apple crop in a productive season is enormous; and in a season that gives a poor crop we expend large sums on the importation of apples, chiefly from the western continent. Between British and American apples there is usually a considerable difference of quality, even if—as often happens—the varieties are the same. The American apples have usually a higher colour, a more tender flesh, and a sweeter flavour than those grown in this country. A well-grown English apple is indeed a fine fruit, and many of our best sorts attain to a higher quality here than there; hence it will be understood that the comparison is not necessarily “odious.” But the obvious and constant differences are of some importance. The American apples are the products of summers characterized by dryness and brightness. The trees flower late, owing to the length and severity of the winter, and they produce their fruit quickly, owing to the heat and constancy of the summer, and thus the high colour, the tenderness of the flesh, and the sweetness of flavour are fully accounted for. The facts would seem to show that in the East of England, where the rainfall is at a minimum and the sunshine at a maximum, the apple should be one of the most profitable of fruits, more especially in districts where wheat is a staple crop. In any case an



PURPLE NUTMEG APPLE.

and autumn months, the abundance of the fruits and their striking colours rendering them very attractive. It is in use from Michaelmas to Christmas. For samples of this interesting variety we are indebted to Murray Griffiths, Esq., Hamlet Court, Southend.

APPLES.

THE exhibition of a remarkably fine collection of apples by Mr. Ford, of Horsham, at the meeting of the Royal Horticultural Society, March 28, attracted considerable attention. Meeting your representative, who was taking notes of them, I asked if he would refer me to any recent paper on apple growing that had appeared in the Magazine. He said he could not call to mind that you had given any formal essay on the subject within some years past, and suggested to me that I might find some agreeable occupation in reducing to writing my own experiences and observations on the subject. I thereupon promised to supply a paper, hoping it might prove acceptable, and here it is. As regards Mr. Ford's apples, they were a remarkable lot for the time of year. How does this exhibitor contrive from year to year to bring forth beautiful samples long after what is understood to be their natural season? It is a question of great interest and importance.

The apple is the most useful of all our hardy fruits, and the best adapted for our peculiar climate, as well as for the deep heavy soils on which

open, breezy, but not bleak exposure is to be desired for an apple orchard. If exposure to keen blasts is to be avoided, so also is the moist air of a sheltered valley; for in humid situations the trees often do not mature their growth perfectly, and they are liable to injury from late spring frosts to a much greater degree than trees that are somewhat checked in growth by the drier and colder air of a breezy hill-side, where, if they do but begin the season well, however late, the summer sunshine will be likely to enable them to make amends for lost time, and produce fruit of good quality and high colour.

For all general purposes, the cultivation of the apple might be disposed of in very few words. It is an easy matter to discover the best twelve or twenty sorts, and equally easy to secure good trees, and there only remains to plant them in good soil and wait for the result. And in a thousand cases that might be selected at haphazard such a rough and ready mode of procedure would be found to be sufficient for the production of a good supply of apples proportioned in quantity to the space of ground occupied and the characters of the several sorts. But such a hasty way of disposing of the subject would suit very few readers, and I must endeavour to be circumstantial and adapt my proposals to a variety of requirements and conditions.

SOIL.—The apple requires a deep strong soil, but will thrive on many light soils if prudently managed. The perfection of a soil for apple culture is a deep fertile loam, well drained, warm, and sloping to south or

west. The climate being fairly good, and the situation somewhat open, we may expect on such a soil to produce all the more delicate habited varieties as well as the more robust that are less sensitive as to particulars. But on a heavy and even a damp clay good apples may be grown. In this case strong standards or diffuse bushes on free stocks, and of the more robust habited varieties, would be most likely to succeed. In a sandy or limestone soil standards of profitable kinds are likely to fail, but dwarf bushes and espaliers on the Paradiso stock may prove useful if a fair crust of top soil can be provided for them, because by occasional lifting the roots may be kept near the surface, and it will not be a difficult matter to scrape up a little fresh soil for them from time to time. But it is no easy matter to establish an orchard on a sand or limestone soil unless there is a good body of loam on the surface, for the roots of the apple tree strike deep, and as we have much to do in providing food for the crop there must be something in the nature of a moist, fertile soil for them to range in to obtain what they require. Nevertheless so accommodating is the apple that it may almost be said that wherever a good cabbage can be grown there also it is possible to grow a good apple, and given some depth of soil free from stagnant water, it matters but little what is its colour or character for apple culture of some sort or other.

THE CHOICE OF TREES is a matter of very great importance. The amateur may be advised to consider for a moment the system by which our markets are supplied with apples. They are not the produce of pigmy trees worked on starving stocks and severely pinched and pruned. They are the produce of standards and free bushes grafted on vigorous stocks, planted in good soil, and never pruned or pinched at any time after being planted out in their permanent quarters. In the nursery garden, all trees are subjected to pruning and pinching to form them fairly, because in their first growth from the graft they are apt to run up too fast and to branch irregularly. But when fairly formed and planted out no apple tree needs any pruning of either root or branch to enable it to produce fruit, or even to favour fruit production. So much for the apple growing that is made to pay. In the garden the case is altered; the trees must be kept within bounds, their fruiting must be hastened, and perhaps it may be desirable to grow many sorts that a commercial orchardist would not look at because of their relative unprofitableness. Here, then, we come upon the question of *stocks*, of which there are many, good and bad, which may be respectively described as "free stocks" and "dwarfing stocks." The free stocks are needed in the formation of great standard trees and large free bushes adapted for orchards. The dwarfing stocks are used for espaliers and bushes adapted for gardens. In the production of free stocks the sowing of seed is the usual plan, and the young plants are selected for their relative vigour and style of growth for the particular purposes for which they are required. These are usually called "crab stocks." Of the dwarfing stocks, as remarked above, there are good and bad sorts. Some are known as "English Paradise," "French Paradise," "Doucein," "Crewkerne," &c. The true Paradise is an Asiatic species of apple, of a very hardy nature and compact growth, flowering late and producing a pretty smallish fruit of middling quality. This being employed as a stock, is grafted with suitable sorts of apples, and the trees are formed into bushes, pyramids, and espaliers, as may be desired, and soon become suitable for planting in gardens. The advantages of employing this in place of the crab or free stock are that the little trees come into bearing early, make only a moderate growth, and therefore never attain to inconvenient dimensions, and produce fruit of the very finest quality. On the other hand, they do not fairly compete with trees on crab stocks when money making is in view. To fill the market basket we must have large trees and restrict the plantation to a few sorts that can be depended on. The dwarfing stocks suit amateurs who wish to grow many sorts in a restricted space, and who can be content with a few fruits of each, looking perhaps to a few old standard trees for the bulk of apples required for the family store.

Apple trees are planted in such a variety of ways, and often do so well under adverse circumstances, that it can scarcely be advisable to insist on a strict routine of proceeding. But it will be proper to say that when dotted about on an open space of ground—that is regularly cropped with roots and vegetables—their roots are often so much mutilated that the trees become diseased, and give but little fruit. It is observed that in market gardens the ground beneath the trees is regularly and very severely cropped, but this is a different case. In the small garden, where the trees are scattered "all over the shop," the spade is plied close to them on every side, and usually the knife and the saw are made to contribute above ground to the mischief effected below ground by the spade. We see such trees leaning over all sorts of ways, and their heads are of any shape or no shape at all, the "casual" pruner thinking that pruning and mutilating are one and the same thing. In the market garden the trees are in regular rows, with ample spaces between, and these spaces are regularly cropped and liberally manured, and the trees push their farthest roots into the rich mellow ground, and thus get a little extra nourishment to help them swell their heavy crops. Not one of these trees is injured at the root by digging all round it and close to it as in the cottage garden. Not one is "lopped" or "topped" or touched with knife or saw, for the man who grows fruit for market does not prune his trees at all. Were he to do so, he would be in the same plight as we often find the owner of a small garden; that is, having trees to look at, and no apples to sell or to eat.

The raising of apple trees, whether by grafting, seeds, or otherwise, is proper nursery work, and is best not attempted in an ordinary garden. But the amateur who wishes to amuse himself by raising seedling apples may be advised to sow only the plumpest pips taken from apples of fine quality, and to sow these in large boxes in a frame or in a sheltered border, where they will be under constant observation, as the young plants must be kept free from weeds and must have sundry other little attentions. The grand thing is to get them into fruit within a reasonable time, and, generally speaking, there is too much time allowed for this, owing to erroneous notions on the subject of management. Having raised and fruited many seedling apples, we will briefly sketch out a plan of operations for the adventurous amateur.

It is commonly believed that pips taken from apples of good quality usually produce trees that are worthless for their fruit. This is mistake No. 1. Very many seedling apples are as good as their parents; some are even better; and some are certainly worse. Of hybridizing we say nothing. But this we say with assurance of its truth, that a very considerable per-

centage of seedling apple trees will be like their parents in all essential particulars, even to the size, colour, and flavour of the fruit.

Sow the seed in autumn, in sandy loam, in rows one foot apart, putting the seed six inches asunder. A certain number will "miss," but the misses will be few if reasonable care is taken. If sown in boxes, put the seeds three inches apart every way, and keep them through the winter in a frame. In the ensuing summer transplant them during showery weather into nursery rows in a well-prepared border of sandy loam, somewhat sheltered but quite open to the sun. They should now be a foot apart every way. Those sown in the open ground may be left one whole season undisturbed, and then should, in the spring, be transplanted on the same plan as those that were started in boxes.

It is the custom at this stage to pinch back all side shoots, and to keep the trees close together to compel them to run up, and to encourage a soft luxuriant growth. Then at a certain time they are lifted, severely root-pruned and their heads shortened in, and they are planted out for fruiting. These violent measures are against nature, and they do but delay instead of hastening the production of fruit. It is better to allow each plant to grow in its own way from the very first. As they become crowded, lift with care as many as need to be removed, to give light and air on all sides to the rest. By this course of procedure some will be several times transplanted and some will remain where first planted out, and all will be furnished with shoots from the base, more or less. In from four to seven years the entire plantation will show fruit, unless, indeed, the seasons are adverse or the conditions unfavourable. Some will produce their fruit on short side spurs, some on the oldest wood without spurs, and some at the very tips of the branches, thus showing that the pruning knife may postpone, but is hardly likely to favour the season of fruiting.

Another mode of raising apple trees is by cuttings. These should be prepared from ripe shoots of the season, for old wood will but rarely strike roots. The month of October is the best time to insert these, and a sheltered position should be chosen for them, and a bed of well-drained sandy loam. Remove from each young shoot all the buds save the top-most two or three, and plant them firm four inches deep in rows one foot apart, and the cuttings six inches asunder. These should all be transplanted at the end of the first season to give them more space, and then it may be well to prune them judiciously to give them the form required for future usefulness. It is impossible to make trees without the aid of the pruning knife, and the pruner must have clearly in view the kind of tree that is desired, or that the subject then in hand is best adapted for. Pruning is one of the fine arts in horticulture, and a man should know something of trees and their ways before touching any tree with a knife, for he can never return to its place the branch he has removed in error, and the minutest scrap of a tender shoot represents nature's patient work by means of rain, and wind, and sunshine, and dew, for one whole year in its production. A tree is a living thing, and should be regarded and treated religiously.

The sorts of apples differ considerably in their readiness to multiply by cuttings. Some, as the burr-knot, for example may be struck as surely as currant trees. But when all is said and done, we trust to grafting for apple trees of named sorts, and to the plumpest of the pips for seedlings. As for the seedlings that produce poor fruit, they can be turned to account by grafting them with good sorts, provided they are healthy and vigorous. And if they are not healthy and vigorous they should be destroyed, whatever the quality of their fruit may be. An immense amount of harm has been done by the sale of apple trees grafted on weak seedling stocks, these being called "dwarfing" stocks, because destitute of proper vigour. We want trees that will grow, even if they do not become gigantic; but thousands of so-called "miniature trees" will not grow at all, and are not worth the ground they occupy. It is the employment of stocks raised from the refuse of the cider press that is chargeable with this mischief. But the purchasers of the tiny trees that are described as "bristling with flower buds" aggravate the mischief by pinching, pruning, and otherwise crushing out of the poor things what little life there may happen to be in them.

Apple trees may be planted in a variety of ways in a garden. A walk may be made into a beautiful arcade by planting trees half-standard high on each side and training their branches over a rough trellis. Or a walk may be embellished with espalier trees on each side, the supports for which may be rough stakes, or a cheap fence of iron hurdles supplemented with hazel rods where required. Standard and bush trees may be dotted about on a space of grass with great advantage, for apple trees on grass flower later than those in open ground, and are therefore the more safe against spring frosts; and if suitable sorts are chosen, they are extremely ornamental when dotted with their handsome fruit. But when planted in the kitchen garden they should be in regular rows, and, as much as possible, all together in a plantation, to prevent mutilation of their roots and injury to their heads by the traffic that must take place on open plots of ground. Many a garden that is disfigured by coniferous trees that do not thrive might be rendered beautiful and profitable by means of a few apple trees. When in its noblest form, combining size and health with age, the apple is one of the noblest trees, and comes near to the oak in its outlines and general complexion.

This brings us to the subject of diseases, and it is really remarkable how trees in a really bad state will not only live but produce fair crops of fruit, as though evident decrepitude were of no consequence. But the healthy tree pays the best, and in truth a healthy apple tree of a good sort is the most profitable of all trees, and it is a matter for surprise that in a country so favourable to this fruit as ours is, we should nevertheless give it so little attention, that we customarily depend on imported fruit to keep the apple dumplings going.

Canker and moss appear to be caused by the roots of the trees penetrating a cold soil holding stagnant moisture. Draining the land is the obvious preventive to a certain extent, but no amount of draining or ground management will prevent canker in some places. But there is another course open to the apple grower, and it is to recognize that young trees are cheap and soon come into bearing if the knife is kept away from them, and finally, that the formation of a new plantation now and then will allow of the removal to the woodshed of trees that have gone beyond the stage of profitableness. When big trees have sent their roots into a wet "pan" of ironstone or gravel it is waste of time to attempt their recovery. It is better to plant young trees on a new plot of ground and cut down the

old ones that have ceased to be profitable. The growth of moss (or more properly lichen) is usually the result of surface water, which the cheapest open channel drains would remove, and dustings of lime on the trees, combined with drainage of the ground, would soon make an end of the mossiness.

The one great plague of the apple tree everywhere is the American Blight (*Aphis lanigera*), the filthy white woolly thing that makes every crevice of the tree a running sore, and that makes a hideous brown stain when we attempt to rub it away. But to keep down this dreadful pest is a question of labour merely. It is so delicate in constitution that it is sure to fail, no matter how we may assail it, and hence wherever it is seen to thrive we may be quite sure it is not assailed at all, but is allowed to run riot in its own horrid way. Some years ago we took possession of an orchard of fine old trees on grass, and there the blight was so abundant that the trees appeared as if promiscuously and plentifully damped with whitewash, and every patch of white covered a running sore. We made a clean sweep of the blight at once. When the leaves were down we had every tree scrubbed with a hard dandy brush, dipped again and again in strong brine. Our theory was to use the brine hot, but this could not be carried out. The ground under each tree was covered with mats and sacks—whatever rough stuff we could find—to prevent destruction of the grass by the brine splashed down, and these coverings were moved from tree to tree as the work went on. In the following summer little patches of blight appeared in places that had escaped the scrubbing, and these were dressed with the Aphis Wash manufactured by the City Soap Company, Milton Street, London. The change was marvellous. The trees produced new bronzy glossy bark in places where they had been all gashed and bleeding with the blight, and from many an old stem there came forth young shoots that within three years bore fine apples. In fact, the systematic cleansing, combined with the laying down of three-inch drain pipes, and a few other little improvements, renewed the youth of the trees, while they still had the ripeness and solidity of age in and upon them. The American Blight, like other creatures, has its fancies. Many sorts of apples it appears not to touch, as the Golden Pippin for example; and many other sorts it assails as if bent on their destruction, as the Hawthorned for example. This useful, always fruitful, but quite second-rate variety, is an especial favourite of the Aphis, but it may be kept perfectly clean by scrubbing with brine, or with Aphis Wash or Gishurst Compound.

Old apple trees often appear diseased and worthless because they have eaten up all the food within reach, and starvation has marked them for her own. It is well to consider before we condemn a tree whether it may be restored to health and fruitfulness by the simple and cheap process of providing it with food. How few ever think of manuring fruit trees, and yet how enormous must be the quantities of the alkalies and phosphates that are removed from the soil in the shape of ripe fruits! The weak growth and the small fruit of an old tree that is otherwise healthy will generally indicate that the best medicine for it (as for some other living creatures) is good food of the most commonplace character. To refresh an old tree is easy enough. Strip the turf to the distance of five to ten feet from the stem, and put on a coat of fat dung to take its place, and thereon sow grass seeds. You will soon have a turf again, and the tree will have some nourishment. The next year dig a trench at a distance of, say, four feet from the stem; let it be two feet wide and two feet deep; take away all the old soil and fill the trench with a mixture of clay and fat dung, or turfy loam, or whatever else may be handy of a nice, kindly, fertile nature. The roots will soon run in the fresh stuff, and the tree will return thanks visibly—almost audibly. Very often a soaking of the ground around the tree with slush from the farmyard will accomplish all that is desirable. And very often in the remodelling of an old garden the fruit trees may all be refreshed with trenches of new soil, and the old stuff taken out may be useful in the formation of banks and rockeries, and for such other purposes, for what gardeners call "stuff" and builders call "dirt" is always in request where work is in progress.

Pruning may appear to have escaped attention. But the fact is that, except in the formation of young trees and the routine management of espaliers and cordons, apple trees do not require any pruning, and are much better without it. Dead wood may be cut out, and long shoots may be shortened back, but in a run of years he will have most fruit who prunes the least, and a thriving tree should never see the pruning knife.

POMA MITIA.

APPLES AND PEARS

EXHIBITED BY MR. S. FORD, AT SOUTH KENSINGTON, MARCH 28.

At the second of the March meetings held by the Royal Horticultural Society, Mr. Sidney Ford, Leonardslee, Horsham, exhibited a collection of apples and pears which were so remarkably good that we have thought it desirable to obtain their names for the information of our readers. The whole of the examples were in such a capital condition that they were remarkable not less for the care bestowed upon them from the time they have been in the fruit room than for the cultural skill bestowed upon their production. The names of the respective varieties were as under.

APPLES.

Adam's Pearmain.—An excellent dessert apple, rich in flavour and handsome in appearance.

Alfriston.—One of the most productive and useful of culinary fruits.

Bedfordshire Foundling.—A culinary variety remarkable for its productiveness and high quality.

Blenheim Orange.—Well known as one of the most valuable apples grown. Mr. Ford's samples were large and especially well coloured.

Cockle Pippin.—A long-keeping and richly-flavoured dessert apple; it is also a capital bearer.

Coronation Pippin.—A local variety, evidently possessing some merit.

Cornish Gilliflower.—A high-class dessert apple for supplying the table from the end of December to the end of April; but unfortunately the tree is not productive.

Court of Wick.—A medium-sized, but handsome and productive variety.

Court Pendu Plat.—A dessert apple of much value from October to March, as the fruit combines an attractive appearance with high quality, and the tree is a good bearer.

Devonshire Queen.—A cooking apple of good appearance.

Dr. Hogg.—A high-class variety raised by Mr. S. Ford, and sent out by Messrs. William Paul and Son a few years since. The fruits are of large size and handsome, and are suitable for cooking or the dessert. It has been certificated by the R. H. S., and may be considered one of the finest apples of recent introduction.

Dutch Mignonne.—One of the most valuable of culinary apples; it is large in size, handsome, and of good quality, and even in unfavourable seasons good crops are usually produced.

Edmund Jupp.—A free-bearing variety of good appearance.

Flower of Kent.—An excellent kitchen apple of large size and striking appearance; the tree is a good bearer.

Fearn's Pippin.—A handsome apple of good quality, although rather too hard in the flesh. It is well suited for dessert and cooking, and is a capital bearer.

Forge.—A free-bearing variety of excellent quality for the kitchen.

French Crab.—A well-known variety, remarkable for the length of time it may be kept in good condition.

First and Last.—A good culinary apple, in season from September to May. It is of good quality for cooking, and useful for the dessert.

Golden Nob.—A small culinary apple, of good quality and remarkably productive.

Golden Reinette.—A small and richly-flavoured dessert apple.

Hollandbury.—A large and handsome cooking apple, of excellent quality; the tree is a good bearer.

Holland Pippin.—A large and good culinary variety.

Hubbard's Pearmain.—A rather small dessert apple, of rich flavour, and fairly productive.

Kiddleston Pippin.—A medium-sized dessert fruit, possessing a rich and highly aromatic flavour.

Lemon Pippin.—One of the best of the dessert apples, the fruits of good size and rich in flavour.

Lady Henniker.—A large culinary variety, of good appearance and quality.

London Pippin.—A well-known and productive culinary variety.

Manchester Pippin.—A little-known apple of average merit.

Mannington's Pearmain.—A high-class dessert fruit of medium size.

Melon Apple.—A large American dessert variety, tender fleshed, and of good quality.

Margaret Henrietta.—A distinct apple of good appearance and fair quality.

New Rock Pippin.—A medium-sized dessert apple, remarkable for its hardy constitution and productiveness.

Norfolk Beefing.—A large handsome culinary fruit of splendid quality, keeping well far into the spring.

Northern Greening.—A very excellent and productive cooking variety.

Pearson's Plate.—A small dessert fruit of good appearance and rich flavour.

Poor Man's Profit.—A local variety, usually shown well by Mr. Ford.

Red Streak.—A medium-sized fruit of average quality, for the dessert and for culinary purposes.

Ribston Pippin.—One of the very best of dessert apples, and too well known to need description.

Royal Russet.—A valuable variety for the kitchen.

Scarlet Pearmain.—A handsome and productive variety of excellent quality.

Spanish Pippin.—A little-grown apple, useful in its season.

Scarlet Nonpareil.—One of the finest of the Nonpareil section; the fruits are of medium size, handsome, and of high-class quality, and the tree is a good bearer.

Treadcroft's Seedling.—Apparently a local variety of average merit.

Wellington.—One of the best known and highly appreciated and most valuable of culinary apples.

Winter Nonsuch.—A large and first-class cooking apple.

Winter Pearmain.—A productive variety of fairly good quality; useful for cooking and the dessert.

Winter Quoining.—A medium-sized high-flavoured fruit, suitable for the dessert and for culinary purposes.

Yorkshire Greening.—One of the most valuable of kitchen apples, combining productiveness with high quality and long keeping.

PEARS.

Bcurré Berckmans.—A handsome pear, turbinate in form and rich in flavour.

Bcurré Rancc.—A large richly-flavoured pear of great value for late use.

Bergamotte d'Esperen.—A productive and excellent late variety.

Jean de Wille.—A medium-sized fruit of high quality, and specially valuable for late use.

Olivier de Serres.—A medium-sized pear, rich and buttery; one of the best for furnishing late supplies.

Uvedale's St. Germain.—A large and well-known stowing pear.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Pipp's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7½d. and 1s. 1½d., labelled, "JAMES PIPPS AND CO., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

The House, Garden, and Home Farm.

THE ODYSSEY.

As one that for a weary space has lain
Lulled by the song of Circe and her wine
In gardens near the pale of Proserpine,
Where that Ææn isle forgets the main,
And only the low lutes of love complain,
And only shadows of wan lovers pine,
As such an one were glad to know the brine
Salt on his lips, and the large air again,
So gladly, from the songs of modern speech
Men turn, and see the stars, and feel the free
Shrill wind beyond the close of heavy flowers,
And through the music of the languid hours,
They hear like ocean on a western beach
The surge and thunder of the Odyssey.

ANDREW LANG.

THE HOUSE.

IN many respects the skylark is not so suitable for keeping in cages as the canary and some other birds that could be mentioned. But it may be successfully kept in captivity provided it has a fair amount of care and attention. In commencing to keep larks in cages, a beginning should be made with young birds, and it should be borne in mind that males are distinguished by their bright yellowish hue. The cages ought, as a rule, to be rather plain in construction, and they must be decidedly roomy. The smallest dimensions that can be well recommended are a length and height of eighteen inches and a width of twelve inches. The receptacles for food and water should be fixed outside the cage, and low enough for the birds to reach them when standing upon the floor. The cage must also be provided with a drawer deep enough to hold sufficient sand for the birds to dust themselves freely. Perches are not necessary, but a small piece of fresh turf should be kept in the bottom of the cage. The food most suitable for larks under confinement is a paste made with bread and oatmeal soaked in milk, with the addition of poppy seed, bruised hemp, bread crumbs, and an abundance of green food. They are particularly fond of ant's eggs, and a little lean meat minced up very fine and given to them occasionally is decidedly beneficial.

THE GARDEN.

ASTERS rank high amongst the most valuable of half-hardy annuals and are full of beauty and usefulness. The aster includes several divisions, the most striking of which are the flat-petalled reflexed blooms, the incurved kinds, the quilled forms, and the dwarf or miniature forms, which are more effective in pots or as edgings to beds than the taller kinds. Now is the best time to sow seed of all kinds, and if two sowings are made, one now and the other at the end of the month, the advantage will be found in a greatly-prolonged autumn bloom. Seed should be sown in pans or boxes under glass, giving plenty of light and air as the plants grow, and when large enough they should be pricked out into a cool frame or under hand-lights, or in some sheltered spot where they can have shade and protection until thoroughly established. From this bed they may be lifted at the end of May with nice balls of soil, and be placed either in pots or in beds as required. For an ordinary flower bed the soil should be dug deeply, and receive a good dressing of manure; into this the plants should be placed about ten inches apart each way, and a beautiful mass of flowers will follow.

CONSERVATORY.—Bright weather will necessitate the use of shading. Give as much air as possible all day, but take care to shut up early: this will keep the plants in bloom a considerable time. Hard-wooded plants not very attractive now may be removed to cold pits, to make more room for Coronillas, Cytisuses, Pelargoniums, Cinerarias, &c. Remove Hyacinths as they lose their brightness, and if to be kept plunge the pots in a border facing west, and give them plenty of water, alternating with liquid manure, till the foliage begins to show signs of decay.

FIG TREES should have the young shoots stopped at the fourth leaf and be syringed freely to help the swelling of the fruit. Strong foreright shoots to be stopped back to five buds.

GREENHOUSE.—Prepare at once to harden off all soft-wooded plants intended for bedding out early. Calceolarias will be all the worse for bedding if kept under glass any longer; the same with gazanias and zonal pelargoniums if they have filled three-inch pots with roots. A few spare lights or old frames will suffice now to protect them at night, and where few facilities exist a little ingenuity will suffice to provide protection by means of tiffany or varnished calico. In repotting specimen hard-wooded plants, it is a good plan to plunge the pots to the rim in a vessel of water for an hour or two the day before shifting: this moistens the ball through, and is a great help to the plants in pushing their roots into the new material, as once well moistened the old ball does not get dry again at this time of year.

PEACH AND NECTARINE TREES may have clear weak liquid manure as soon as the fruits begin to swell; at the same time thin the crop, and syringe every morning.

SALSIFY requires a piece of ground deeply trenched, with a good bed of manure at the bottom of the trench, and not a particle of manure in the body of soil above it. The roots strike down into the manure, and acquire a good size with great regularity, and the quality is fine. If carelessly grown they become forked and fibrous, and are much wasted in the cooking, besides being of inferior flavour. Sow at once in rows one foot apart.

STRAWBERRIES ripening to have less water and plenty of light; temperature not lower than 55 deg. by night, or higher than 70 deg. by day. Remove runners on plants coming into fruit.

VINES in the late houses that are coming into bloom should not be hurried by raising the temperature unduly. Much mischief is inflicted on vines by shutting the house up close to hasten the growth, while the roots, being in outside borders, cannot possibly sustain the demands upon them of the expanding leaves. Forward crops may still require thinning of the bunches, and if so forward as to be near changing colour raise the heat a trifle—say, to near 80 deg. by day, and 65 deg. by night. Pot vines in free growth now should be shifted if necessary; it will not pay to starve them.

THE HOME FARM.

BOTH lucerne and sainfoin are of much value as forage crops, the last-named being the best thing of its class for limestone and chalk soils. In the production of first-class dairy produce, lucerne and sainfoin are grand auxiliaries that may not be so widely understood and appreciated as they deserve to be. Lucerne requires a rich strong loam that contains a rather large proportion of calcareous matter. It is scarcely hardy enough for exposed uplands, requiring rather a mild climate. It should be well done, or left alone; for as it should stand several years, a complete eradication of weeds is essential as one of the preparations for the crop. About the middle of April is a good time to sow. The drills should be shallow, and range from twelve inches on middling land to fifteen inches asunder on extra strong land. The seed required is fifteen to twenty pounds per acre. It may be cut from for cows and horses for seven years, and then should be broken up and sown with turnips. Sainfoin requires similar treatment to lucerne, but is to be preferred for limestone districts. It is usually sown with oats or barley, at the rate of five bushels of the rough seed per acre. The land should be thoroughly clean in the first instance, and prepared by deep cultivation and liberal manuring. The plant will yield well for six or seven years on good land, and should then be broken up for wheat or turnips.

Literature.

The Sixpenny Books illustrate in a remarkable manner the inventiveness of the commercial faculty. We might have thought (and did think) that all possible forms of cheap literature had been tried in turn, but it was reserved for the Messrs. Longman to devise a new form and to render it an educative and refining power by their sixpenny edition of Lady Brassey's "Sunbeam." The latest startler of the series is Messrs. Ward and Lock's edition of "The Arabian Nights' Entertainments" filling sixty-four huge pages, with a shoal of pictures by artists of the highest eminence. Bad books can exist now only by reason of their badness, for the price can be no excuse for them.

Glenavon and other Poems. By FREDERICK B. NEEDHAM. (Allen).—It is delightful to be taken back in elegant, and sometimes stirring, verse to the days of real romance, when the spirit and incidents of chivalry gave a flavour to human life very different to what the soft sentimentalism of the present age endows it with. The author of "Glenavon" adopts the telling stanza of "Childe Harold," the least wearisome, and when well handled the most musical and satisfying of its class, as from Spenser to Byron we have ample testimony. The famous story of the flight of Sir Kenelm and the Lady Margaret acquires a quite new interest as retold by Mr. Needham, whom we heartily thank for arousing attention to the glories of the days of old. The miscellaneous poems are elegant, healthy, bright with fresh fancies, and rich with true feeling. The "Flower Girl" is quite a gem, and there are several that appear to be admirably suited for setting to music as songs.

Amateur Work. (Ward and Lock).—Part 5, for April, has some special attractions for amateur gardeners. There is a plate containing six working plans for a greenhouse and potting shed, and these may be trusted for suitable proportions and safe working to enable an ingenious amateur to provide himself with a bit of useful glass at a small expense. Other papers in the number are devoted to gasfitting, lathe making, electroplating, woodworking, modelling in clay, filters, bookshelves, and various novelties. It is a capital book for people who encourage mechanical fads and fireside industry.

Beeton's Dictionary of Science, Art, Literature and Philosophy. (Ward and Lock).—Part 6 carries us to celibacy. The subjects selected are more various than is usual in books of this kind. For example, under letter C we not only find such necessary articles as cadmium, Caen stone, calico printing, camel, and candles, but there are serviceable articles on Chaucer's "Canterbury Tales," Solomon's Canticles, the qualities and powers of a cardinal, and the history of caricature. This book will, therefore, be quite a *multum in parvo*, and invaluable for purposes of reference.

From the same publishers we have received continuing parts of *Universal Instructor*, *Haydn's Dictionary of Dates*, *Hallam's Literature of Europe, Land, Sea, and Sky*, *Beeton's Book of Poetry*, *Rollin's Ancient History*, *Epochs and Episodes of History*, *Holy Thoughts on Holy Things*, *Illustrated History of the World*, *Household Medicine*, *Popular Scientific Recreations*, *Disraeli's Curiosities of Literature*, *The Family Altar*, &c.

Aunt Judy's Magazine. (Bogue).—It will be hard to find the equal of this delightful monthly, for it is a perfect model of a book for young people, that the old people will never let pass without taking a peep at it. Fiction and fact, fancy and fun, mingle in its charming pages in a manner so engaging that it is really dangerous to touch the book when one has not time to read it through.

Science Gossip (Bogue) for April contains a capital squib on the evolutionary doctrine of a donkey, and a heap of good things for ramblers in the country.

The Antiquary and *The Bibliographer* for April are exceptionally good. In the "Antiquary" is a most interesting paper on "Easter." In the "Bibliographer" an important paper on the "Lost Works of the Poet Spenser."

Sports and Pastimes, a new serial published by Messrs. Cassell, hits a necessary nail on the head. It treats of cricket, football, tennis, riding, driving, and all the round of outdoor sports and pastimes in the most ample and able manner.

The Welcome (Partridge and Co.) is always welcome for its cheerful variety, solidity, and usefulness. The April part contains the usual array of beautiful engravings, besides portraits of Dr. Blumenau, Commodore Vanderbilt, Bishop J. W. Hood, Rev. E. Tabraham, and Rev. Nayan Sheshadei.

The Ladies' Treasury. Edited by MRS. WARREN. (Bemrose).—The April part contains a pretty picture of a new Orlando and a sympathetic Rosalind, carving by concert on the stem of a beech letters for mutual remembrance. The sketches of travel, and essays on domestic management are admirable, and the stories and fashions furnish abundant entertainment for the ladies of the household.

THE AUSTRALIAN LILY.

THE noble *Doryanthes Palmeri*, sent up from Kew to a recent meeting of the Scientific Committee of the R. H. S., has revived the interest originally felt in connexion with this plant, as also of the older species, *D. excelsa*. These magnificent amaryllids may be likened to lilies for their flowers and to palms for their growth. Happily, the temperature of an ordinary greenhouse suffices for them, but they require ample space for their spreading leaves and gigantic flower spikes, which rise to from twelve to twenty feet. *D. excelsa* was figured in our issue for August 27, 1870, and *D. Palmeri* in that for April 3, 1875. The last-named is now flowering finely in the temperate house at Kew; the leaves average five feet in length, and the spike is twelve feet high. It was introduced to this country by Mr. W. Bull, who also had the good fortune to secure the older species. The figures now reproduced are not only accurate, but suggestive of the colour of the flowers, which are of a rich crimson-red shading to white in the centre.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, APRIL 11.

OWING to the holidays, the subjects submitted to the respective committees were comparatively few in number, and the miscellaneous collections were less numerous than usual. Chief amongst the latter were the groups of rhododendrons and pot roses from Messrs. H. Lane and Son, the amaryllis and orchids from Mr. B. S. Williams, the daffodils from Messrs. Barr and Sugden, the tulips and narcissi from Captain Patton, and the cut roses from the Cranston Nursery Company.

The roses staged by Messrs. H. Lane and Son, Great Berkhamstead, consisted of about two dozen superbly-flowered half-specimens, and formed a very attractive bank. The leading varieties represented were John Hopper, Abel Grand, Glory of Waltham, Général Jacqueminot, Beauty of Waltham, Rubens, and Duchesse de Caylus. The rhododendrons consisted exclusively of hardy varieties, and produced a rich display of colour. A silver Banksian medal was awarded the firm. A medal of like value was



DORYANTHES PALMERI. (CLUSTER OF FLOWERS, NATURAL SIZE.)

EPHING FOREST.—The *City Press* makes loud complaint against the felling of trees in various parts of the forest. We have several times made note of this matter, and it has always appeared to us that the work was needful, and will be justified in time, although for the present it may tempt many to talk of vandalism. In many parts of the forest there are the materials for the making of magnificent timber, but the overgrown thickets arrest progress, and must be judiciously thinned if the most promising trees are to be allowed a reasonable chance of free growth for the advantage of future ages. The proposal we made in our issue of the 8th (p. 170), to the effect that Temple Bar might with propriety be restored as a memorial gateway, is in part adopted by Mr. E. J. Poynter, who in the *Times* of the 10th protests against the idea of converting it into an obelisk.

awarded to Messrs. Barr and Sugden, King Street, Covent Garden, for their large, interesting, and attractive collection of daffodils, in which were a considerable number of the newer forms of these beautiful flowers. Captain Patton, Alpha House, Alpha Road, St. John's Wood, exhibited very attractive collections of tulips and narcissi, the former comprising the majority of the finest varieties at present in commerce.

Mr. B. S. Williams contributed a splendid bank of amaryllis, orchids, and fine foliage plants, and was awarded the silver Banksian medal. Amongst the orchids were the exquisitely beautiful *Odontoglossum vexillarium*, the brilliantly-coloured *Masdevallia Veitchiana*, and several superb forms of *Odontoglossum Alexandrie*. The amaryllis included excellent examples of Dr. Masters and other fine kinds. Amongst the plants with ornamental leafage was *Aralia regina*, a beautiful species of small growth with digitate leaves, and admirably adapted for the decoration of the drawing room and

the dinner table. The contributions of the Cranston Nursery Company, Hereford, comprised excellent boxes of blooms of *Maréchal Niel* and *Niphetos*, two of the most valuable of the roses specially suited for cultivation under glass, several boxes of tea-scented roses, including *Red Safrano*, a charming variety with rosy red flowers, and a stand of cut flowers of *Hoya globulosa*, a charming species with cream-coloured flowers. Mr. A. Chapman, gardener to R. S. Holford, Esq., Weston Birt, exhibited a handful of blooms of a bright rosy red sport from *Marie Van Houtte*, which, if permanent will possess much value.

Messrs. H. Cannell and Sons, Swanley, contributed spathes of the white and yellow callas, a large bouquet of flowers of *Chrysanthemum frutescens* and *Agathua celestis*, and a stand of remarkably good double cinerarias. The cinerarias staged were *Phoebe*, deep rose and white; *Ada*, deep blue; *Sophia*, magenta-purple, a very rich shade of colour; *Kate*, white tipped with rose-pink, very pleasing; *Mary*, bright rose; Mr. T. Lloyd, bright blue. The whole of the varieties have large and remarkably double flowers. Mr. R. Dean, Ealing and Bedford, exhibited a very pleasing group of primroses and fancy polyanthus.

Mr. Lyon, Sundridge Park, Bromley, staged a large basket of exceedingly well-grown examples of Miles's *Spiral Mignonette*, for which he was voted a cultural commendation. Mr. Green, Pendell Court, Bletchingley, sent a specimen of *Orchis tephrosanthus*, a pretty species with rosy flowers; a cut spike of *Canna Ehemanni*, one of the finest of the group, and a splendid spike of *Telopea speciosissima*, the "*Waratah*" of New Holland, which is not often seen in bloom in this country. The flowers are of a deep coral-red, and form a very handsome spike. A vote of thanks was accorded. Mr. Lloyd, Brookwood Asylum, staged, under the name of *Progress*, a curiously-coloured coleus, the leaves sprinkled red, green, and creamy yellow. Mr. Parker, Tooting, exhibited baskets of *Megasea cordifolia purpurea* and *M. crassifolia media*, which have bright rose and pink flowers respectively, and are two of the most useful of the spring-flowering hardy herbaceous plants in cultivation.

The subjects before the Fruit Committee were comparatively unimportant. Mr. Barron sent from Chiswick good examples of Norfolk Bearer, Norfolk Coleman, Norfolk Beaufin, Rother Eisen, and Lane's Prince Albert apples. Mr. Douglas exhibited *Directeur Alphonse*, a large fruit, handsome in appearance and fairly good in quality for so late in the season. First-class certificates were granted as under:—

To Messrs. J. Veitch and Sons, King's Road, Chelsea, for *Rhododendron Fosterianum*.—A splendid greenhouse form; the flowers pure white, very fragrant, and similar in shape to those of *R. Veitchii*, but much larger and stouter in substance.

To Mr. J. Woodbridge, Syon House, Brentford, for *Anthurium Scherzerianum Woodbridgei*.—A superb variety; the spathes measuring five and a half inches in length, and three and a half inches in width; very stout and much deeper in colour than any other known form.

To Mr. James, Castle Nursery, Lower Norwood, for *Cattleya Mendeli Jamesiana*.—An exquisitely beautiful variety; the sepals and petals very broad and stout, and of a rich pink colour marked with purple at the tips; the labellum very deep purple, the upper portion white on the outside and bright yellow within.

To Messrs. H. Cannell and Sons for

Verbena Stars and Stripes.—A striking variety, the flowers of extra size, and of a deep rose colour, boldly striped with white.

To Mr. Fagg, gardener to Lieut.-Colonel Deare, Englefield Green, Egham, for

Dendrobium macrophyllum Dearei.—A pure white and charming variety of this well-known species.

To Mr. R. Dean for

Primula latifolia.—A lovely species, with rich rosy purple flowers.

MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—SPRING EXHIBITION, APRIL 4.

The exhibition of spring flowers held in the Town Hall, Manchester, on the above date, was remarkably successful, for, owing to the eminently favourable weather, there was a large display of ornamental plants, amongst which the orchids were prominent, and a good attendance of visitors.

The two leading exhibitors of orchids were Mr. G. Williams, gardener to G. Blair, Esq., of Whalley Range, and Oscar Schneider, Esq., both of whom contributed excellent groups. Amongst other orchids shown by these two exhibitors were *Dendrobium fimbriatum oculatum*, a fine variety of one of the most attractive of the golden dendrobies, furnished with upwards of twenty splendidly-developed racemes; *D. nobile*, a glorious mass of flowers; *D. densiflorum*, well flowered and striking in appearance; *D. thyrsiflorum*, a well-known and exceedingly beautiful yellow-flowered species; *D. lituiflorum*, a species remarkable for the beauty of its rosy purple flowers; *Oncidium cucullatum*, a pleasing species with rose and purple flowers; *O. fuscum*, bearing purplish flowers; *O. serratum*, remarkable for the great length of its flower spikes; *Odontoglossum Alexandræ*, too well known for its beauty to need comment; *O. Halli*, a striking species, the flowers yellow and crimson; *O. triumphans*, bearing flowers richly marked with maroon on a yellow ground; *O. cirrhosum*, one of the most elegant of the odontoglosses; *O. phalaenopsis*, a species of exquisite beauty, and *Masdevallia Lindeni*. Dr. Ainsworth contributed good specimens of *Odontoglossum Andersonianum*, one of the finest forms of the *Alexandra* type, and *Oncidium crispum grandiflorum*.

Rhododendrons requiring the protection of the greenhouse or the warmth of the temperate house were exceedingly well represented, and amongst them were several forms of great merit. Mr. J. Marson, Warrington, exhibited an excellent specimen of *R. Veitchianum*, a species bearing large pure white flowers, but rather ungainly in habit. Mrs. Tootal, of Weaste, contributed cut specimens of the orange-coloured *R. javanicum*; Messrs. Fisher, Son, and Sibray, of the Handsworth Nurseries, exhibited a fine group of hybrid rhododendrons, in which were well-flowered examples of *R. Duchess of Connaught*, *R. Duchess of Edinburgh*, *R. Princess Royal*, and *R. Taylori*. Mr. T. Jannock, Lily Nursery, Dersingham, Norfolk, contributed numerous examples of the lily of the valley, some grown in small pots in the usual way and some in the form of pyramids, such as were exhibited at the Alexandra Palace, Muswell Hill, last year.

Amongst subjects of a more miscellaneous character was a collection of stove and greenhouse plants from Messrs. R. P. Ker and Sons, of Liverpool,

which included good specimens of *Choisya ternata*, a shrub well deserving to be generally grown, for it is so hardy in constitution as to require protection from severe frost alone, and very sweet scented; and of the recently-introduced *Anthurium Andreanum*. Messrs. H. Cannell and Sons, contributed an attractive display of cut flowers, comprising auriculas, polyanthus, pelargoniums, and cinerarias; the latter comprised double and single flowers, and admirably represented the excellent strains at Swanley. The Cranston Nursery Company, Hereford, contributed the charming *Hoya globulosa*, which they have recently introduced. From Messrs. Dickson, Brown, and Tait came a rich display of hyacinths, in which the spikes were remarkable for their superb development. Messrs. J. Berry and Son, Moss Side, contributed azaleas. Mr. Walkden, Sale, sent pansies,



DORYANTHES PALMERI.
(Portion of Flower-spike, reduced.)

and Mr. George, of Putney Heath, staged a stand of blooms of his new abutilons, which have attracted so much attention at the metropolitan exhibitions held within the last few weeks.

A silver medal was awarded to Messrs. Fisher, Son, and Sibray for their collection of rhododendrons. First-class cultural certificates were granted to Messrs. Cannell and Sons for cinerarias and other subjects; to Messrs. R. P. Ker and Sons for stove and greenhouse plants; to Mr. T. Jannock for lily of the valley; to G. Blair, Esq., for cinerarias; to Mr. Schneider for orchids. First-class commendations were voted to Messrs. Dickson, Brown, and Tait for hyacinths; to Mr. J. Marson for *Rhododendron Veitchianum*; and to Mr. T. Walkden for pansies. First-class certificates were granted to the Cranston Nursery Company for *Hoya globulosa*, and to Messrs. Fisher, Son, and Sibray for *Rhododendron Lady Alice Fitzwilliam*, a very beautiful variety bearing large pure white flowers.

Notes of Observation.

SCABIOUS.

WITHOUT in any way depreciating any other of our hardy flowers, I may safely say that the scabious form a group of one of the most useful of the autumn-flowering subjects that can be readily raised from seed. They are so easily managed that the only wonder is we do not more frequently see them. Perhaps it is because they are rather old-fashioned; however that may be, those who have little convenience for raising tender flowers may be advised to grow them, as they are useful for flower beds and for the mixed border, as well as for pots. Those who require large quantities of cut flowers should grow them in a place set apart for that purpose. The variety of colours in the scabious is not one of their least important merits. Many of the colours are clear and bright, and those with dark shades are almost alone in their beauty; the seed must be sown at once, and the best place for it is a warm border where the soil is fairly fine and rich. The seed should be sown in drills one inch deep, and the drills be six inches apart. Thin sowing is necessary, because the plants grow quickly to a good size, and if they are crowded in the seed drill they will be much weakened. The best way to deal with them is to thin out the plants, if it is found that they are likely to be crowded. About the middle of June they should be large enough for planting. They are suitable for a bed or a mixed border, and where they are to flower five plants six inches apart each way will make a nice clump. The same distance will do if they are to have a bed to themselves. *Scabiosa major compacta* is the variety most grown in pots, as it is of a dwarf, bushy habit, but except that they are useful for mingling with other flowers I do not consider the scabious a particularly striking plant in pots. The strains from which seed is received from Germany are remarkably good. They send us two distinct types, the large-flowered and the dwarf, and seed is offered of each by the English seedsmen in collections of six or eight colours.

J. M.

MAGNOLIA CONSPICUA.

A large specimen of this magnolia which we have here trained on an east wall has flowered better this season than in any year since 1877. The estimated number of flowers that year was 2,300, and this year they have increased to about 2,700. They have not all been open at one time, but the flowering season extends over a period of three weeks. A valuable feature of this tree consists in it always producing a good many flowers, although not so many every successive year as here mentioned.

J. C. C.

CINERARIAS FROM SEED.

It is rather tantalizing to read in the reports of the London and other flower shows of the superior strains of cinerarias exhibited. Seed is in many cases offered for sale as being the produce of one or other of these particular strains, but the plants raised from it, when grown and bloomed, bear flowers of very inferior quality. Certainly the flowers are not so good as we might expect after reading what has been written respecting the strains. I do not mean to say that the reports are untrue, but I have no hesitation in saying that very little, if any, of the seed saved from good strains is sent out to the general body of customers. A favoured few no doubt obtain the correct thing. I called upon several gardening friends last week, and in three cases out of four the cinerarias raised from seed received direct from London and other seedsmen were complete rubbish. In my own case, I had seed from two different sources; one strain was of very fair quality, but the other was so indifferent that I had to throw the plants away as fast as they came into flower. I was ashamed to let any stranger see that I had devoted money, time, and space upon such rubbish. I am seriously thinking of going back to the cultivation of named varieties, for that seems to me the only thing to do to prevent disappointment in future.

J. C. CLARKE.

WHAT AMOUNT OF SUFFERING COULD BE AVOIDED IF WE ONLY KNEW HOW.

IT is often remarked how many more people that formerly complain of feeling unwell. It is not that there is a greater amount of contagious disease afloat, for there is proof that the extent and strength of such are far less than of yore, because of better sanitary arrangements and greater attention to cleanliness and other matters. The enormous prevalence cannot be doubted of pains in the back, side, and chest, enervated and languid feelings, with loss of energy; distress and fulness of the stomach, with often a sense of deadly faintness at its pit, which eating does not stay; sick headache; so called biliousness, unpleasant breath; a sense of weariness when rising in the morning, with an unpleasant taste in the mouth; and the loss of appetite or non-enjoyment of food. These are but the mildest effects of "feeling unwell," and yet how great is the distress and suffering, with hindrance to business and pleasure, they give rise to! The cause is not far to seek: it lies in the stomach and digestive organs, which have become impaired to the distress of nearly all the other functions of the body. Assuredly could the stomach always be kept in well-regulated condition through life, it would tend to far greater longevity than is now the case. The stomach is a wheel within wheels, and just as an erratic tendency on the part of a small but still important wheel of a clock leads to the disarrangement of its whole function as a timekeeper, so does the failure of so important a wheel as the

digestive organs in the mechanism of the human frame, throw, by their impaired vigour or inaction, all the parts depending on them—and they are Legion—out of gear. Just as the wheel of the clock will require to be adjusted that accurate time may be kept, so must the impaired organs of the stomach be restored to their original vigour. Digestion must be promoted by increasing the flow and strength of the gastric juice, and this "Seigel's Curative Syrup" will effectually do. It will impart strength to the stomach, invigorate the liver, and impart tone to the bowels, to the greater enjoyment of life and health of all who use it, and that it is so may be tested by a perusal of the testimonials in an Almanack, which will be furnished free of charge to any applicant by the proprietors, A. J. White, Limited, 21, Farringdon Road, London, E.C. The Syrup can be obtained from any chemist or medicine vendor. Read the following:

Waterloo House, London Stile, Chiswick,
February 17, 1882.

Messrs. White and Co., London.

Gentlemen,—It is with great pleasure that I add my testimony to the wonderful effects of Seigel's Syrup. For years I had been suffering from bilious attacks, which began with giddiness, then a mist would come before my eyes, so that I should not be able to recognize any one or anything at the distance of a yard or two from my face. This would be followed by excessive trembling of my knees, so that I could not stand without sup-

VERMILION BRILLIANT TULIP.

Having seen this recommended as a grand thing for the garden, and having also seen it in pots at the spring shows, I "went in" for a lot last autumn, and planted them in a succession of large clumps in a border in which the Ajax daffodils or Lent lilies are very strong. To my surprise they both flowered at the same time, and very resplendent was the effect, although I intended the tulips to succeed and not to run with the daffodils. They came up very short and flowered well, and when there were about a thousand or so, and as many golden trumpets in the border, we were very grand. But our grandeur is not over yet.

XXX.

Replies to Queries.

Names of Plants.—D. B.—Your flower came to hand completely smashed, as often happens when paper boxes are used. It appears to be *Gardenia intermedia*. H. Bromley.—1. *Stauntonia hexaphylla*; 2. *Sarmienta repens*; 3. *Olearia pannosa*. R. H. H.—*Acacia holosericea*.

Everlastings.—W. C.—Yours is the common sand everlasting, *Gnaphalium arenarium*, in its natural colour. It is a hardy perennial plant, rising six to twelve inches, and the one from which is derived a very considerable proportion of the immortelles that are so largely used in France in the decoration of graves. Your kind words are appreciated.

Books.—C. W. M.—In Thomson's "Treatise on the Grape Vine," published by Blackwood, price 5s., there is a good chapter on the fruiting of vines in pots, and the whole subject of grape-vine culture is treated in a comprehensive and masterly manner. W. Roper.—The latest edition of Paul's "Rose Garden" is the eighth, published by Kent and Co., 1881. The work of M. E. De Puydt is entitled "Les Orchidées;" the publisher is Rothschild, 13, Rue des Sts.-Pères, Paris. The principal illustrations are in colours. Andrews on "Geraniums" is a good monograph, obtainable only by hunting for it amongst the second-hand booksellers. Our copy is dated 1805. J. H. R.—"Amateur's Rose Book" and "Amateur's Kitchen Garden," both published by Groombridge, price 6s. The other book has been out of print some years, and usually sells for more than published price. We fear a complete set of "Garden Oracle" is not to be had, but you can make a beginning by ordering all that can be had.

Obituary.

On the 9th inst., at Birchington-on-Sea, Mr. DANTE GABRIEL ROSSETTI, the "pictorial poet and poetic painter." He was born in 1828.

On the 30th ult., at Ackleton, Mr. JOHN JARDINE, of Thorlieshope. The grapes and other products of the gardens at Ackleton, so admirably grown by Mr. Dickson, have long since made the place famous in the annals of horticulture.

Mrs. RAMSBOTHAM says her married sister has considerably improved the garden of her new house at Kensington, by introducing a number of shrubs of the *Anonymous*, which shrub, Mrs. R. thinks, is one of the prettiest evergreens in existence.—*Punch*.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

LAMPLOUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sea or Billous Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff-coloured wrapper. 113, Holborn, London.—[ADVT.]

port, after which a severe headache would occur, lasting often two or three days. I have tried various remedies for these distressing symptoms, but until I tried Seigel's Syrup I had no relief—since then I have had excellent health in every respect, and if ever I feel a headache coming on I take one dose of the Syrup, which arrests it.

Hoping that this testimonial may be the means of inducing others (who suffer as I used) to try the Syrup, as I feel sure they will receive speedy benefit and ultimately be cured, I beg to remain, yours faithfully,

A. H. HORTON.

St. Mary's Street, Peterborough,
November 29, 1881.

Sir,—It gives me great pleasure to inform you of the benefit I have received from Seigel's Syrup. I have been troubled for years with Dyspepsia, but after a few doses of the Syrup I found relief, and after taking two bottles of it I feel quite cured.—I am, Sir, yours truly,

Mr. A. J. White. WILLIAM BENT.

Woodside, Aberdeen, September 9, 1881.

Respected Sir,—The sale of your Syrup continues with me most satisfactory, and just the other day I heard of a woman long ailing giving it all the credit of her recovery to health. Trusting a fresh circulation of your valued Almanacks will result in mutual benefit, believe me, Sirs, yours most sincerely,

Mr. A. J. White. ROBERT HALL.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, sun, & water.	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.
			Rises.	Sets.	South before Noon.	Rises.	Sets.	London Bridge.	Liverpool Dock.	Morn.	After.			
1882	S	2nd Sunday after Easter.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.	Alyssum saxatile compactum, H. Yellow.	142
23	M	Daniel Defoe died, 1731.	4 51	1 46	7 8	9 2	0 12	5 20	5 40	2 23	2 45	49 3	Aenemone palustris, H. Yellow.	113
24	M		4 49	1 57	7 10	10 6	0 43	6 5	6 30	3 5	3 30	49 5	Dendrobium Wardianum, S. Rose & White.	114
25	Th	1st Quarter, 6h. 50m. morn.	4 47	2 8	7 11	11 11	1 18	6 55	7 22	3 55	4 20	49 6	Dentzia gracilis, G. White.	115
26	W	Princess Alice (of Hesse) born, 1843.	4 45	2 13	7 13	After.	1 43	7 53	8 25	4 47	5 18	49 7	Doronicum aegyptium, H. Rose.	116
27	Th	Philip the Bold died, 1401.	4 43	2 23	7 14	1 20	2 5	9 5	9 45	5 50	6 30	49 8	Hepatica tritoba, H. Various	117
28	F	Mutiny of the Bounty, 1789.	4 41	2 38	7 16	2 22	2 25	10 22	10 53	7 10	7 47	50 1	Odontoglossum Pescatorei, S. White & Yellow	118
29	S	Emperor of Russia born, 1818.	4 39	2 47	7 17	3 23	2 44	11 23	11 50	8 13	8 48	50 4		119

The Gardeners' Magazine.

SATURDAY, APRIL 22, 1882

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 113 and 119, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £2; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, APRIL 25.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Auricula Show, 1 p.m.; General Meeting, 3 p.m.

TUESDAY, APRIL 25.—NATIONAL AURICULA SOCIETY (SOUTHERN SECTION).—Exhibition in the Gardens of R.H.S., at South Kensington.

WEDNESDAY, APRIL 26.—ROYAL BOTANIC SOCIETY.—Exhibition of Spring Flowers.

PUBLIC PARKS AND GARDENS are of such immense importance to great towns, and more especially to those that increase rapidly and constantly, as London does, that it is a matter for surprise that it is impossible to secure one where it is evidently very much wanted without a great battle and many personal as well as parochial sacrifices. It appears that our scheme of civilization is very defective; that the normal growth of a town tends inevitably to the destruction of the people who make it, and to avert that destruction periodical spasms are needed, and these, though consuming much vital energy and making great demands on public spirit, are not always successful. The state of the case as viewed from the sublime heights of pure reason or national policy, is preposterous. The institutions of the country permit, and indeed encourage, the aggregation of bricks and mortar; and to prevent the calamities that portend, a handful of philanthropists have to engage in a conflict not only with national institutions but with the very people whose health in the first instance, and whose lives ultimately, are placed in jeopardy by the evils the philanthropists are labouring to remove. We are a great people, but it seems that we are dependent on a few, a very few, good men here and there for periodical salvation from national suicide.

It is fully evident to observant men that our municipal institutions do not comprehend systematic provision for such life-sustaining agencies as forests and parks and gardens. The greatest works that have been accomplished in the interests of the health and recreation of the people have been the result, more or less, of accident, some few good men taking advantage of the accident to turn the tide of death into a tide of life. The Corporation of London had no power designedly conferred upon it to enable it to provide the inhabitants of the metropolis with such glorious breathing grounds as Epping Forest and Burnham Beeches. Both these grand acquisitions were secured by the simple, but very uncertain, process of taking advantage of accidents. As a matter of fact, Epping Forest must have been entirely appropriated by bold purloiners, except for the accident that the Corporation of London had, for strictly municipal purposes, become commoners there, and the rights of commoners were made the basis of operations by a band of good and wise men. The result we all know, and it need not be dilated upon. In the case of Paddington Park there appears to be no opportune accident to facilitate a very necessary operation, and in the absence of an accident the public is in a poor position, and it is possible, and even probable, that the land required for a public park for Paddington will pass into the hands of the builders and there will be an end of the agitation.

No. 886, NEW SERIES.—VOL. XXV.

It is a matter for lamentation that the provision of public recreation grounds is located within the region of Chance. Towns may grow and grow and the State cares nothing, while too often the people of the towns care nothing, or, at all events, care but little in the face of the fact that breathing grounds must be paid for. The law provides, or at least endeavours to provide, that sewage shall be removed from towns; that air and light shall have free access to human dwellings; and that water, gas, and other necessities of life shall be at least fairly good, if not so perfect as might be. But we have not yet risen to a recognition of the solemn truth that town life lowers the standard of human vitality, and that the only means at present apparent for staying the process of deterioration consists in promoting outdoor exercises and enjoyments. We are tending at a rapid rate to become a race of pigmies. Observation of holiday crowds will tell a doleful tale of the physique of any great city. The smallness, the leanness, the paleness of the people are all traceable directly to their close life in the midst of mere bricks and mortar. They have, for the most part, no gardens of their own, and the public gardens are too few and often too far off. We are strong in party government, but the people perish while Conservatives and Liberals fight. A large view of the subject seems to suggest that if towns continue to grow as they have been growing, the British people will soon become a helpless crowd, destitute alike of hope, spirit, and purpose.

CHERTSEY AND DISTRICT HORTICULTURAL SOCIETY will hold its annual exhibition at Weybridge on Thursday, June 22.

THE EXHIBITION OF THE ROYAL ACADEMY will be opened to the public on Monday, the 1st of May.

NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—The summer show will be held July 25, 27, and 28.

CHISWICK AND TURNHAM GREEN HORTICULTURAL SOCIETY.—The exhibition of this Society will be held in the Horticultural Society's Gardens, Chiswick, June 22.

THE LONDON PARKS are gay with tulips now, and there is a good show of them in the Temple Gardens. Generally speaking, however, they are planted too thinly, and the colours are not sufficiently solid.

WIREWORM is to be the subject of a special inquiry by Miss E. A. Ormerod, who will embody the results in her next report on injurious insects.

WIMBLEDON HORTICULTURAL SOCIETY.—The annual exhibition of this society will be held in the grounds of "Cannizaro" on Wednesday, July 5.

KINGSTON AND SURBITON HORTICULTURAL SOCIETY will hold its exhibition in the Drill Hall, Kingston, on Wednesday, May 31, and following day.

MR. KING, for some time past gardener at Wray Park, Reigate, has entered into business as a grower of choice seeds at Rowsham, near Aylesbury.

BEACONSFIELD BUTTON-HOLES, formed of bunches of primroses, were much worn on Wednesday last, the 19th, being the anniversary of Lord Beaconsfield's death.

MESSRS. JACKMAN'S EXHIBITION OF CLEMATIS at Alexandra Palace, Muswell Hill, will be opened on Saturday next, and continue until May 13.

A SERIES OF SHEEP DOG TRIALS will take place in the grounds of Alexandra Palace, Muswell Hill, on June 15 and 16. One hundred mountain sheep from Wales will be selected for the trials, and some of the cleverest collies are expected to compete.

TUESDAY NEXT should be a busy day at South Kensington. In the great conservatory the usual promenade show will take place, and at 3 p.m. Mr. Shirley Hibberd will discourse on the Early History of the Auricula.

THE SPLENDID HYBRID RHODODENDRONS of the Javanicum section, of which Messrs. Veitch have secured and exhibited a considerable number, are now flowering superbly in their nurseries, King's Road, Chelsea.

A GREAT PICTURE BY MDLLE. ROSA BONHEUR, entitled "The Lion at Home," is on view at Mr. Lefevre's Gallery, King Street, St. James's. As a study from the life, and as a work of art not wanting in imaginative features, it is probably the greatest work of this wonderful painter.

THE QUANTITY OF COAL RAISED IN GREAT BRITAIN last year was 154,184,300 tons. To get a fair hold of these figures is impossible. Mr. H. Bessemer proposes to burn coal at the pit's mouth, and convey the energy for motive power by copper rods to London, both to save money and promote the purification of the London atmosphere.

OXFORD ROSE SOCIETY will hold its thirty-first annual exhibition on Thursday, July 6, in the far-famed "lime tree walk," Trinity College Gardens, Oxford. Schedules and particulars may be obtained on application to the hon. secretary, Mr. W. Greenaway, Paradise Square, Oxford.

KINGSLAND GREEN, which has the misfortune to be in two parishes, and the additional misfortune of having for many years past been an unsightly plot, neither green, brown, nor any other colour, is about to be built on. But a little breathing space is very much needed where this so-called "green" is situated.

THE R. H. S. GARDENS at CHISWICK are very attractive now. The fruit trees are flowering finely, and the rockery is gay with plants of the class known as "Alpines"—a class without recognized limits—and the frame ground and houses are crowded with attractive and interesting subjects. It is a good time for a visit by Fellows who have the opportunity.

WESTMINSTER ABBEY is now adorned with a neat little garden. The old gravestones have been removed and grass laid down in their place, and trees are planted next the public road. We hope the quiet bit of refreshing greenery will not be much disturbed by summer flowers, which in such a spot are really not needed. A green close is always a suitable foreground to an architectural pile, as witness Salisbury, Gloucester, and other of our noblest cathedrals.

DEATH has, in the past week, removed three noteworthy men. The Rev. J. G. Nelson, of Aldborough, died on Friday week, Sir Henry Cole, K.C.B., on Tuesday, and Mr. Charles Darwin, F.R.S., on Wednesday. Their names are familiar to horticulturists; the first for his arduous and good taste in the cultivation of hardy plants; the second for his immense services to popular and technical art education, and his sometimes peculiar (and not always pleasant) relations to the R. H. S. at South Kensington; and the third for his painstaking and valuable researches in natural history.

THE VINE DISEASE IN AUSTRALIA.—The most strenuous efforts are now being made by the Victorian authorities to stamp out the *phylloxera*, which is seriously threatening the ruin of all the vignerons in the colony. Every vineyard in the Geelong district has been or is to be uprooted, and so completely is the work being carried out that even vines trailing over verandahs round a country house are ruthlessly sacrificed. When the work has been finished, the nearest vineyard will be separated from the infected districts by a belt of some thirty miles of country. This has been fittingly considered a proper case for compensation, and the adjoining colonies have agreed to bear their fair share of the cost. The value of the vines destroyed has been appraised, and it is estimated that the sum total to be paid to the vignerons will amount to some 25,000*l*.

PEAS FOR EXHIBITION.

THE cultivation of peas for exhibition is one of my favourite pursuits; I grow them not only because good peas are acceptable on my table, but to be able to show my friends how well they can be grown in my garden. In this particular phase of gardening I have been very successful, as I have a good deep soil; and as an independent amateur I can devote a good portion of my time to the crops of peas. To be a successful exhibitor there must be more than an ordinary degree of interest taken in the work, or success will by no means follow.

SELECTING VARIETIES.

In making a selection of peas for exhibition, those producing large, handsome, and well-filled pods, and peas of a fresh green colour must have the preference. As a rule, the most handsome pods win, quality being of secondary importance. I have grown Telephone during the last two years, and it has gained the highest awards. Culverwell's Telegraph is also handsome. With these two varieties, grown and shown in a proper manner, no one need fear of being beaten.

PREPARATION OF THE GROUND.

The preparation of the quarters is of very great importance. Large quarters in my kitchen garden are devoted to the peas, and the rows are arranged to run north and south. Potatoes are grown on the ground one year and peas the next; all my peas for exhibition are sown in rows seven feet apart, and a row of late celery is grown between them to economize space. The rows of each sort at every separate sowing are forty-five feet long. The soil is prepared by taking out the trenches very similar to those that are required for celery. As my soil is pretty good and of fair average depth, deep trenches, holding a great deal of manure are not necessary. About six inches of the top soil is thrown out equally on each side in forming the trenches, which are about fifteen inches wide. The bottom of the trench is forked over and short rotten manure is spread over it to a depth of three or four inches. On the manure a portion of the soil thrown out is placed. I am careful to have the trenches lowest in the middle, so as to form a shallow basin. In this trench I plant (not sow) the peas, each pea being put down separately one inch apart and carefully covered with fine sifted soil.

WHEN TO SOW.

This is a very important part of the details, for on the selection of the time of sowing depends in a great measure future success. If the seed is sown too early the crop will be over before the date on which it is required, and if sown too late the peas will not be ready. In my

case the best plan has been to sow Telephone and Culverwell's Telegraph at the same time, as Telephone is about a week earlier than Telegraph. I can rely on having one of them in good condition on the date required. A period of twelve or fourteen weeks from the time they are sown until they come into bearing is allowed, and as both of these sorts will, under ordinary treatment and fair average weather, produce pods fit for exhibiting for a fortnight or so, there is not much fear of going far wrong. But to make sure of securing a crop at the right time, I make two sowings, one fourteen weeks and the other twelve weeks before the exhibition at which I intend competing. I do not pretend to say within two or three weeks when a crop from any particular sowing of peas will supply exhibition pods, as so much depends on climate, soil, and the season, but the times I have given will serve as a useful guide. Last year we were able to gather from Telephone in twelve weeks from the time of sowing, but we had warm weather during May, which made a difference of fully eight days.

AFTER MANAGEMENT.

As soon as they are about an inch high, I take out every other one, which leaves them two inches apart, and the growth is much stronger than when they are more crowded. In a dry summer there is a marked difference between those that are sown thick and those which are allowed plenty of room. I have noticed more than once that peas much crowded are the first to give out in dry weather. A light earthing is necessary as soon as they are about two inches high: this is done by sprinkling sifted soil over them when the leaves are dry. Soon after this sticks are put to the rows. Sticks standing six feet out of the ground are employed for Telephone, not that it always grows so high, but should it do so the sticks are in readiness to afford the necessary support. With me Telegraph grows rather higher than Telephone, but sticks of the same height serve for both varieties, and they should be put to them as soon as they are three inches high. I do not recommend any water to be given to peas unless it is absolutely necessary. If they are in a rich deep soil they will bear drought for a fortnight without taking any harm. It is best to take notice of the condition of the bottom leaves, and all the time they remain fresh and green they are better without water than with it. But as soon as the lowest leaves show signs of distress a thorough soaking of weak liquid manure is applied, and directly afterwards partly-decayed manure is laid along each side of the rows. It is very little use to give them water if the bottom part of the stem has begun to turn yellow; it must be given before that stage is reached or not at all. The best advice I can give the intending exhibitor respecting the gathering of the peas and showing them is to say that they should be picked as nearly as possible of one uniform size, and that when placed on the exhibition table they should have somewhat of a natural appearance.

AMATEUR EXHIBITOR.

Literature.

Our Homes, and How to Make Them Healthy. By S. F. MURPHY. (Casell.)—This work represents a quite new idea in domestic literature. It proposes to make every man his own sanitary officer, engineer, chemist, and manager for health purposes, so far as his control over his house and family permit. It is evident that in the endeavour to make his home healthy, Paterfamilias will come into contact with "Boards," "Interests," and "Obstructionists," and will often need abundant aid. The editor of the book is equal to the occasion, and has set up a board of general defence, comprising Drs. Chaumont, Corfield, Richardson, Squire, and others, with a host of aiders and abettors, who will contribute to the general plan of preventing danger and saving life.

The Rose: A Treatise on the Cultivation, History, Characteristics, &c., of the Various Groups of Roses. By H. B. ELLWANGER, Mount Hope Nurseries, Rochester, N.Y. (New York: Dodd, Mead, and Co.)—On many occasions within the past few years our readers have had the advantage of Mr. Ellwanger's experiences and proposals on the subject of rose culture, and it is with great pleasure we re-introduce this gentleman to them as the author of a book upon the subject. It is fortunate that for the usefulness of this book to English rosarians that the rose thrives and is well understood in the United States, and more especially in those of the States that are fullest of light and leading. Hence, when a man of such sound knowledge and judgment as Mr. Ellwanger puts himself to the trouble of advising on this subject, we are not much troubled about differences of climate or differences of tastes, as we are in connexion with some other subjects that may be regarded as of equal interest on both sides of the Atlantic. The author has hit the happy medium between a big book and a little one, for his neat volume of only 292 pages contains an immense amount of information; all, indeed, that an amateur rosarian requires for a full enjoyment of his roses, unless he belongs to the exhaustive school, who would begin with the Creation, and pursue in speculation the history of the rose to the end of time. As regards the plan of the work, it assimilates nearest to Mr. Hibberd's "Amateur's Rose Book," the several chapters treating of the families of roses, the forms of roses, the various modes of cultivating them, and the whole being supplemented by a list of varieties on a quite new plan, which does not so much supersede any other list as it properly supplements them all. The section devoted to propagating is rather meagre, as is invariably the case with books by nurserymen; and we cannot blame a writer for taking at least a little care of himself when advising others on a matter in which he has important commercial interests. It is just at this point where the man who has no trade interests enjoys perfect freedom, and can write up to his knowledge without fear. Mr. Ellwanger's book must be regarded as a very necessary addition to the rosarian's library, and we expect to see it widely distributed on this side amongst the ever-increasing brotherhood of men who love and cultivate the rose.

Calls at Nurseries.

MESSRS. H. CANNELL AND SONS', SWANLEY.

THERE is such a continuous succession of attractions in the nurseries of Messrs. H. Cannell and Sons, at Swanley, that it would be difficult, were it necessary, to say which would be the best time to visit them. In the summer there are the immense collections of delphiniums, phloxes, and pyrethrums to delight and afford instruction to cultivators of the choicer kinds of hardy plants, the trials of bedding plants extending over several acres; the displays of begonias, balsams, and verbenas under glass. In the autumn the collection of show, fancy, bouquet, and single dahlias, comprising about four hundred varieties, form a feature of great interest, and not less important are the chrysanthemums by which they are followed, comprising as they do between seven and eight hundred varieties. During the winter the splendid strains of primulas which have been raised by the firm, and the winter-flowering salvias, constitute features not less remarkable for their interest than for their attractiveness. In the spring season, as at the present moment, there are the large collections of auriculas and polyanthus for the entertainment of those who take a special interest in these exquisitely beautiful and old-fashioned flowers. The fancy polyanthus, primroses, and violas, and numerous other subjects in the open quarters, show how readily the flower garden may be made bright and attractive early in the year; whilst indoors the cinerarias and calceolarias afford a wealth of colour, and represent the highest degree of perfection to which these two classes of flowers have been brought. The zonal pelargoniums, which are represented by about four hundred of the finest varieties in commerce, have no particular season, for at all times may be seen several spacious houses, in which the display of bloom is so brilliant as to almost startle those who visit Swanley for the first time, and if the zonals present a more attractive appearance at one season of the year than another it is at mid-winter.

The multiplication and preparation of novelties are now occupying much attention, and although the structures in which they have a place are less attractive than the houses devoted to the cinerarias and pelargoniums, a peep into them is not without much interest. Foremost amongst the novelties are the single dahlias, to which the firm have given much attention of late years. This season there are about eighteen new varieties, a considerable proportion of which have been raised by Mr. Thomas Moore, and they are particularly deserving of notice for their compact habit and freedom of flowering, as well as for the attractive colouring and comparatively large size of the flowers. Some of the finest are *Gracilis superba*, a very effective variety, with crimson-scarlet flowers of fine shape; *Gracilis ignea*, bright coppery scarlet; *Gracilis lutea*, chrome-yellow, very effective in contrast with the scarlet varieties; *Gracilis cuprea*, fiery scarlet, flowers rather small, but very freely produced; *Guido*, bright rose; *Halo*, magenta-crimson; *Hero*, purple; *Avallanche*, pure white, the flowers perfect in outline and borne on erect footstalks; *New Paragon*, a beautiful variety with self flowers of the same rich magenta colour as the margin of the florets of Paragon. *Cambridge Yellow* is well spoken of for its effectiveness as compared with other single varieties. A double dahlia, named *Glaire of the Garden*, or *Fire King*, which is offered this season, must be specially mentioned, for of the four or five hundred varieties grown last year it was, when we saw the Swanley dahlias, by far the most effective. It is between three and four feet in height, compact in growth, and the flowers, which are of medium size, quite double, and in form not unlike those of the Cactus Dahlia, are of the most brilliant scarlet, and produced in such profusion as to form almost solid masses of colour. For the border and for furnishing cut flowers it will be simply invaluable.

Several new fuchsias claim attention for their value for decorative purposes. One of the most important is *Madame Rundell*, an exceedingly free-growing and profuse-blooming variety of the same type as the Earl of Beaconsfield; the growth is more elegant than of that variety, and the flowers are larger; in colouring it is very effective, the tubes and sepals being salmon-pink, and the corolla bright carmine-red, and its value is considerably enhanced by the freedom with which it blooms during the winter season. A good companion to it is *Rubrum*, a strong-growing winter-flowering variety, with large handsome flowers, the tube and sepals deep crimson, and the corolla bright red. This was obtained from a cross effected between *Dominiana* and *serratifolia*, and has been certificated by the R. H. S. *Nellie Morton* is a double variety, very similar to Miss Lucy Finnis, but it surpasses that useful variety in the flowers being of finer form and in the growth being more rigid.

The whole of the new pelargoniums are more or less meritorious, and are likely to take a high position in the several sections. The two decorative varieties, *Annie Helmsley* and *Improved Triomphe de St. Mandé*, are both good; the first-mentioned is very compact in growth, and bears flowers of a bright rosy crimson with white centre, and the other bears very rich crimson flowers. *Improved Triomphe de St. Mandé* is the fine variety shown so well at the Pelargonium Society's exhibition by Mr. Little, under the designation of "Beat upon Triomphe de St. Mandé," when a first-class certificate was awarded. Two double zonals of Lilliputian growth are just coming freely into bloom, and abundantly justifying the characters given them; they are interesting as representing a quite new type, and for their decorative value. *Comtesse de Tannberg* attains a height of about six inches, and produces its flowers, which are of a pleasing salmon colour, just above its foliage. *Princess Stephanie* is similar in growth, and has lilac-pink flowers borne in good trusses nicely above the foliage, which it may be added, form dense cushions on the surface of the soil. The *Lord Mayor* is a double zonal of the ordinary character as regards growth, and bears immense trusses of bright rosy pink flowers, and is considerably in advance of previously-introduced varieties in the same line of colour. *Magenta King* is very similar in character to the preceding, and has, as its name indicates, flowers of a bright magenta colour. The list of white zonals has been enriched by two remarkable varieties, namely, *White Clipper Improved*, a beautiful zonal of the same free character as *White Clipper*, bearing flowers which remain of the purest white under all conditions and at all seasons, and *White Distinction*, which has foliage rather larger, but similar in its marking to *Distinction*, and bears pure white flowers. *Mrs. J. Douglas* will be found a capital decorative variety of the Lothario type, from which variety it differs chiefly in the flowers being of a rich mauve colour. *Surprise* is one of the most

recent sports of *Vesuvius*, has bright salmon coloured flowers, and for bedding and winter flowering will be found of much value.

We were fortunate in seeing the series of abutilons selected from the fine collection exhibited at the first of the March meetings of the R. H. S. by Mr. George, who is without question the most successful raiser of these flowers. Those raised by Mr. George are remarkable for their neat habit, the large size of their flowers, and the freedom with which they bloom. They are indeed so free that under a properly-devised course of culture they may be had in flower throughout the year. The six varieties forming the series are *Belle of Surrey*, a very beautiful variety, the flowers very large, and of a cream colour veined with rose; *Criterion*, bright red, the flowers large and of fine form; *Dazzle*, bright scarlet, the most brilliantly-coloured variety, perhaps, yet raised; *Le Grand*, deep red, the flowers very large and so glossy as to present the appearance of having been varnished; *Rosy Morn*, deep rose, very large, and pleasing in colour, and *Striatum splendidum*, orange striped with deep red, and very effective.

The cinerarias, of which the strain is exceptionally good, are now in fine condition, and the structures devoted to them present a wonderfully attractive appearance, for the colours are as remarkable for their richness as the flowers are for their size and splendid shape. *March Past*, *Mrs. Cullingford* and other of the varieties for which Messrs. Cannell have been awarded first-class certificates are still in capital condition, and show how well merited were the distinctions received. The double cinerarias are also grown extensively and well, and are not without value, although yielding in attractiveness to those bearing single flowers. The zonals that have been flowering throughout the winter are still full of bloom, and the houses occupied by them are as bright and as attractive as could be desired. The plants for flowering during the summer and the early part of the autumn have, it may be useful to add, been recently shifted into the pots in which they are to bloom; the usual practice at Swanley being to select thrifty examples in three-inch pots, and shift them into others six inches in diameter. There should be a magnificent display of show and fancy pelargoniums in May and June, for three or four houses are now filled with examples in five and six inch pots in as fine a condition as could possibly be desired, and there is hardly a variety worth growing that has not a place amongst them. In the frames are all, or nearly all, the polyanthus which gladdened the florists of past generations, and many seedlings of so high a quality as to closely press upon the best of the named sorts. A glorious lot of primroses and fancy polyanthus, including *Harbinger*, which had a certificate conferred upon it at South Kensington in March, and an extensive collection of show and Alpine auriculas. In the open quarters the fancy polyanthus, the daisies, the wall flowers, and the violas contribute charming blocks of colour, and are by no means wanting in interest.

ASTERS.

CALLISTEPHUS HORTENSIS, or China Aster, was introduced towards the end of the last century, and was raised in the Jardin des Plantes of Paris from seeds sent from China. Of annual duration, numerous varieties have resulted from its extensive cultivation. In the wild state the flowers are single—that is to say, only the outer florets are strap-shaped, and usually of a rosy lilac tint, with yellowish disk-florets; but under cultivation all the florets have become ligulate or quilled, and a richness and variety of colouring has been developed scarcely surpassed in any one species, ranging from pure white to deep carmine, and violet and blue, though the yellow of the disk in the single form has not been reproduced in the double. We are mainly indebted to the French horticulturists, notably Truffaut, Fontaine, and Vilmerin, for the great perfection to which the different races have been brought. It is worthy of remark that these varieties are so far fixed that they will come true from carefully-selected and well-ripened seed. The garden varieties belong to two distinct classes—(a) Pyramidal, including the *Pæony*-flowered, Truffaut's Perfection, and *Ranunculus*-flowered *Pompon*; and (b) the *Anemone* or quilled Aster, of which we purpose to speak more fully. We have only to compare an example of the China Aster of forty years ago with the high-centred quilled varieties of to-day, and the contrast is most convincing; and we venture to give a brief outline of the *modus operandi* carried out at the Aster Nurseries, Chipping Norton, Oxon, during the past thirty-six years. In the spring of 1845 a pinch of seed was purchased of Messrs. Butler and McCulloch, of Covent Garden, and this, in due course, was sown. The result for the first ten years was but little in the way of progress; but as interest was awakened more time and space were devoted to their culture, and upwards of fifty shades of colour were secured. These, year after year, were weeded out, and for some time past we have been able to send out seeds in thirty distinct shades of colour.

CHIPPING NORTON VARIETIES.

In 1873 the following varieties were sent out through Messrs. Sutton and Sons, Reading, viz., *Grand Duchess Maria*, Duke of Edinburgh, Cantab, light blue, and *Improved Oxonian*, dark blue. These met with so good a reception that Messrs. Carter and Co., of High Holborn, purchased the whole of the seed in 1874, the strain having become popular through four varieties having been sent to the August show at the Crystal Palace in that year. These were *Snowball*, pure white, most perfect form and true, and obtained a certificate; *Prince of Novelties*, red mottled with white, fine high centre; *Queen Victoria*, red, white centre, and *Purple Prince*, very deep purple, grand form and large flower; the batch receiving first-class certificates at Banbury flower show the following week; a like honour was conferred on them at Brighton a week later. In 1875 three others found their way to the Crystal Palace, viz., *Blushing Bride*, rosy lilac, white centre, beautiful form; *Bridegroom*, delicate lavender, white centre; and *Prince Albert Victor*, purple flaked with white; the two first-named gained certificates, an honour again and again repeated that season at later shows. The next year another trio were sent up to the Crystal Palace, viz., *Princess Royal*, deep grey centre, broad, deep rose guard petals; *Princess Alice*, white, high centred cushion, flesh-coloured ray; and *Tom Thumb Oxonian*, deep purple border, pure white centre, and dwarf habit. A certificate was conferred on each. In 1877 *Novelty*, a beautiful flower, with pale rose border and pure white centre, was the only one sent; while in 1878 *Princess Royal* and *Princess Alice* were again honoured with certificates at Reading and Banbury, other varieties of distinct new colours being reserved until a sufficient quantity of seed could be produced to warrant sending them out.

As is well known, the last two or three seasons have been detrimental to harvesting seed in prime condition; yet we have pleasure in noting that our efforts in the matter of improvement have not relaxed, as we have had the satisfaction of introducing to the notice of floral devotees another stride in aster cultivation, no less than a pure white flower, Fair Rosamond, with dark purple guard petals, which same received a first-class certificate at Banbury, and special honours at Cheltenham on September 21, 1881. This is a new line altogether, and we are hoping to create a sensation another season with other new developments. In addition to the varieties named above, we saved seed of the following distinct colours, viz., crimson, white sprinkled with red, lavender, red and white, dark blue sprinkled white, white and purple, bright red, dark lavender, violet, crimson, light centre, deep guard petals; blue light centre, dark purple, crimson speckled white, magenta, chocolate, and rose and white.

To enable us to produce the large quantity of seed demanded—and we can fairly well compete with the Continental growers in point of quality—we are compelled to devote a large area to their culture. Visitors to Chipping Norton flower shows have often been struck with astonishment when for the first time they have looked upon the vast array of colour produced by 120,000 plants in full flower, each 4 ft. bed, on a gentle slope, stretching across our nursery plot, and appearing as a line or band of blue, or white, or crimson, with the intervening shades, each bed as true as if it were only one plant. Yet, notwithstanding every care and precaution in selecting the seed, we sometimes find a single flower, which, from its general character, would suggest that the seed had lain dormant for half a century. Having particularized the varieties and colours raised by us, we proceed to describe our method of cultivation in a few hints as to sowing the seed, planting out, shading, and otherwise preparing blooms for the exhibition table.

SOWING THE SEED.

For several years after I commenced the culture of quilled asters I always sowed the seed in bottom heat, but during the last decade the plan adopted has been to sow in a cold frame, under glass, some time between March 26 and April 26, in drills 6 inches apart, and not too thick in the drills. A few days suffice to bring them above the soil, when a liberal supply of air must be given, or the plants will be weak. When large enough they should be pricked out into another cold frame, slightly shading, where they will soon be established; and after they have attained strength enough to handle well plant them out into the beds or quarters where they are to bloom, in well-manured soil, being careful not to break the tender fibres of the roots. Let the rows be one foot apart, and plant the strongest plants twelve inches from each other; this should be done in showery weather, when the plants soon get established. If the weather be hot and drying a little water will be necessary till they are rooted, afterwards keep them clear of weeds by hoeing among the plants. About the first week in August top-dress with rotten manure from an old hotbed, giving a good soaking all over if the weather continue dry. After this, if the blooms are required for exhibition, the plants must be tied out to small stakes. As soon as it can be determined which buds will produce the best blooms thin out or disbud, leaving about five or six blooms on each plant. Exhibition blooms should be of large size, full, with high centres, deep, distinct colour, and solid petals. To secure these qualifications in this England of ours shading of some kind is necessary. For this purpose we have tried many kinds; one of these, and the most useful during the past stormy season, has been a "tin shade," about twelve inches in diameter, with a spring socket to slide up a square stake, one which we formerly used for shading dahlias, and which was, we believe, sent out by Mr. C. Turner, Slough, many years since. Wire frames covered with linen or other light material will do as well; all that is required is perfect security against rain and hail storms. In arranging blooms for exhibition, boxes or stands should be six or seven inches high at the back, and three or four inches in front, painted green; and, if the blooms are set in a frill of embossed or ornamental edged white paper the effect is improved, lending an air of elegance and refinement.

SOIL.

Asters like a deep rich soil, and it is only under such conditions that really fine flowers can be obtained, and the plants induced to hold out should dry weather set in. Planted in the ordinary way they are mere weeds compared with such as are well fed and can get their roots deep in search of moisture; and when they can do this the hotter the weather the better it suits them. Confined to the top shallow crust of earth they are soon dried up and the blooms starved; and this is why we so frequently see the poor puny plants that are to be found in borders, where, instead of being able to grow and develop themselves, all they can do is to struggle on for existence. The best way to manage them is to dig and cast off the top spit to one side, handy to be returned to its place again; and then trench and break up the soil below, working in with it at the same time plenty of short manure, thoroughly decomposed, which will have the effect of attracting the roots and affording them ample assistance just as they most require it, when expanding and perfecting their bloom. Trenching, as usually done, brings the crude earth to the surface, and buries that which has been exposed to the ameliorating influences of the atmosphere—a fact that should be borne in mind, as it takes years to get in the condition in which plants will lay hold of it and start away freely. In very light soils a few barrow-loads of clay, chopped up finely and mixed well in, has a capital and lasting effect, and will do more in producing fine Asters than any other help that can be afforded. The thing to aim at is to keep the bottom cool and moist, and, this done, all else is clear sailing, as then, if the weather be favourable, the plants will take care of themselves. When grown in groups of three in a border similar preparation must be made, or neighbouring plants already in possession are sure to rob them and cut short their beauty long before the autumn sets in.

SAVING SEED.

If the autumn be fairly genial, there is no difficulty in saving aster seed. Do not allow any one plant to carry more than three or four blooms, and these the finest. If needful to protect from heavy rain, the covering should admit of free circulation of air among the flower-heads. Gather when ripe, and clean through a wire sieve. Carefully-selected seed usually produces as good blooms as those from which the seed was saved. Our best kinds, and especially all the new forms and colours, are grown in beds, over which temporary lights are fixed, by which means we are enabled to cut blooms of the purest shade of colour.

POT CULTURE.

Many have written about the kinds best suited for pots; but our practice has been to sow in the open in May, keeping the varieties separate, and then lift about the middle of September (when the buds have partially expanded), and putting three plants into an eight-inch pot, pressing the soil firmly, shading for a few days, and then place them in a cold greenhouse, where they will bloom late on through the autumn. Such as these have a splendid effect in a conservatory among the small kinds of foliage plants, the only other plants equal in point of colour being the chrysanthemums.

VARIETIES.

On this head I can only say that, for exhibition purposes, the incurved and reflexed varieties, commonly described as French, are in their way most effective; but among the other sections there are few better than, if equal to, the best quilled asters.

JAMES BETTERIDGE, in the *Field*.

PILLAR ROSES.

By J. C. CLARKE.

PILLAR and climbing roses are not as a rule so successfully grown as they might be, because the soil before planting is not so carefully prepared as it is for other forms of roses. This is a great mistake, for generally pillar roses have to stand longer in the position in which they are planted than standards or dwarfs. They are also often planted in positions where it is inconvenient to do much to the soil after they are planted. The situation too is often hot and dry, as the rains cannot reach them, and to grow them successfully all these matters must be taken into consideration at the beginning, and the soil be prepared accordingly. The soil should be rather heavy than light; in fact, it should consist chiefly of loam, which retains moisture much longer than any other preparation in which roses will grow. If loam is scarce and the staple soil peaty or sandy, I would not hesitate to add one-third clay chopped up small. But these extra preparations are not necessary in all cases. There are many situations in which the staple soil, if there is enough of it, with the addition of rotten manure, is capable of growing roses fairly well. The root space for pillar roses is more often than not very circumscribed. There may be no help for it, but when such is the case it is indispensable that when the quantity of soil is small it should be of the very best description.

The proper time for planting pillar roses will depend whether they are in pots or not. In the former case they may be planted at any period, but the best time for planting them is in February or March. If the plants have to be taken up from the open, any time from November to the end of February will do. When planting roses out of pots, shake the greater portion of the soil away, and spread out the roots over as large a space as possible. In making a selection of roses for pillars I shall arrange them in colours.

RED VARIETIES.

Of this colour I must place *Cheshunt Hybrid* first on the list, for it is a glorious rose; the flowers are large, abundantly produced, and deliciously fragrant. It is a good grower; the leafage is all that can be desired, and not much subject to mildew; but why it should be placed amongst the tea roses I do not know. *Duchess of Edinburgh* makes a fairly good pillar rose. The flowers are very nice when in bud, but an expanded bloom of it is, in my opinion, anything but handsome. It must not be severely pruned. *Reine Marie Henriette* is a comparatively new rose, and when introduced first it was said to be a red Gloire de Dijon, but I fail to see why it should be compared with that old and favourite rose. The growth is altogether different, being more wiry; the flower buds are more pointed, and when expanded the flowers are looser and less fragrant; nor does it flower so freely, although it makes a fairly vigorous growth. The three varieties above named are the most vigorous growers in this section I am acquainted with; they are capable of covering a pillar ten to twelve feet high. Those who have pillars six to eight feet high may employ a few of the hybrid perpetuals, as some of them make excellent pillar roses. The best are *Maréchal Vaillant*, *Alfred Colomb*, *Annie Wood*, *Camille Bernardin*, *Dr. Andry*, *Général Jacqueminot*, *Beauty of Waltham*, and *Pierro Notting*.

PINK VARIETIES.

The tea roses include plenty with flowers of various shades of pink. *David Pradel* is a grand old rose for a pillar of medium height, as also is *Aline Sisley*; *Letty Coles* is very good; *Reine Victoria* is a Bourbon, and it is a capital variety for a tall pillar. There are also several of the hybrid perpetuals which may be employed for covering pillars six to eight feet high. The best are perhaps *Anna Alexieff*, *Baronne Prevost*, *La France*, and *Anna de Diesbach*.

WHITE VARIETIES.

There are not many good white roses suitable for pillars, and none of them are very pure in colour. *Climbing Devonensis* is alone suitable for covering a large space; for smaller, dwarf *Niphotos*, *Isabella Sprunt*, *Madame Guillot*, and *Marie Van Houtte* are the best of the tea varieties; amongst noisettes *Aimée Vibert* is still unequalled. The best hybrid perpetuals are *Madame Lacharme* and *Madame Pittet*, a comparatively new variety.

YELLOW VARIETIES.

We must place *Maréchal Niel* first on this list, and then for large pillars *Céline Forestier*, *Solfaterra*, *Triomphe de Reims*, and *La Marque*. The foregoing are noisettes. Of yellow tea roses of different shades, *Safrano*, *Shirley Hibberd*, *Madame Falcot*, *Perle de Lyon*, and *Eliza Sauvage* are the most desirable.

BLUSH TEA-SCENTED VARIETIES.

The best of the tea-scented roses with blush-coloured flowers are *Gloire de Dijon*, *President*, *Comte de Paris*, and *Souvenir d'Elise Vardon*.

BEDS AND BORDERS IN SMALL GARDENS.

THANKS in a great measure to the sound teaching of the GARDENERS' MAGAZINE, there is now less extravagance in the employment of summer bedders than was the case a few years since. We no longer see in every garden we enter either a blaze of scarlet geraniums or a considerable proportion of the beds and borders so planted as to be poor imitations of the products of the loom; and it is not an uncommon occurrence to meet with judiciously-formed collections of hardy plants. But in the matter of the decoration of the flower garden the reform in this direction is not so complete as could be desired. There still remains a great desire on the part of many amateurs to imitate in the limited space at their disposal some of the striking effects in summer bedding seen in the extensive gardens of the wealthy or met with in the parks open to the public. Sometimes attempts are made to give effect to this desire, and an outlay is made out of all proportion to the results, and very frequently more or less disappointment is experienced. When the whole of the available resources of a garden of comparatively small size, or any considerable proportion of them, is devoted to the summer bedders, the glass structures at command have to be occupied for fully eight months of every twelve with the plants required for filling the beds, and during the remaining four months, when the plants are in their summer quarters, the most constant attention is requisite to keep them in proper trim. In these cases one of two things must happen: there will be a considerable augmentation in the labour bill; or other matters, such as the cultivation of fruits and vegetables, are neglected. If the results justified the increased expense for labour, or the serious diminution in the fruit and vegetable supplies, it would be another matter. They afford no such justification. In the majority of cases in which the resources of small gardens are devoted almost exclusively to the summer display the effect is anything but satisfactory. Sometimes this is owing to the plans being defective or imperfectly carried out, and sometimes from the unsuitability of the surroundings, or the insufficiency of the space; in either case but little pleasure or satisfaction is afforded. Even when the arrangements are fairly good the display, owing to the brightness of the colouring and the sameness of appearance, becomes wearisome in a comparatively short time, and the end of the summer is anticipated with some degree of eagerness, for the sake of the change that will be effected in the flower garden. Where the pleasure grounds extend over many acres the summer bedding, even when carried out on a rather large scale, does not become so wearisome, for there is necessarily a great expanse of turf, and plenty of trees and shrubs to afford relief, and generally there are extensive views over wood and meadow. But in the case of the small garden, wholly given up to bedders, it is impossible to take a turn in it or look out of any of the windows without a bed of geraniums or other brightly-coloured plants obtruding upon the view, and at last they become more or less obnoxious, especially to those who remain at home during the day.

It must not be understood from the foregoing remarks that the writer has any desire to condemn the zonal pelargoniums, the petunias, the lobelias, and the various leaf plants as utterly unsuitable. No wish is felt to do anything of the kind, but he is strongly of an opinion, and has no hesitation in giving expression to it, that they ought not to be grown to the exclusion of other classes of ornamental plants. Colour is unquestionably needed to brighten up the rich green of the foliage of the trees and shrubs and of the turf, but it ought not to be overpowering or be confined to one-third of the year, and that the period when colour is least required. We want brightness in the flower garden in April and May, and in October as well as in July, and no garden can possibly afford the pleasure it is so capable of affording in which there is not a good succession of flowers extending over fully nine months of the year. It is against the practice of covering lawns of small size almost entirely with flower beds, and then filling them with plants bearing flowers brilliant in hue or leafage, rich in colouring, that a protest must be made. Still stronger must the protest be against carpet or mosaic bedding, as the filling of the beds with dwarf leaf-plants is variously designated, for it is exceedingly costly, and when carried out on an extensive scale becomes very monotonous. In the largest of gardens it should be kept within circumscribed limits, and in those of medium size not more than two or three examples should have a place, whilst in those of small dimensions it should form no part of the summer embellishment. It is the most expensive of all the bedding, many of the subjects requiring the warmth of a stove during the winter, and they must all have the most unremitting attention throughout the summer season to keep the growth in the proper place. Briefly stated, carpet bedding cannot be well done without much labour and expense, and when badly done it is decidedly objectionable. The only really satisfactory course for the owner of a garden of limited dimensions is to employ the ordinary run of bedders as supplementary to the choicest of the hardy plants, instead of, as in so many cases, to their exclusion.

There may appear some difficulty in effecting so sweeping a change in gardens in which hardy plants have as yet no place, but when once a determination is made to have the garden bright with flowers from early in spring until autumn it will be found easy of accomplishment. Hardy plants are comparatively cheap, but the purchase of sufficient to fill the borders of even a small garden will cost a goodly sum, and, moreover, twelve months or so will be required for the majority to become sufficiently established to bloom freely. But when the garden is once stocked the annual expense for additions, and for keeping the borders in order, will be very light, and contrast most favourably with the cost of the bedders,

and the interest will be largely increased. The beds on the lawn should be reduced to the fewest possible number, and be placed near the sides to leave the centre of the turf clear, whether required for garden games or not, and the planting of these should be so arranged that they present a bright and tasteful appearance from early in the spring until the autumn. The borders should be planted with hardy and tender plants in the proportion of two to one, and in the first instance it will suffice to purchase sufficient hardy plants to about half fill the border. As they grow they will fill out the space in a remarkable manner, and in a very short time the multiplication of the stocks of such subjects as find special favour may be commenced. The great point in stocking borders with herbaceous plants is to select those which are vigorous in growth and really effective in appearance, and will also maintain a constant succession of bloom. The experienced cultivator would select the alyssums, aubrietias, anemones, crown imperials, dwarf phloxes, daffodils, globe flowers, marsh marigolds, perennial candytufts, polyanthus, and violas for flowering in spring; the aquilegias, delphiniums, dianthus, geums, campanulas, phloxes, clematis, lilies, lychnis, pæonies, pyrethrums, spiræas, and Kämpfer's iris in variety for the summer display; and the Japanese anemone, perennial asters, early-flowering chrysanthemums, coreopsis, chelones, heleniums, sennecios, and the late-flowering veronicas for blooming during the autumn. Associated with these should be the zonal pelargoniums, asters, single and double dahlias, annual phloxes, stocks, marigolds, verbenas, petunias, and zinnias. A few cammas, tobaccos, and wigandias may be added, and where the borders are of sufficient width nice examples of the stag's horn and scarlet sumach, the golden catalpa, the golden elder, and other trees of moderate stature, or shrubs having ornamental foliage, placed at intervals will materially enhance the general effect.

In arranging the borders with a mixture of tender and hardy plants due regard must be paid to their respective heights, the season at which they are at their best, and the colour of the flowers, each kind to form a bold group. The boundary wall or fence should be concealed by a belt of shrubs, chiefly evergreens, or when the borders are very narrow be clothed with climbers, ivies being decidedly best, because of their being neat in growth, evergreen, and adapted for the most unfavourable positions. In gardens in the country climbing roses may be planted at intervals, but as the most beautiful of the roses are not evergreen they should be employed rather sparingly. It will indeed be better to plant a few standard and dwarf roses in the border with the other subjects, than to devote any considerable extent of the wall to them. Clematis are also very effective when in bloom, but they leave the walls bare and unsightly during the winter, or they might be planted rather plentifully. The most satisfactory arrangement is to clothe boundary walls to gardens of small size with ivies, employing five or six of the most distinct of the green-leaved kinds and a few of those with variegated leafage. When the boundary is formed with a light palisading of wood or iron, the preferable course will be to drape it with virginian creepers, clematis, and roses, and if a screen of evergreens is required to form it with shrubs or trees. The springtime is most favourable for the planting of the whole of the herbaceous plants and of the climbers, if they have been grown in pots; but the planting of the evergreens should be deferred until the autumn. Borders unoccupied should be dug over and liberally enriched with some fertilizing agent previous to planting, and those partly occupied should have the vacant spaces picked over after the application of a moderate dressing of manure.

In the arrangement of the various subjects the back row should be formed with dahlias, tritomas, heleniums, perennial and annual sun-flowers, which are known respectively as *Helianthus multiflorus* fl. pl., and *H. fistulosus*, sweet peas, supported with sticks between three and four feet high, cannas, and other plants of bold growth and shrubs with noble or richly-coloured leafage. These are all to be planted in triplets to form bold masses, and the shrubs should be pruned hard back annually to keep them well within bounds, and at the same time maintain a constant succession of strong shoots, which alone produce full-sized leaves. For the second row from the back the most suitable subjects would be phloxes, delphiniums, pæonies, dwarf bouquet dahlias, Japanese anemone, perennial asters, campanulas, globe flowers, prince's feather, tall antirrhinum, marvel of Peru, *Matricaria inodora* fl. pl., and pyrethrums. The most suitable subjects for the third row from the front would be the dwarf campanulas, daffodils, anemones, zonal pelargoniums, geums, lychnis, veronicas, asters, stocks, and other subjects of a similar kind. In the front row the aubrietias, alyssum, primroses, hepaticas, lobelias, pansies, verbenas, dwarf forms of Drummond's phlox, crocuses, forget-me-nots, and dwarf pelargoniums with variegated leafage would find a fitting place.

Amateurs who are not well acquainted with hardy plants would do well to visit occasionally some good nursery in which they are largely grown during the spring and summer, and purchase at each visit such of the free-growing kinds as attract their attention, provided they can be had in pots. They could be shifted into larger pots or be planted in a nursery bed, and on the removal of the summer bedding in the autumn be arranged in the borders. W. K.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—“By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame.”—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—“JAMES EPES AND CO., Homeopathic Chemists, London.”—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

NOTES ON FUCHSIAS.—No. X.

THE LILAC-FLOWERED FUCHSIA.

IN the year 1824 a Mexican fuchsia was introduced to Europe and named *Fuchsia arborescens*. It was figured in *B. M.*, 2,620, and in *B. R.* 943, and described in De Candolle's "Prodromus," III., 37. It is an ever-green greenhouse plant of most vigorous habit, tree-like in growth, and producing diffuse terminal panicles of pink flowers, differing much in general complexion from all our more typical fuchsias. In the year 1847 Messrs. Van Houtte, of Ghent, received from Guatemala seeds of a variety of this fuchsia, which, when it flowered, they named

A GARDEN HOUSE IN MEXICAN STYLE.

WHEN travelling in Mexico I made many sketches of ruined cities and deserted shrines, and as a matter of course the most interesting of these were obtained in the province of Yucatan. I have selected one as a design for a garden house, corresponding in plan if not in style, with a design in Grecian style which I sent you, and which you published in your issue for January 7. The subjoined is a faithful reproduction, including the vegetation on the roof, of the House of the Nuns at Chichen-Itza, a spot whereto the Spaniards went for gold, and from which ingloriously they fled to escape extermination



FUCHSIA ARBORESCENS.

"syringæflora," on account of the curious and striking resemblance of its inflorescence to that of the lilac. It was figured in *Flore des Serres*, 1848, 416. *Fuchsia arborescens syringæflora* is in every way a remarkable plant. The growth is robust and tree-like; the leaves are large, oblong ovate, and are for the most part produced in whorls; they are stout in texture, and in colour dark green. The flower heads are large and less compact than those of the lilac, to which in a general way they may be very properly likened, the colour being pinkish red with purple shades. In details of structure the flowers conform strictly to the type: the tube is cylindrical, the sepals spread to a nearly flat face, and the divisions of the corolla spread with them, but are shorter. This is a noble fuchsia for a grand conservatory.

by the Indians. The façade of this portion of the magnificent ruin is a very fine example of Mexican architecture, rich in detail, mysterious in purport, and admirably adapted to serve the useful purpose of a garden house and museum, but necessarily suited only to a place of considerable extent and requiring to be carried out in a somewhat costly manner.

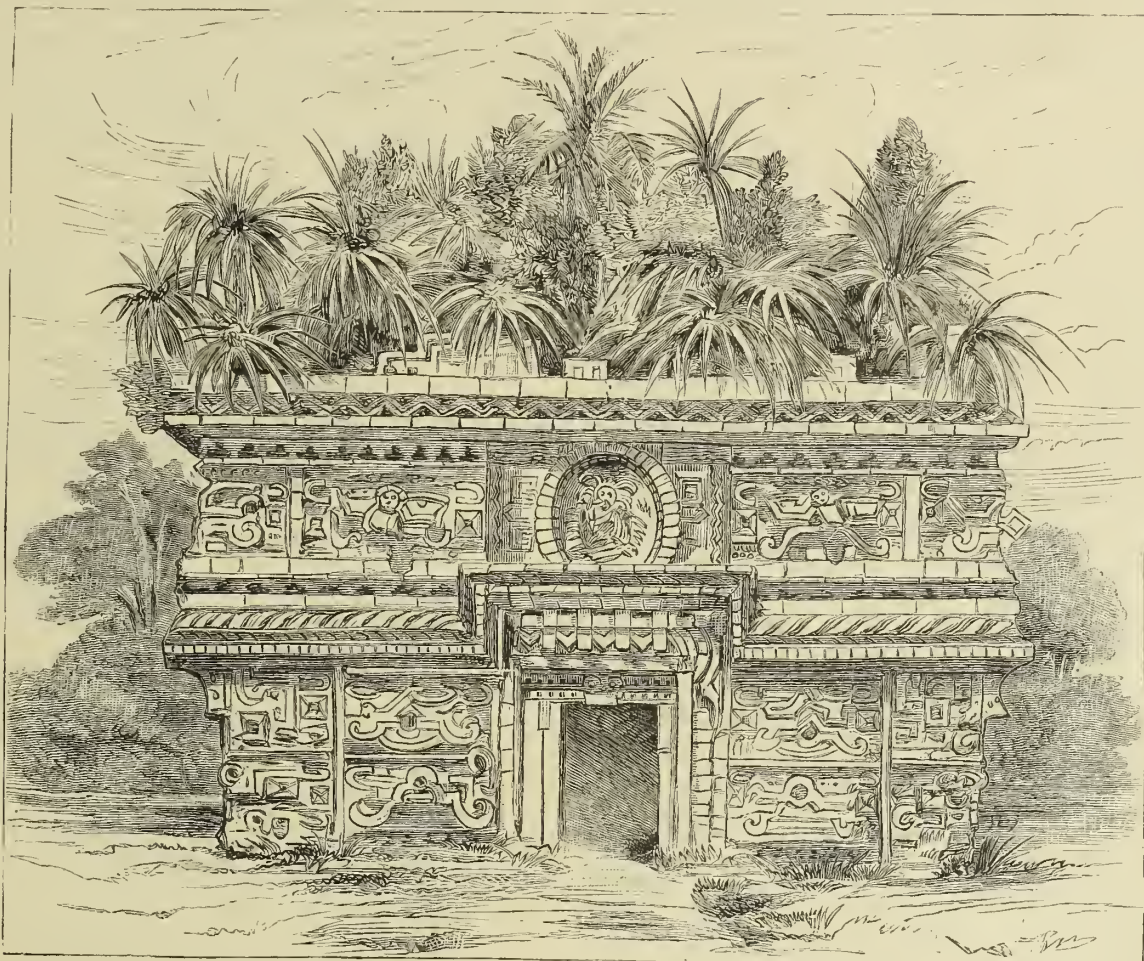
The design admits of various modifications, provided its main features are preserved intact. Although from the front all light is excluded, any amount can be obtained at the sides, and the rear wall must be rendered inaccessible to all except officials, as we must here have an easy and capacious mode of ascent for the proper management of the garden on the roof. It will be seen that the construction

favours the employment of a large body of soil for the support of subtropical plants, and powerful sustaining walls, not only on the exterior, but to divide the building, will be needed to carry the weight. A stone roof should be laid at some depth below the cornice, and on this a series of low brick arches (ridge and furrow fashion) or large drain pipes should be arranged, for rapid removal of water at times when heavy summer storms occur. The outlets for roof water should be in concealed pipes or shafts, or there may be a tank in the rear to receive it, in which case the necessary watering of the garden about twice a week in hot dry weather would be facilitated. Stone sculpture is not needed in reproducing this beautiful work, but the characters would of course be the more perfectly rendered in stone than by any models of plastic material. But if any one will colour this design in panels it will be seen that its forms and proportions are so fine that it may be rendered thoroughly effective as a garden house without any sculpture whatever. W. B.

NEW SHOW AND FANCY DAHLIAS.

ALTHOUGH new dahlias do not at the present day create the excitement shown from thirty to forty years since when novelties were introduced, there are not wanting those to whom their appearance is a matter of considerable interest. Knowing this, I shall briefly pass

are likely to take a leading position and retain it for some years hence. Foremost is *Cardinal*, a large and bold flower of great depth and of a bright scarlet colour; this will probably prove a grand second-row flower. *Celestial* is an exquisite creamy white flower; it is a trifle too flat, but it is so beautiful, and, moreover, so remarkable for its constancy, that it is quite safe to strongly recommend it for the front row. *Comet* is a well-formed flower of a deep red colour, and is an excellent addition to the numerous dark red flowers which have already a place in collections. *Crown Prince* claims special attention for its distinct colour, whilst in form it is equal to the best varieties in cultivation. The flowers are of full size, of good depth, and well finished, and the colour is an effective shade of nankeen or buff: judiciously placed it presents a telling appearance. *Duchess of Wellington* is a charming tipped flower of good form and finish, and in its style of colouring is much in advance of those sent out previous to the current season. The florets, which are beautifully cupped, are heavily tipped with purplish crimson. *Major Cornwallis West* when caught right is a very telling flower; in size it leaves nothing to be desired, and the colour is a very brilliant shade of orange-scarlet, and so effective that, although not quite so highly finished as could be desired, it can be recommended as a decided acquisition and one of the very finest flowers of the year. For the back row it is a long way in advance of others in the same line of colour, and the exhibitor of so small a stand as "a twenty-four" cannot afford to be without it.



GARDEN HOUSE IN MEXICAN STYLE.

under review the most important of the varieties that will be shortly offered by Messrs. Keynes and Co., Mr. C. Turner, and other raisers, with a view to assist those who have not the same facilities as myself for making the acquaintance of novelties before they are distributed. Speaking generally, the flowers of the current year are remarkable more for their excellent form and quality than for striking character, and so far as my observations have gone there are not amongst them any varieties similar to those huge and coarse flowers which made their appearance a year or two since, and against the certifying of which I considered it my duty to protest. On this fact the dahlia growers may be heartily congratulated, for nothing could be more disappointing than to buy dahlias at half a guinea or so each with flowers but little better in point of form than the best of those distributed twenty or thirty years since. It is of course desirable that the flowers should be large, and for my own part I care not how large they are provided size is accompanied with quality. But flowers with hollow centres, or florets irregularly placed or more or less turned back, are not worth a place in the garden, much more on the exhibition table, and those who confer certificates or other distinctions upon them show a very imperfect acquaintance with the rules which guide experienced judges in making their awards.

Amongst the show varieties selected from the seed bed of the Rev. C. Fellowes, and now in the hands of Mr. C. Turner, are several that

Pioneer claims attention for its very distinct colour, which is the closest approach to black we have in the dahlia, and much darker than any of the fine maroon flowers introduced by Mr. George Rawlings. The blooms are of large size and good form, and tell well in either the second or third row; the florets are a trifle too open and flat, but not sufficiently to detract seriously from its merits.

The show dahlias raised and offered this season by Messrs. Keynes and Co. are nine in number, and include several of a high order of merit. There is no lack of good crimson flowers, but *Duke of Albany* is so free and fine that it well deserves a hearty welcome. *Georgina* is a pleasing creamy white flower about equal in merit to *Celestial*, and quite distinct from it; the blooms are borne on stiff erect stems, and it is therefore likely to be more than usually valuable for borders and beds in the flower garden. *James Stephen* well deserves attention for its remarkable brilliancy of colour, but it possesses an additional claim in its fine form; the colour is a vivid orange-scarlet, and a well-finished bloom presents a striking appearance when associated with the dark purples and crimson. It will in all probability prove one of the most important varieties of the year. *Joseph B. Service* is a fine yellow flower in the way of that much-appreciated variety *Prince Arthur*; but it surpasses the latter in size, richness of colour, and finish. *William Davis* has well-formed flowers, which are of a light but very effective shade of purple, and is very distinct.

One of the finest dahlias of the season appears, taking all things into consideration, to be *George Rawlings*, raised by Messrs. Rawlings Brothers. The flowers are large in size, high in the centre, and as nearly perfect in outline as one can hope for the present. The colour is a very rich shade of blackish maroon, and the florets are beautifully cupped. As a back-row flower for bringing out the lighter colours it is of immense value. *Fair Rosamond*, raised by that veteran amateur, Mr. George Smith, of Edmonton, is, judging from the blooms exhibited last autumn, an exquisitely beautiful flower; but whether it will be distributed or not I cannot say. The blooms this season are of large size, of great depth, and perfectly smooth in outline, the colour delicate ivory-white, the florets faintly tipped with purple.

The fancy varieties are limited to four, of which two are in the hands of Mr. Turner, and two are from the Salisbury seed bed. Fortunately, they are all meritorious and full of promise as to the position they will eventually occupy in the estimation of cultivators. *Beauty*, offered by Mr. Turner, may be described as a much improved form of Mrs. Saunders, and therefore a valuable acquisition. The flowers are about equal in size to those of the last mentioned, but they are much fuller and more highly finished; the ground is a bright yellow, the florets tipped with rosy white. *Dragon* is remarkable for its distinctness, its good form and effective colouring, and particularly deserving the attention of growers of fancy dahlias. The flowers are of full size and richly striped with crimson on a yellow ground: they occasionally come with a crimson tip, those so marked being of course admissible in a stand of show flowers. Messrs. Keynes and Co.'s two fancies are named respectively *John Forbes* and *Polly Sandell*. The first-mentioned has flowers of good shape and size, which are of a bright fawn colour striped with maroon; the other is a fine yellow flower tipped with white.

AN OLD DAHLIA FANCIER.

SEASONABLE NOTES ON PASTURES.

ON the home farm, where every blade of grass and handful of hay is, so to speak, of much value, a liberal course of management is, in the case of the pastures, decidedly the most profitable, and therefore the only one that is worthy of a moment's consideration. To this fact special attention may well be directed, for there is in many quarters a strong inclination to proceed as if it were possible to take any number of good crops of hay from a meadow without an attempt being made to maintain the fertility of the soil by the application of suitable fertilizers. It is altogether overlooked by some that meadows from which hay is taken require enriching annually with manure, much the same as arable land devoted to cereal and green crops. In consequence, it is no uncommon occurrence to meet with pastures on which the finer grasses have died out, and the yield of hay light and of poor quality. Some misconception also prevails as to when pastures from which it is intended to take hay should be closed against cattle, and as a rule the closing is deferred until too late in the season for the grass to become dense at the bottom and produce a really satisfactory crop. There are also pastures which are less productive than they might be in consequence of their having been laid down with coarse inferior grasses, or having become badly infested with moss in consequence of imperfect drainage, and a few words of advice with respect to them will also be given.

As regards the fertility of pastures belonging to the home farm, it must be conceded that a considerable improvement has been effected within the last few years, and fertilizers have been more generally and liberally employed. But sufficient has not yet been done, and it is therefore needful to strongly impress upon those who are most concerned that it is only by liberal dressings of farmyard manure, or some suitable artificial or combination of artificials, that the fertility of pastures can be maintained. There is perhaps no better dressing for pastures than farmyard manure, applied at the rate of twelve or fifteen cartloads per acre in February or March. When manure from the farmyard is not available artificials must be brought into requisition, and those of most value are guano, superphosphate of lime, and nitrate of soda, and the selection from them must be determined by the circumstances of each case. It must be understood that ammoniacal salts are the most favourable to the development of the stronger-growing grasses, and that if the latter receive too much encouragement they will overpower the finer grasses and the clovers. It will suffice perhaps to state, without entering into further details, that if the grass is short and dense guano and nitrate of soda should be employed in equal proportions, and that if they are thin the dressing should consist of superphosphate of lime two parts and guano one part. For pastures generally the most suitable mixture will be one consisting of equal parts of guano, superphosphate, and nitrate of soda. In each case the mixture is to be applied at the rate of three cwt. per acre. Pastures may be dressed with artificials until quite the end of April. When it is not practicable to apply a full dressing of farmyard manure, it is a capital practice to employ about half the quantity recommended, and in from two to four weeks afterwards supplement it with artificials at the rate of one cwt. per acre; the proportion of the several kinds to be the same as when they are used alone. When hay is taken from a meadow annually, a dressing of manure must be applied every spring, but when it is mowed and fed off alternately it will suffice to manure every second year. Where grass is devoted entirely to feeding purposes the land may be manured every second or third year.

The time for closing pastures from which hay is taken must be determined by the district and the season, but the cattle ought not to remain after the grass commences to make new growth, and it will be advisable to remove them a few days too early than to leave them until they have done considerable mischief. As soon as the animals

are removed the manure should be applied, and in a few days afterwards bush harrow and roll. Stones and other rubbish brought on the land with manure that are likely to injure the mowing machine or scythes must be gathered up before the grass has made any material progress, for if allowed to remain they will probably do considerable damage and delay the work.

It cannot be well known how cheaply and expeditiously pastures that are in a bad state can be improved, or so much land under grass would not remain in the unsatisfactory state it is now in. In suburban districts, where it is of the highest importance that every foot of land should yield a full crop, because of its value, much of the pasture land is in anything but a satisfactory condition, in consequence of its consisting chiefly of the coarse quick-growing grasses. This may generally be explained by the land having been laid down to grass by land jobbers. As is well known, land to be laid out in plots of two acres and upwards commands a readier sale when covered with greensward. Therefore immediately arable or market garden land for cutting into large plots is purchased it is laid down to grass. The ground is indifferently prepared, and the cheapest and most rapid-growing grasses are obtained, and unless the purchaser of the land improves it when in possession the produce is as a matter of course very unsatisfactory. Pastures that are thin at the bottom may be much improved by sowing a renovating mixture, consisting of the finer grasses and clovers, in March or April or in August, according to the weather. Any of the leading seedsmen will supply a renovating mixture suitable to the character of the soil, and it is not necessary to give the names of the grasses and clovers most suitable, with the proportions. The land should first have a heavy harrow passed over it, and when this has been done sow the seed at the rate of 12 lbs. per acre, and bush harrow and roll. If the weather is very dry in March and April it will be better to defer sowing the seed until the following August, because of the risk of a proportion perishing. In the following spring a dressing of three or four cwt. of superphosphate will be most beneficial in its effects.

Moss is sometimes a sign of extreme poverty and sometimes of a superabundance of moisture, and the remedy in the one case is to restore the fertility of the soil by the means pointed out above, and in the other by providing efficient drainage. Lime at the rate of two loads per acre will be highly beneficial in its effect upon mossy pastures, and before it is applied it should be mixed with about three times its bulk of friable soil.

R. W. D.

KEEP THE HOE GOING.

THAT "ill weeds grow apace" we cannot gainsay,
For proofs of the proverb come forth with the day;
If we don't clear them thoroughly out of the ground,
A plentiful crop of their seeds will be found:
Making waste of our work, without reason or gain,
And changing our prospect of pleasure to pain:
So the use of my motto I now would be showing—
To keep the weeds down, we must keep the hoe going.

Bad temper will grow like a weed in the heart,
Striking deep with its roots like a venomous dart:
And they who encourage it nourish a devil,
That changes whatever is good into evil;
Then words that should comfort give nothing but sadness,
And deeds that should bless are productive of badness;
The weed of ill-temper, I now would be showing,
Must be struck at the root—we must keep the hoe going.

Intemperance oft is a troublesome weed,
Changing health to disease, and plenty to need;
Embittering life, destroying all quiet,
Consuming the household with wasting and riot.
Avoid the temptation, keep out of the folly:
Why sacrifice gladness to dark melancholy?
Go work in the garden, and soon you'll be knowing,
Health and mirth may be gained if you keep the hoe going.

Envy, Hatred, and Malice are virulent weeds;
Where charity faileth they scatter their seeds:
Bright flowers of love, and sweet fruits of kindness,
Are choked by their growth; and the soul in its blindness
Takes evil for good, and the wrong for the right;
And goes forth in darkness as hating the light.
Oh, tear up such weeds ere their seeds they be sowing
In the garden of life, and keep the hoe going.

See Hypocrisy spreading a blight on each hand,
Where Candour and Truth have no hold on the land.
See Deception and Craft and Selfishness grow,
Where Simplicity shrinks like a rose in the snow.
Oh, such weeds are too rank in humanity's field,
Too fast in their spread, too malignant their yield:
We must summon our courage to hinder their growing,
We must work, we must wait, we must keep the hoe going.

Come back to the motto, "Ill weeds grow apace,"
There's a clear course for all, and our life is a race;
The Honest and Truthful and God make the running,
And loss and disgrace are the wages of cunning.
Cut down the bad weeds, give sunshine and air
To the blooms that are sweet and the grains that are fair;
Be taught as from Heaven to see that I'm showing,
One way to be happy is to keep the hoe going.

J. H. JEWELL.

WHO WOULD BE WITHOUT LAMPOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any other earthy matter calculated to produce gall-stones or gout deposits. Prepared solely by M. LAMPOUGH, 113, Holborn, London.—[ADVT.]

The House, Garden, and Home Farm.

MEDITATION.

WHEN in the long-drawn avenues of Thought
I halt, and look before me and behind,
And seek what erst I all too little sought,
Some spot secure of rest, I do not find.
Retrace my steps I dare not, lest each nook
I late rejected should reject me now.
And sweetest arhours, restlessly forsook,
No more be prone their leafage to allow.
So to the untrod distance do I strain,
Which seemeth ever further to extend;
Desiring oft, in irritable pain,
Promature sleep would bring that settled End,
When I shall know it all, or else forget
This far too little which for more doth fret.

ALFRED AUSTIN.

THE HOUSE.

THE occupants of the aquarium usually suffer so severely when exposed to a strong light that when aquaria occupy positions more or less sunny the blinds should be carefully regulated to screen them from sunlight. Aquaria placed in the conservatory should have a shady position from early in the spring until quite late in the autumn, if not throughout the year, and where it is practicable those indoors should be placed during the summer season in apartments having a north aspect. But this is not always convenient, and if the aquarium is drawn away from the window, and when the sun is shining brightly the precaution taken to draw the blinds down, any serious mishap will be prevented. There is not perhaps any better place for an aquarium than an entrance hall, and where the arrangements will admit it should be placed in it. The water will not require changing so long as the fishes continue in good health, but the glass must be kept clean on the inside, and there is no better plan of removing impurities than by simply wiping it over with a large sponge.

THE GARDEN.

BEDDING PLANTS to be exposed as much as possible now night and day during warm weather. Pot off plants newly rooted, and let them taste a little bottom heat, to induce new roots to form.

BEEF.—Sow a little seed on deep well-dug ground, without manure, to furnish early supplies. Large beets are not desired for the kitchen, but smallish, deeply-coloured, handsome roots are sure to be valued, and these can only be grown in soil that has been deeply stirred and is quite free of recent manuring. Sow in drills, fifteen inches apart.

CUCUMBERS for ridge culture to be kept as hardy as possible, but not to be checked. Give them a shift if they require it, and frequently sprinkle over the foliage. First make sure of a strong plant, and you will then be sure of abundance of fruit.

FERNS in pots require either a shift or a renewal of the soil. In either case turn them out, and break away some of the old stuff from the outside of the roots, and repot either in the same or larger pots, using good turfy loam for all strong-growing kinds, and those that must have peat to have the best peat in rough lumps.

GRASS TURF must have every necessary attention now, or the result will be a burnt-up lawn by July and the predominance of coarse grasses. Proper care of grass turf now not only preserves its beauty for present enjoyment, but improves the quality, frequent mowing tending to weaken the coarse grasses and encourage the finer kinds, which latter are overpowered and choked out when the strong-growing kinds are allowed too much their own way. A sprinkling of guano or nitrate of soda, at the rate of 3½ lbs. to the square rod where the turf is poor, will be very beneficial now. Lawns on which there is much moss should have a dressing of superphosphate of lime applied at the same rate as advised for the other fertilizers.

KIDNEY BEANS are of immense value in large and small gardens. The dwarf sorts endure drought better than any other vegetable grown in our gardens, and are immensely profitable. The runners sooner suffer from drought, but the season must be a very bad one in which they do not make an abundant return. Sow at once under glass, and transplant when the plants are in the rough leaf, in rows two feet six inches apart on a warm border. Sow in open ground from the end of the month to the middle of July. During many years past we have sown Scarlet Runners about the 15th of June, and have found them of great value, as they produce an abundance of fine green tender pods until cut down by autumnal frosts. Dwarf beans are generally crowded injuriously, and have but a poor chance of attaining their utmost fruitfulness; the weakest-growing sorts should be two feet apart, and be thinned to nine inches apart in the rows; while the more robust kinds should be two and a half feet apart, and a foot from plant to plant. Runners should be full five feet from row to row, and the plants full nine inches apart, and, if possible, the rows should run north and south. They should always have sticks if they can be provided, and if ridged up when four or six inches high it will prevent their being blown about during high winds. It is a good plan to keep the ground well stirred between the rows.

PINES fruiting require more air than growing plants, or the fruit will be flavourless. If the fruit needs support, it is a proof the plants are not so robust as they should be.

POTATOES coming up to be flat-hoed between. There will be a risk of the shaws of the early-planted potatoes being blackened by frost, therefore protect with litter or draw a little soil over them. Potatoes may still be planted, but it is full late, and any remaining out of the ground should be planted at once.

ROSES under glass must have close attention and care taken to prevent their being injured by green fly. It is of no use to expect good flowers if vermin are left to eat them up. Fumigate twice in succession, and give plenty of air. This is a good time to plant out roses in conservatory borders, and to prepare beds for turning out plants from small pots in May.

SAVOYS are usually grown too large for home use, though the largest plants find a ready sale in the market. To secure a supply of smallish savoy of delicate texture and flavour, sow the early Ulm at once, and when large enough plant out a foot apart every way. They will form neat round hearts four or five inches through, and be positively delicious after the frost has touched them.

VINES in covered borders require the full power of the sun on their roots now; so remove the covering at once. Let there be no neglect in stopping and tying-in now that the vines are growing freely.

THE HOME FARM.

CARROTS are greatly prized as food for horses, but they are of great service as food for cows in winter, and make capital milk. To grow a good crop requires a deep well-prepared soil, in which the roots can easily penetrate to a great depth without becoming forked. The seed should be sown now, and it is good practice to sow a little turnip or barley in the rows to mark them, so that the hoe can best to work early, for this crop will soon be choked out by weeds unless well looked after in the early stages. To prepare for sowing, harrow the land, and broadcast 3 cwt. to 5 cwt. of guano. Then sow in drills fifteen inches to twenty inches apart, according to the strength of the land. It is customary to mix the seed with damp sand, and a few days before sowing, to hasten germination. The drills must be shallow and the seed well rolled in. The after cultivation consists chiefly in hoeing and singling, and should be well done, or the crop will be spoiled by weeds. The best sort for the stable and cow byre is the yellow Belgian, but the red Altringham is a fine root, and as useful as the delicate Surrey Orange for culinary purposes in a general way, though wanting in beauty. The Intermediate is the best for shallow soils.

TURKEYS are, under a good system of management, fairly profitable, and by rearing a brood now nice birds may be had by Christmas. Carefully house the brood for four, five, or six weeks after hatching, according to the weather, and supply with small crumbs of bread and curds, or eggs chopped up, and oat or barley meal, mixed with water or milk. As the poult acquire strength give them boiled rice, mixed with shred lettuce, soaked bread, meat shred fine, minced liver, and any suitable waste from the kitchen. When nicely feathered they will, if they have a good range, be able to obtain for themselves sufficient food during the day, and will only require to be fed when let out in the morning, and on their return home in the evening. Turkeys shut up in a yard must be fed at the same times, and in much the same manner, as the general stock of poultry.

PLANT LABELS.

WHEN I think of the importance to many people of a cheap weather-standing label or tally for other purposes as well as those of the garden, I wonder at the little written or said on the subject. This struck me forcibly some year or two since, when I saw a whole hogshead of them, about 3½ or 4 inches long, turned over on its side with its head out in one of the large nurseries in the suburbs of London. Upon inquiry I was told that they came from Prussia. These labels were of no particular merit; they were of common deal wood and had no paint on them; there was no particular science used in their make; they seemed simply hand cut, and much cut too; the points to go in the ground were even made with four cuts of the knife instead of two. They were the result of little thought and much labour, besides the commercial enterprise of the German race. Now I consider such an importation as that a disgrace to the inventive power of the English nation.

These little bits of wood may seem of small importance to some, but to the gardener, especially the nurseryman and experimental gardener, they are of very great importance, for in many cases should they be in that condition after a year, or even two, that they cannot be read, it may involve the obligation to throw away a plant that might otherwise be valuable because it is no longer possible to say what it is.

In what I am about to say I shall deal almost wholly with the wooden label, as up to the present time, all things considered, it seems the very best, at least for two years or under, that has been hitherto found, and the frequently rough and ready means of producing it, by no means the worst, namely, the gardener's pocket knife, a bit of deal wood, a little pot of dirty half-dried paint or white lead rubbed on with the end of the finger, and written on with the little stump of black-lead pencil while wet from the ever-ready pocket. It is a curious thing that if the bit of wood happens to contain plenty of turpentine that a very lasting mark is the result.

I some years ago tried the experiment of making some of these tallies and sticking them in the open ground of my clay garden for one year, and the conclusion arrived at was that common white lead paint and what is called yellow deal or yellow pine were the very best paint and wood to make them of. The more turpentine in the wood the better.

In the consideration of this and all other applications of inks or markings, we must bear in mind that to be permanent they should not only be mechanical but chemical. If we write on a slate with a piece of slate pencil, that is a merely mechanical mark which will rub or wash off, but if we write on a piece of sized paper with good black ink made in the old-fashioned way with nut galls and green sulphate of iron (green vitriol), we have a chemical as well as a mechanical ink. The iron and extract of galls (tannin) have a chemical affinity for the size in the paper, and form a thin black leather letter on the paper, and thus is the kind of combination which in many cases forms a permanent mark which the rain and air will not wash out. Thus we take our bit of pine wood, we paint it with white zinc paint, write it on with blacklead pencil, and it washes out in six months, because the zinc paint (oxide of zinc) has apparently no sufficient affinity for the turpentine in the wood, and the carbonate of iron (blacklead) has no affinity for the zinc in the form of oxide. Now take the bit of wood, the most full of turpentine to be had, make a paint four parts by weight of the best white lead in oil (oxide of lead) and one part by weight of the driers of the shops and trade also in oil; mix it thin with very little oil and a large proportion of spirits of turpentine; put this on the wood as thin as it is possible to put it on, so long as the wood is covered, and if it be written on with a common blacklead pencil, either wet or dry, you will have a mark that will last two years, and be readable. The durability of this mark seems due to the paint being so thin that it does not shine at all when dry, owing to the small quantity of oil used; in fact, if there is any sign of gloss on the paint when dry it may be taken as a fact that there was too much oil in the paint, which oil not only prevents a sufficiently rough surface to take the pencil, but also seems to prevent the chemical combination of the oxygen or ozone of the turpentine in the paint and wood with the lead and iron of paint and pencil.

Some people have suggested boxwood labels, but they do not answer and are not cheap. Things of every-day life should be very good and very

cheap. I have tried a paint made with common whiting instead of white lead in the same proportions: it makes a very good lasting label, but not so lasting as the lead. Very fine china clay or pipe clay, in of course a dry state and ground very fine in oil and turpentine, forms a good paint, as the alumina in the clay has a great affinity for iron. I mention these things because I learned them when trying to get a label free from poison, which the oxide of lead is not; but I have used thousands with the lead paint and can detect no harm, though others might.

If it be desirable to make a label covered with a paint which shall dry at once, which is sometimes necessary, dissolve white or orange shellac in sufficient methylated spirit to make it work—of course it may be thinned to any extent—and mix with this flake white (dry oxide of lead), whiting, or dry china clay; this will dry as fast almost as it is put on. It is waterproof, but not so lasting as the common paint, as the lead or whiting is only held mechanically by the lac.

It is said that slips of sheet zinc written on with a blacklead pencil are very permanent, and it is likely they are if the surface of the rolled zinc is made a little rough to take the pencil, either by exposure to the air or some acid, because we see in many instances that zinc and iron are very good friends, and I confess I was astonished that the zinc paint labels were a failure. But, perhaps, it is best to avoid zinc, where possible, because of its poisonous nature.*

The most available wood or form of it in the neighbourhood of London, and possibly many other places, I find to be what is known in the trade as "twelve-cut" pine of the best quality, because most free from knots. This cut up and fine planed on both sides may be painted on both sides; then every label, or nearly, may be used twice over, the first inscription being crossed off and the other side used. Thirteen feet of twelve-cut pine eleven inches wide will cut, after the knots are cut out, about 750 labels half an inch to $\frac{3}{8}$ wide and $4\frac{1}{4}$ inches long. The best way to cut up the plank is with a sharp pointed knife with a rule or along the edge of a bit of board. The cost of a plank of the size named will be about 9d. so that it will be found that the labels come both good and cheap. Of course it is a great advantage to have a label the paint on which you know the composition of, because in case of a purchased one the apparent paint may be only whitewash, and then you are worse off than if the bare wood is used, for the whitewash will prevent the wood holding the mark.

In any case where it is necessary to protect the part of the wood which is put in the ground from rotting, although I have never had occasion to do so, I would suggest its saturation with a mineral rather than a vegetable, and the following seems to me one of the best ways to do it. The Egyptian asphaltum of the shops and trade is sold for about 8d. or 10d. per lb. This is soluble for this purpose in only two liquids I know of, namely, spirits of turpentine and benzole (gas-tar naphtha, or spirit of gas-tar), not benzoline (spirit of petroleum or paraffin oil). If the solution is in benzole it will dry with great rapidity, and leave the asphaltum sunk well into the wood if the solution be thin. Turpentine spirit is not quite so quick to dry, but as more easy to procure is often more available. Gas-tar may also be thinned down as much as is necessary for the purpose of dipping the ends in, but it should be remembered that the roots of plants are not fond of gas-tar. When benzole is used it should always be cold and not near fire or light, as it is highly inflammable—even more so than turpentine.

Shellac in any of its forms of button-lac, garnet-lac, seed-lac, or white bleached lac, is one of the hardest resins in commerce, although only a kind of semi-vegetable, semi-animal gum; it is only soluble in methylated spirit for all ordinary purposes. This solution when made thin will penetrate wood some distance, especially up the grain where it is wanted, and will dry well in an hour or two. There may be other things as cheap and handy, but I do not know of them. Receipts are of little value to many, when all or nearly all the ingredients of them are not at all procurable in ordinary trade and in many places.

W. PIERCY.

West Road, Forest Hill, London, S.E.

CAPTAIN PATTON'S TULIPS AND OTHER SPRING FLOWERS.

As visitors to the spring exhibitions of the Royal Botanic and Royal Horticultural Societies are well aware, Captain Patton has for several years past devoted special attention to bulbous plants flowering in the early part of the year, and his collections of hyacinths and tulips more particularly have contributed in no small degree to the attractions of the meetings at South Kensington and Regent's Park, and brought him much honour. This season Captain Patton has so far exhibited less extensively than usual, his contributions having been confined chiefly to new tulips. But his interest in the subjects he has taken in hand is evidently in no way diminished, for in the gardens attached to his residence—Alpha House, St. John's Wood—he has conducted important trials of tulips and narcissi with a view to determine the relative merits of varieties for the embellishment of the town garden. The collection of tulips comprises considerably over two hundred of the best varieties in cultivation, and of those which have yet bloomed the height and time of flowering have been carefully noted and the comparative values determined. Of the daffodils about one hundred and thirty species and varieties are grown. Some seventy varieties of the Dutch crocuses have been flowered this season, and afforded much interest.

It may be stated as a matter of some interest that the gardens of Alpha House comprise about two acres, a large area in a district in which land is worth about £5 per square foot, and consists almost exclusively of pleasure grounds, the exception being a small enclosure containing the glass erections. Since Captain Patton took possession, about twelve months since, a very great improvement has been effected in the lawn, which forms a very strong feature, and the beds and borders have been entirely replanted. The lawn, which occupies a very considerable proportion of the area, is unquestionably one of the most satisfactory expanses of grass turf within town limits. It has but few trees, and these are of a striking character and capable of affording a pleasant shade during the summer season. There are but few flower beds, and it is not cut up into segments by gravel walks running in all directions. It is intersected by two walks

only, and one of these will soon be removed, so that from the drawing-room and other windows the lawn shall present an unbroken appearance. The condition of the lawn is so exceptionally good that its surface is well-nigh as smooth as a billiard table, a fact worthy of mention, as the greater proportion was sown down with seeds in May last. The grass in the new portion is not quite so thick at the bottom as in the older part, but its condition shows that the work was well done, and that the grass seeds, which were supplied by Messrs. J. Carter and Co., were of a high degree of excellency. Surrounding the lawn are broad sweeping borders, in which about twenty thousand first-class hardy herbaceous plants have been planted. Care has been taken to select those kinds known to be hardy in constitution, and therefore likely to be best able to withstand the adverse influences to which they are necessarily exposed in town gardens. Lilioms are planted largely, in groups of about twelve each, as Captain Patton considers bulbous plants to be of special value in town districts, and he believes in planting sufficient bulbs in each group to produce at once a rich and satisfactory effect. As the plants become established the borders will, there can hardly be any doubt, present a very attractive appearance, and as care has been taken to legibly name the whole of the subjects they will be well able to afford much interest and instruction.

The tulips and narcissi grown for trial purposes occupy beds in the enclosure at the lower part of the grounds devoted to the pits and houses, and for many weeks past they have presented a very attractive appearance. Twelve bulbs of each of the tulips were planted, and of the large number of varieties grown the best of the single forms are considered by Captain Patton to be the following:—Netscher Satinée, very rich purple, flowers large and of fine form; White Joost Van Vondel, the very finest of all the white tulips. Vermilion Brilliant, bright scarlet, which is very properly considered one of the best for pot culture, is of but little value for bedding, and decidedly inferior to several other of the high-coloured varieties; Le Matelas, rose and white, an early and excellent variety; Globe de Rigaut, purple feathered with white, large, of good form, and very effective; Bacchus, variegated, deep crimson, the flowers large and of good form, the variegation of the foliage adding materially to its effectiveness; Perle Blanche, white, dwarf, and of good constitution; Duc d'Orange, scarlet, with rich yellow edge, a fine variety, the flowers large and stand well; Molière, purple with white edge, good; President Lincoln, rosy purple edged with white, very pretty; Dax Brancan, carmine-red, bright in colour, but too small for bedding; Cardinal's Hat, deep red, the flowers rather small, but stand well up; Dorothea Blanche, white and carmine, a beautifully-marked flower of great excellence; Chrysolora, rich yellow, flowers very large and fine; California, canary-yellow, pleasing and effective; Yellow Pottebakker, tall, the flowers large, but soon present a rather ragged appearance; Yellow Prince, flowers of medium size, rich in colour and rather late, habit good; Montessor, a new variety with rather small flowers of a bright yellow colour; Orphir d'Or, deep yellow, the flowers very large and of good form, early, and the finest of all the yellow varieties; Murilo, a pretty semi-double variety, white tinged with pink inside of petals and with green on the outside; White Pottebakker, rather tall, ranks next to White Joost Van Vondel; La Latière, white, flowers of medium size and good shape; Commandant, deep brick-red shading to yellow at the edge, flowers large and fine; Hecla, deep scarlet, the flowers large with pointed petals and very effective; Moucheron, deep crimson-scarlet, very telling in colour; Vesuvius, very rich scarlet, same type as Vermilion Brilliant, but much more effective, and one of the best in its colour for beds; Purple Crown, rich crimson, the finest of its colour; the form of Purple Crown with variegated leaves is also very pleasing; Samson, scarlet feathered with yellow, bright and effective; Miatius scarlet striped yellow, an excellent variety; Joost Van Vondel rectified, crimson feathered with white, a beautiful variety; Wouverman, dark purple, large and rich in colour; Couleur Ponceau, deep rose, very pretty; Standard Royal, both forms; Rachel Ruisch, blush tinted rose, very pleasing; Lac d'Asturie, rosy purple edged white; foliage variegated, good; Belle Hélène, a small Proserpine, bright in colour; Rosine, semi-double, white tinted with rose, pleasing; Von Schiller, deep red with orange edge, flowers perfect in shape, growth dwarf, a fine new variety; Delicata, pure white, rather small; Slingerlandt, rosy purple feathered white, a large flower of superb form; Carolus, a small flower in the way of Keizerskroon, but rather brighter in colour; L'Immaculee, white with yellow cup, a pleasing and comparatively new flower; Proserpine, deep rose, a large and fine flower; Keizerskroon, deep crimson with broad yellow margin, one of the most effective of the scarlet and yellow tulips.

The following were considered the best of the double tulips that were in bloom when we saw them a few days since:—Arabella, carmine-red with yellow centre, a telling flower; Gloria Solis, deep red with yellow margin, one of the best and cheapest of its type; Tournesol, red with yellow edge, is also good. The Yellow Tournesol is remarkably fine, and one of the best of the double yellow tulips; Couronne d'Or is of the same type as the Yellow Tournesol, but rather smaller; Raphael, blush-pink shaded rose, is very double and exceedingly beautiful; Aimable Rosette, blush tinged pink, very pretty; Couronne des Roses, deep rose-pink, large and telling; Duchesse de Parme, yellow and scarlet, very effective; Belle Lisette, rose and white, flowers of fine shape and very beautiful. There are several beds and borders of tulips near the entrance, in which some of the finest varieties above enumerated are arranged with much taste.

The narcissi have already received such ample attention in these pages that it is not necessary to deal with Captain Patton's collection in detail. Suffice it to say that it includes all the finest forms at present in commerce, and affords ample evidence of much judgment. Muscari, fritillarias, scillas, and German iris are all represented by good collections, and contribute their full share to the attractions of the gardens in their respective seasons. In one of the pits were some superb examples of *Diolytra spectabilis* and *Astilbe japonica*, of which, by the way, Captain Patton has exhibited the finest specimens yet prosecuted to public notice.

The glass erections are as yet few in number, but an important addition is to be made shortly. It is not, however, Captain Patton's intention to do more than provide for the cultivation of spring-flowering plants, as his chief object is to render his garden as bright and attractive as possible with the aid of hardy plants alone, or almost exclusively so; and, considering what he has already accomplished with his efficient staff, a large measure of success in town gardening may be safely predicted.

* Zinc is not poisonous, although commonly regarded so. There is no case of poisoning by zinc on record.—Ed. G. M.

Replies to Queries.

W. G. M. P.—We do not know the person you inquire about. Probably the publisher of the books could give the information desired.

Peach Tree.—Subscriber.—The tree is badly infested with mildew, and the foliage should have a light dressing of flowers of sulphur as quickly as possible. The sulphur will adhere more readily when applied whilst the foliage is in a damp state.

Crown Imperials.—"Clifton" writes:—"In the GARDENERS' MAGAZINE of March 11, page 122, your correspondent, 'W. M.,' speaks in high terms of the suitability of the Crown Imperial for forcing. If you consider it of sufficient importance, I should be glad if he would give us his mode of treatment, as I have grown them for some years, but have had no bloom. It is true I have only a cool greenhouse."

Mowing Machine.—W. H., Lichfield.—An 18-inch machine will be the most suitable size for two men, as they will be able to work it without any loss of force on the one hand, or too heavy a tax upon their strength on the other. The 18-inch machine you mention must be out of order or badly adjusted to require three men or a pony to draw it. We do not recommend dealers in implements, plants, or seeds, and are therefore unable to advise you further with reference to the purchase of the machine.

Vines.—Subscriber.—The vinery may be fumigated at any time during the period between the setting and changing colour of the grapes, provided it is done with great care. The show pelargoniums should have their last stopping in from ten to twelve weeks before they are wanted at their best. The fuchsias should be stopped from six to eight weeks before the date of the exhibition. The result will depend partly on the management, and partly on the weather.

Cucumber Plants.—J. G.—Hand-picking will probably be found the most effectual means of freeing the plants from the depredators, and we would advise you to carefully examine the leaves at night with the aid of a lamp or candle, and at once destroy every grub you can find. Some perseverance will be necessary, and a sharp look out for the grubs should be kept in the daytime also. The application of soot to the surface of the bed will be beneficial to the plants in promoting a vigorous growth, but it will not be of much service, if any, in checking the ravages of the pests now doing so much mischief.

Books.—Effard.—The "British Cyclopædia" is a very good book of its kind, and as a matter of course much of it is sound and true, while the scientific matters are for the most part very much in arrears. The complete set is in ten volumes, and is worth something less than five pounds. J. W.—There are four volumes published of Professor Meacham's "Native Flowers of the United States." We cannot give you the price, but we can say that the work is beautifully produced, and has real scientific value. The publishers are Messrs. Prang and Co., Boston, U.S.A. In respect of the other question, you do not appear to distinguish between the "Kalender" and the "Dictionary" of Philip Miller. The first is worth very little and the second is worth very much, but both are worth an honourable place in the library.

Palma Violet.—E. W., Cambridge.—The Palma violet, *Viola palmaensis*, so rarely occurs in collections of plants that it is regarded as requiring peculiar management; but this is not the case, as it thrives on the open rockery in all the southern and western counties, and is probably hardy in sheltered spots in all parts of the country. If, however, you have found any difficulty in the cultivation of this plant, we advise you to treat it as a nearly hardy greenhouse plant, and make a real "tree violet" of it by a little training. Pot it in a rich sandy compost such as would suit fuchsias, with good provision for drainage, and keep it in a light airy house during the winter and in a frame at other times, giving abundance of air. It has long narrow leaves and a rigid growth; the flowers, which are of a pale impure blue, appearing in a cluster at the summit of the plant.

Greenhouse.—Warwickshire.—The only satisfactory way of heating a house of the dimensions given is by means of a hot-water apparatus, and unless you are prepared to provide a boiler and hot-water pipes we would not advise you to proceed with the erection of the house. Two flow and one return three or four inch pipes along the front and each end will suffice for the efficient heating of the structure. In the spring a small frame may be fitted up over the pipes at one end of the house for propagating purposes. This arrangement will be very much better than making up a bed of fermenting materials within the house, as you propose. The roof may be formed with sash-bars two and a half inches by one and a half inches, and rafters four inches by two inches, the rafters to be four feet apart, with three sash-bars between them. Three moveable sashes will be required in the roof for ventilating purposes, and they should be about 30 inches by 18 inches, and be placed at equal distances apart.

Acacias.—Amateur.—The acacias are all of free growth, and may be cultivated in the greenhouse with an ordinary degree of care. The most useful for houses of moderate size are *Acacia armata*, a well-known species of compact growth, with dark green leafage, and bearing a profusion of pale yellow flower heads; *A. grandis*, a very elegant species of moderate stature, the flowers rich golden yellow; *A. linifolia*, a pleasing species with rich yellow flowers; *A. longifolia*, remarkable for the length of its flowers, and *A. olafolia*, bright yellow, useful for winter flowering. *A. dealbata* is very distinct and striking in character, but it is only suitable for conservatories of large size in which it can have plenty of space for its development. *A. Riceana* is of slender growth, and admirably adapted for training up pillars and under the roof of spacious structures. *A. lophantha* is remarkable more for its elegant dark green leafage than for the beauty of its flowers, and is of special value for windows, balconies, and flower beds. Plants of nearly, if not all, the kinds can be purchased at the principal nurseries, and seeds may be obtained at the leading houses. As you require several examples of each, your better course will be to raise a stock from seed, which should be sown within the next few weeks. Previous to sowing soak the seeds in hot water for a few hours, a good rule being to put them in hot water and allow them to remain until the water has become quite cold. Sow in five or six inch pots, well drained, and filled with a mixture consisting of loam, peat, leaf-mould, and sand, in about equal parts, and in a cucumber frame or other structure in which a tem-

perature of about 70 deg. is maintained, or in the greenhouse. When in the last-mentioned structure, the seeds will be a much longer time in germinating.

Mangels.—K. L.—Two or three acres of mangels should be grown for feeding the cows during the winter season, and on your comparatively light soil will be more profitable than swedes. The best sorts are the Yellow Globe, Red Globe, Yellow Tankard, and the Red Intermediate. The long types require a deeper and stronger soil than yours. From April 15 to May 10 is the best period in which to sow the mangels, but as they require a comparatively long season of growth it is desirable in all but exceptional cases to sow before the end of the current month. Drill the seed on the flat in rows two feet apart at the rate of 6 lb. to the acre. As the ground was manured and ploughed in the course of the winter it will not be necessary to do more than sow broadcast $1\frac{1}{2}$ cwt. of guano, and pass a light harrow over the surface previous to drilling the seed. In a dry spring like the present you would do more harm than good by ploughing again now. The plants should be singled out to about eighteen inches apart in the rows, and the surface be horse-hoed as often as may be necessary to keep down weeds until the growth no longer admits of the horse-hoe being employed. A dressing of guano at the rate of 1 cwt. to the acre just previous to the ground being horse-hoed a second time will have a most beneficial effect, although not absolutely essential.

Zonal Pelargoniums.—Head Gardener.—In the preparation of a stock of zonal pelargoniums for flowering during July and the two or three months following a beginning must be made at once. Select thrifty plants in three-inch pots, preferably with two or three side shoots, and shift them into six-inch pots. The drainage must be sufficient to carry off the superfluous moisture quickly, and the compost moderately rich and open. There is perhaps no better compost than one consisting of three parts sound turfy loam, well-rotted manure one part, and silver sand half a part. As soon as the plants are beginning to grow freely after the repotting the points of the shoots should be nipped out to promote the production of side shoots. Those with several shoots at the time of potting will not require stopping a second time, but the others should be again stopped when the new shoots have attained a length of between two and three inches. A light and airy pit will afford them the most suitable accommodation until they are coming into bloom, when they can be removed to the conservatory or greenhouse, the latter being the best place for them. Weak liquid manure about twice a week will be found of considerable assistance after they have filled the pots with roots, and after the middle of September a little fire heat will be required occasionally to keep out frost and maintain a dry atmosphere. The plants placed in shady positions and long distances from the glass in the conservatory will not remain in bloom for so long a period as others placed near the glass in a light greenhouse. The following varieties are of special value for pot culture:—Atala, orange-scarlet; Correggio, crimson; Celia, rosy red; Mr. W. B. Miller, scarlet; Mrs. Gordon, bright crimson; La France, magenta-crimson; Hebe, magenta; Mrs. Moore, white with red centre; Miss Hamilton, blush, deep red centre; Leona Dare, salmon; Ceres, rosy salmon; Eurydice, rose-pink; Allegra, lilac-pink; Lady Bailey, bright rose; Lucy Bosworth, bright rose; Jeanne d'Arc, white.

TRADE CATALOGUES.

WILLIAM BULL, 536, KING'S ROAD, CHELSEA.—Retail List of New and Rare Plants.

W. M. CROWE, UPTON, ESSEX.—Catalogue of Pelargoniums, Fuchsias, Chrysanthemums, &c.

JAMES COCKER AND SONS, SUNNYPARK, ABERDEEN.—Catalogue of Florists' Flowers and Soft-wooded Plants.

Obituary.

On the 11th inst., at his residence, Upper Park Street, Haverstock Hill, Mr. EDWARD DUNCAN, one of the oldest members of the Royal Society of Painters in Water Colours. His principal works were marine subjects, but he was happy in landscape, and once painted with remarkable power a London fog.

On the 14th inst., the Rev. JOHN G. NELSON, the much-respected rector of Aldborough, whose name has been so intimately associated with recent studies of hardy plants, more especially daffodils, phloxes, and hellebores. The father of the deceased gentleman was the raiser of Phlox Nelsoni, and it will be understood therefore that he inherited the taste by which he was distinguished. He did indeed at one time contemplate the pursuit of horticulture as a matter of business, but he abandoned the idea and entered the Church, for which doubtless he was better fitted than for the hustle of modern trade.

On the 18th inst., Sir HENRY COLE, K.C.B., the industrious and enlightened promoter of art education and the higher departments of technical industry. The South Kensington Museum may be regarded as the proper monument of this restless, energetic, far-seeing, and sometimes scarcely scrupulous advocate of the alliance of art and industry, whose influence has been everywhere felt, and is likely to continue to the very great advantage of the material interest of this country as well as to the cause of popular enlightenment. His early labours have been banished from remembrance by the magnitude of his operations since 1851, but it may be proper now to recall that in the character of Felix Summerly he opened to the people the art treasures of the National Gallery, Hampton Court, and other public exhibitions by providing trustworthy handbooks, and he rendered material assistance in the development of Sir Rowland Hill's penny postage scheme.

On the 19th inst., at his residence, Down House, Down, near Orpington, Kent, Mr. CHARLES DARWIN, LL.D., F.R.S., in his 74th year. A portrait of the deceased naturalist and philosopher, accompanied by a sketch of his life and labours, was given in the GARDENERS' MAGAZINE of August 20, 1881.

PRESERVATION EXTRAORDINARY.—Every one knows that for softening and preserving the skin, cleansing it from impurity, and thereby ensuring its heal by action, there is nothing equal to WRIGHT'S COAL TAR SOAP. Use it constantly, and you will have neither irritable skin nor a disfigurement of the face from pimples and blotches. Refuse all other Coal Tar Soaps, which are but worthless imitations. [ADVT.]

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WHAT AMOUNT OF SUFFERING COULD BE AVOIDED IF WE ONLY KNEW HOW.

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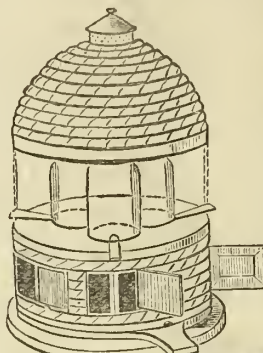
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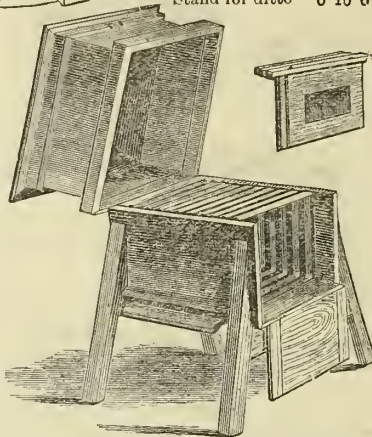
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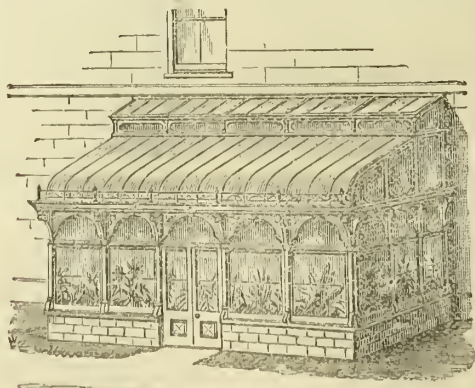
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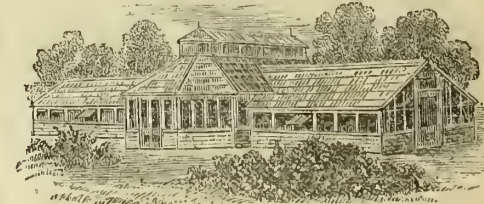
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882	S	3rd Sunday after Easter. MAY.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
30			4 37	2 55	7 19	4 35	3 2	—	0 13	9 15	9 38	50 7	Amaryllis Leopoldi, s.	Crimson.	120
1	M	Duke of Connaught born, 1859.	4 35	3 3	7 21	5 43	3 23	0 35	0 55	10 0	10 15	51 0	Amaryllis La Beauté, s.	White & Crimson.	121
2	Th	Camden born, 1551.	4 33	3 10	7 23	6 52	3 43	1 12	1 32	10 37	10 57	51 3	Eriostemon nerifolius, G.	White.	122
3	W	Full Moon, Sh. 31m. morn.	4 31	3 17	7 24	7 59	4 15	1 59	2 5	11 15	11 30	51 5	Lachenalia tricolor, G.	Orange & Green.	123
4	Th	Dr. Livingstone died, 1873.	4 29	3 23	7 26	9 7	4 50	2 22	2 40	11 47	—	51 7	Muscaria botryoides, H.	Blue.	124
5	F	Napoleon I. died, 1821.	4 28	3 29	7 27	10 7	5 33	2 57	3 15	0 5	0 22	52 0	Narcissi in var. H.	Various.	125
6	S	St. John.	4 26	3 31	7 29	10 58	6 25	3 35	3 53	0 40	1 0	52 2	Primula elatior, H.	Various.	126

The Gardeners' Magazine.

SATURDAY, APRIL 29, 1882.

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ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

SUNDAY, APRIL 30, TO TUESDAY, MAY 2.—SOCIÉTÉ ROYALE DE FLORE DE BRUXELLES.—Annual Exhibition.

TUESDAY, MAY 2.—NATIONAL AURICULA SOCIETY (NORTHERN SECTION).—Annual Exhibition at Manchester.

THURSDAY, MAY 4.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

THE CATALOGUE OF AURICULAS that will be found in another part of this sheet contains the names and characters of 280 varieties. These are but a small proportion of all that have been recorded, but probably we have missed very few that might now be considered worthy of a place in such a list. Although the result of much labour, it is probably in a few places inaccurate, and certainly in many places weak. Its weakness is especially manifested in the column devoted to chronology. Nine times in ten—we might almost say ninety-nine times in a hundred—the year in which a flower first appeared, either to the raiser or to his friends, or even in public, is beyond accurate determination. A seedling is noted as promising, or as quite new and remarkable. It may be brought into public notice at once, or it may be kept in concealment for years, or it may be partly published by the plaudits of the few who have been permitted to see it, and in due course it may be staged for exhibition and take its place in the annals of the flower. But by that time the early history of the flower may have been forgotten, and the date of its first appearance can alone be cited when the chronology is asked for. It follows that the dates in our catalogue are to be taken in every case with a grain of salt. They represent the years to which we can trace the flowers, but we feel assured that in very many instances the dates might be carried further back, had we but the needful time and material at our disposal. It is possible some of our friends may favour us with corrections and additions for the improvement of the list, and for all such kind aid we shall take the surest means of manifesting thankful appreciation.

This is not the first list of the kind, although it is undoubtedly the first on so comprehensive a scale. A good list, compiled by the Rev. H. H. D'Ombra, appeared in the *Florist* for June, 1859. It contains the names and characters of thirty-two varieties, all of them possessed of high quality in one way or another. If reproduced at the present time it might be useful, and it would at least suggest that the largeness of our list is one of its weaknesses, although as a contribution to the history of floriculture its value cannot at present be fully determined.

The auricula has been in cultivation in this country for more than three centuries, and yet, as it appears from Mr. Hibberd's lecture, delivered in the conservatory at South Kensington, on Tuesday last, the flowers now most highly prized are of comparatively modern date, those characterized by concentric rings of colour, and commonly classed as "edged" varieties dating only from about 1750, so far as can at present be determined. None of the older books devoted to floriculture give any hint of the existence of edged flowers, and of the oldest edged flowers known it seems that none can be traced farther back than 1785. That they were known before that date cannot be doubted, and Mr. Hibberd is disposed to fix their advent about the year 1750, which gives them a duration of only 130 years.

No. 887, NEW SERIES.—VOL. XXV.

They were known to Justice, whose "Gardeners' Directory" was published in 1754; to Thompson, who published "The Distinguishing Properties" in 1757; and to Maddock, whose famous work on florist's flowers appeared in 1792. If mere names would suffice for such a list as we have attempted, we should find them easily in these truly technical works. The 78 sorts named in Emmerton's "Treatise," published 1815, are, for the most part, now utterly unknown and without interest.

Of the so-called "Alpine" auriculas we have nothing to say in this connection: it is enough to deal with one thing at a time, when many things might overtask one. The two classes stand far apart, although in fundamentals they are nearly related. As to their origin there are not many difficulties to be encountered; certainly none so formidable as the origin of the edged auriculas. These have hitherto been mixed up by the floral essayists and historians with flowers from which they differ in the most striking manner.

THE Queen will visit Epping Forest on Saturday next, May 6. For the ceremony of dedicating the forest to the use of the public for ever, an amphitheatre capable of accommodating 2,000 persons is being constructed at High Beech.

MR. WESLEY'S BOOK CIRCULAR, No. 51, contains a considerable number of works in Botany, Horticulture, Natural History, and Physical Science, and may be consulted with advantage by buyers of books in those departments of science. The number of works entered is about 1,500.

ESSEX FIELD CLUB.—A meeting of this club will be held this day (April 29), at 3, St. John's Terrace, Buckhurst Hill, at 7 p.m., when Mr. Worthington G. Smith will read a paper on "Primæval Man in the Valley of the Lea." The paper will be illustrated by selections from Mr. W. G. Smith's remarkable collection of flint implements and other findings of the later tertiary period.

FOR ROSARIANS ONLY.—The *Débats*, in reference to April 23, says:—"All England is *en fête*. It is St. George's Day, and this Sunday will lose the character of intense monotony, so difficult for foreigners to endure. The rose, the emblem of Albion, adorns the buttonhole of everybody, from the lord to the flunkey, and the bodice or the locks of every woman; officers wear it on their sword-guards, and flags are decorated with it."

PRESENTATION TO MR. THOMAS MOORE.—The complimentary presentation to Mr. Thomas Moore, on his retirement from the joint editorship of the *Gardeners' Chronicle*, will take place at the Cannon Street Hotel on Tuesday, May 23. The accommodation will be limited, but there will be room for all who bespeak their seats (21s. each) within the next ten days or so. As many friends from the country may desire to join the party, the committee have resolved that evening dress be optional. Intending participators are desired to communicate at once with Mr. Shirley Hibberd, 15, Brownwood Park, London, N.

CITY ROSE SHOW.—The Lord Mayor and Lady Mayoress will hold a Rose Show, on the 29th June, at the Mansion House, in aid of the proposed Scarlet Fever Convalescent Home, and of the Royal Hospital for Women and Children, Waterloo Bridge Road. The exhibition will consist of 10,000 roses, from the gardens of the principal growers, arranged with ferns and other accessories in an artistic manner. There will also be an exhibition by amateur growers, among them some of the leading citizens, who have taken up the idea with great spirit, and who at a recent meeting at the Mansion House promised the Lord Mayor their hearty support in the preparations. The Lord Mayor has entrusted the arrangements to Mr. J. Forsyth Johnson, Horticultural Director of the Alexandra Palace.

THE LECTURE ON THE AURICULA was illustrated by some pretty and curious examples. Mr. Barron supplied from the collections at Chiswick several of the antique forms of border and "fancy" auriculas, and some that very fairly represented the wild form, being but few and slight removes therefrom. Mr. Orchard supplied blooms of a variety in which the paste was defined by a sharp boundary line, and in which there was a suggestion of the formation of an extra ring of colour; this was regarded by the lecturer as indicating the manner in which the change from self to edge colouring has been accomplished. Another and extremely pretty example of the change from self to edge was supplied by Messrs. Sutton and Sons, of Reading, in a flower sharply edged with yellow. Mr. R. Dean supplied a large yellow self, in which the process of doubling had commenced in the tube, and Mr. Douglas supplied a very remarkable double flower which might be called a monstrous grey-edged flower. The lecturer described this as the ugliest flower in the show, but we heard from some who had made a leisurely scrutiny that some uglier ones might have been found. As for the show, it was surprisingly good and surpassed the expectations of the most hopeful of the many cultivators who were interested in it.

THE AURICULA.

BY JAMES DOUGLAS.

THIS interesting and beautiful spring flower still continues to increase in favour, and the wants of cultivators become difficult to satisfy, both in regard to information on the properties and cultural requirements of the plants and obtaining choice varieties. Notwithstanding all that has been written on the subject, I find there are still many amateurs who have no idea of the standard to aim at in the raising of seedlings, and the information given in some quarters tends rather to confuse a young beginner than to help him forward in the path of progress. I have therefore thought it would be well to offer some advice on the subject, and to make my remarks quite clear I shall group them under suitable heads.

I. THE PLANT.

The foliage of auriculas is as varied in character as the flowers, and in some instances a variety is worth growing for its foliage alone. Some varieties have their leaves so densely covered with farina as to make them as white as new-fallen snow. The characters of the leaves are also so different that the experienced fancier can name his whole collection by the foliage alone, even if it contains a hundred varieties. A well-grown plant should have sufficient foliage to cover the soil in the pot.

II. THE TRUSS.

This should be borne erect on a stout stem, about six inches long, and if the plants are well grown sticks will not be required for the support of the stems. The footstalks of the pips should be stout and of a sufficient length for all the pips to have room to display their full proportions. Some really good auriculas in other respects fail in the length and strength of the footstalks of the pips. Those of *Ellen Lancaster*, a good self, are too short; those of *Pizarro* (Campbell) are too weak; whilst those of *Richard Headly*, a really good grey-edged flower, are of unequal length.

III. THE PIP.

With the plants and flowers before one, it would be quite easy to point out the properties of the pip in very few words. It should be of good substance, quite round, large, flat, and smooth on the edges. The mouth of the tube should be round, of a fine yellow or lemon colour; it should be filled with the anthers, and in width ought not to be more than a fourth of the diameter of the pip. The paste comes next to the eye, or tube, as it is called; this should be formed of a dense coating of pure white farina; it ought also to be circular, and in diameter occupy not less than one-half of the pip. The ground or body colour is next to the paste; the inner part of the circle should be unbroken, but the outer part is and ought to be broken into a fine feathery edge, the richer and darker in colour it is the better; it ought also to be unshaded; if the body colour shades to a paler tint towards the margin it is a serious defect; this colour takes up a fourth more of the width. The remaining fourth is composed of the edge, the colour of which designates the class to which the variety belongs, and this must be either green, grey, or white. It should of course be equal in width all round, and in the green edge there should be no farina spots on it. "No daisies on the lawn," as Mr. Horner would say. It is also worthy of note that no green edge has been raised with mealed foliage. Next to the green edge we place the grey, and this class contains perhaps the best auriculas in cultivation. *Mabel*, which gained premium at the National show last year, is a grey edge. *George Lightbody*, which has taken more premiums than any other, is a grey edge. In this class the outer margin is coated so thick with farina that the appearance of it is best described as a grey. The white edge is next, and this class contains now some greatly-valued flowers. *Smiling Beauty*, raised by James Heap, stands almost at the head of the list; it has an interesting history of its own, detailed to me by Mr. Barlow, of Stakehill, which I may give another time. *John Simonite* (Walker) is thought to be a better flower, but it is yet scarce. The edge should be so thickly coated with farina as to appear white. The fourth section comprises the selfs; these are simply flowers with all ground colour outside the paste. The most esteemed are the dark colours, such as maroon or maroon-purple. There are also yellow, slate, and violet; in all of them the colour must be decided, as in the edged flowers shading is a defect.

IV. TRUSS.

It must be stated that in all cases a truss should contain not less than five pips. The old growers used to be more strict, and stipulated that seven pips should be the minimum. A truss has a better effect if nine or eleven good pips can be obtained. Indeed, there cannot be too many pips if there is room to display them without the edges overlapping each other. For exhibition purposes it is necessary to remove all defective pips from the trusses, as, if left, they would be so many points against them.

V. PROPAGATION.

This is effected by seeds and offsets, and to a limited extent by division. Seeds should only be saved from flowers that have been fertilized with pollen from another variety of the same class. Of course the very best flowers should be selected as seed and pollen bearers. The seed ripens in July, and should be sown as soon as it is mature. The pots or pans in which it is sown should be placed in a frame or under a handlight in a place shaded from the sun. Some of the seeds will vegetate in about three weeks, others not until the spring. Offsets are formed on the stem both above and below the surface of the soil; they must be taken off as soon as they are strong enough, and be potted in small pots. It is decidedly the best when they can be removed with roots attached to them. After they are

potted place them in close handlights until roots are formed, when they must gradually be inured to more air.

VI. REPOTTING THE PLANTS.

After the flowering period is over the whole of the plants should be removed to a north aspect, where they should be quite in the open air, except that they must be protected from heavy rains by the glass lights. I do not think it is very material when they are repotted after they go out of bloom. I have potted them in May, June, July, and August, but perhaps May and June are the best months. The compost should consist of about four parts good turfy loam, one part of leaf-mould or turfy peat, and one part of silver sand, with a sprinkling of broken charcoal. The pots ought to be clean and well drained; the smallest should be three inches in diameter and the largest about four and a-half inches in diameter. The old soil should be shaken well from the roots, which should be examined and all decayed portions be removed. Sometimes the base of the main root or "carrot" is decayed, and if this decayed portion is not entirely removed it will extend upwards as a canker and kill the plant. After they are repotted they must be placed in a frame and kept rather closely covered with the glass lights until fresh roots are formed.

VII. DISEASES AND INSECT PESTS.

Except the canker or decay of the tap-roots, which can scarcely be said to be a disease, the auricula may almost be said to be disease proof. The most troublesome pest is green fly, which settles on the plants at all seasons and makes a mess of the foliage and cripples the growth sadly. It is best to destroy it during the winter season by fumigating it with tobacco smoke. During the last few years the plants in many collections have been attacked by a species of louse, which has been described under the name of *Trama auriculae*. The pest clusters round the neck of the plant, descends amongst the roots, and even multiplies in the drainage. One would think that this insect, which resembles the American blight on apple trees, would check the growth of the plant. But the Rev. F. D. Horner, Mr. B. Simonite, and other good growers, assure me that it does not harm the plants; indeed, I saw one collection in the north, and found that the plants, which were badly infested with the pest, were as healthy looking as the others which had none of it upon them. Still I would say it is best to get rid of it, and this may be done by shaking all the soil from the roots and repotting the plants again in clean pots. Soft soap dissolved in water is the safest mixture to wash them with.

VIII. EXHIBITING AURICULAS.

When one reads accounts of auricula shows held fifty years ago or more, it is easy to see from the recorded accounts of them that they were very small affairs in comparison to those held now. In those days the large room in some public-house was the meeting place of the florists, and the large table in the centre of the room was utilized for staging the specimens. Under such conditions it was not to be expected that the show would close in a decorous manner, or that many high-born well-dressed ladies would visit the exhibition. Now if the exhibition is held in Manchester, the magnificent Town Hall is secured for it, and in the south the head-quarters of the auricula is the Royal Horticultural Society's Gardens, at South Kensington, and it is not the fault of the growers if the public do not see the auricula in its best dress. Those who have to convey their plants long distances, turn them out of the pots, and wrap the roots tightly round with cloth; in this way a considerable number can be arranged in a small space. The trusses must be fastened to a stick, and some cotton wadding should be put between the pips to prevent their rubbing against each other. When they are staged the wadding must be removed, and at the northern show the sticks also must be taken away, so that the trusses may be self-supporting. In London sticks are allowed, and if the trusses are neatly tied to them the plants have a better appearance. In arranging the plants see that the colours are contrasted to give the best effect, and if twelve distinct auriculas are to be exhibited, it is best to select three from each of the four classes. Quality is also to be preferred to mere size. A plant with three pips, if they were all good, and well up in the points that constitute excellence of quality, would be preferred to a large specimen with a dozen showy pips if none of them were good. There are a few points perhaps that might be further enlarged upon, but it will be best to leave them to another occasion.

THE WEATHER has been cold and cheerless the past few days in London, with much rain, and promise of more. Now that the 1st of May is near, it will be seen that the season is not much in advance of the average, "the gains of the winter being swallowed up in the losses of the spring." Our correspondent, Mr. H. Edwards, tells us we may expect frost on the nights of May 2, 3, 4, and 12, 14, 15, 16, 17, and 18. By what means the expectation is reached we are not informed.

THE ROYAL PARKS AND PLEASURE GROUNDS were the subject of a little shindy in the House of Commons on Saturday. On the motion in Supply to complete the sum of £110,921 for royal parks and pleasure grounds, Mr. Labouchere complained of the cutting down of trees in Kew Gardens, and proposed that the cost of Battersea, Kennington, and Victoria parks should be transferred from the public treasury to the metropolitan rates. Mr. Ritchie said nothing could be more astounding than such a proposal, for it meant that the parks of the rich might be supported out of the Consolidated Fund, and the parks of the poor were to be supported by the ratepayers. The moneys required were eventually voted, and the discussion was not without some shadow of usefulness.

A CATALOGUE OF 280 SHOW AURICULAS.

NAME.	RAISER.	YEAR.	CLASS.	SIZE.	TUBE.	PASTE.	GROUND.	SHAPE.	HABIT.	GENERAL REMARKS.
ACME	Read	1879	W. E.	Med.	Yellow	Smooth	Purple	Good	Good	Beautiful and highly finished.
ADMIRAL OF THE BLUES	Lightbody	—	Self.	Med.	Pa. Yel.	Smooth	Violet	Good	Good	A pleasing flower of fairly good quality.
ADMIRAL NAPIER	Ashton	—	Gn. E.	Med.	Yellow	Smooth	Purple	Good	Mod.	A well-formed flower, but wanting in body colour.
ADMIRAL NAPIER	Campbell	1857	Gn. E.	Lrg.	Orange	Anglr.	Bluish	Exhnt.	Good	A beautiful flower of fine form.
ADONIS	Headly	—	Self.	Med.	Yellow	Smooth	Plum	Mod.	Good	Attractive in colour, but inferior in form.
ALDERMAN WISBEY	Headly	1871	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Exhnt.	Free	A free-growing variety of high-class merit.
ALEXANDER	Stretoli	1841	Gn. E.	Mod.	Orange	Smooth	Purple	Good	Weak	In quality excellent when caught, but poor constitution.
ALEXANDER MEIKLEJOHN	Kay	1876	Gy. E.	Lrg.	Yellow	Smooth	Black	Exhnt.	Good	A superb flower, with a good constitution.
ALMA	Lightbody	—	Gy. E.	Lrg.	Dp. Yel.	Smooth	Black	Good	Strong	A fine flower, with a slight tendency to coarseness.
ANNIE	Barlow	1878	Self.	Med.	Yellow	Smooth	Maroon	Good	Good	A richly-coloured and meritorious flower.
ANN SMITH	Smith	—	W. E.	Med.	Pa. Yel.	Smooth	Violet	Good	Good	An excellent variety in its class.
APOLLO	Beeston	—	Gn. E.	Med.	Lemon	Circr.	Black	Good	Good	An excellent flower, although somewhat faulty.
APOLLO	Hudson	1851	Gn. E.	Smll.	Pa. Yel.	Circr.	Purple	Good	Mod.	A rather small-growing variety of fairly good quality.
AURORA	Headly	—	Self.	Smll.	Orange	Smooth	Purple	Good	Good	Of good form, but too small.
BADAJOS	Pearson	1821	Gy. E.	Med.	Pa. Yel.	Smooth	Violet	Good	Mod.	Pleasing in colour, but long since surpassed.
BANG-UP	Thompson	1841	Gy. E.	Lrg.	Yellow	Smooth	Purple	Good	Mdm.	Fine in quality, but weakly and inconstant.
BEAUTY	Trall	—	W. E.	Lrg.	Pa. Yel.	Smooth	Maroon	Good	Good	A well-finished high-class flower.
BESSY BELL	Spalding	—	Self.	Mod.	Orange	Smooth	Purple	Fair	Mod.	Pleasing, but inferior to many of the other purple selfs.
BLACKBIRD	Spalding	—	Self.	Lrg.	Yellow	Irregl.	Maroon	Exhnt.	Strong	A richly-coloured flower of good quality.
BLACK PRINCE	Butcher	1868	Self.	Lrg.	Orange	Smooth	Black	Good	Mod.	A bold high-class flower.
BLACK DIAMOND	Trall	—	Self.	Lrg.	Yellow	Smooth	Black	Fair	Good	Showy, but wanting in finish.
BLUCHER	Goldham	—	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Fair	Good	A nicely-formed flower, but not of high merit.
BLUE BONNET	Clegg	1851	Self.	Lrg.	Yellow	Smooth	Plum	Fair	Good	Bold in appearance, but rough.
BLUE PRINCE	Trall	—	Self.	Lrg.	Pa. Yel.	Irregl.	Violet	Poor	Good	Coarse and not well proportioned.
BLUE QUEEN	Neville	—	Self.	Lrg.	Yellow	Irregl.	Plum	Poor	Good	Large and coarse.
BONNY LASS	Ashton	—	W. E.	Med.	Yellow	Smooth	Black	Fair	Mod.	Attractive, but wanting in finish.
BRIGHT PHEBUS	Wild	—	W. E.	Lrg.	Pa. Yel.	Irregl.	Plum	Fair	Good	Showy, but very faulty.
BRIGHT VENUS	Lee	1821	W. E.	Lrg.	Yellow	Starry	Maroon	Exhnt.	Good	A grand flower, although the paste is not quite smooth.
BRITANNIA	Hedge	—	Gy. E.	Med.	Yellow	Smooth	Plum	Starry	Weak	An attractive flower, with weak constitution.
BRITISH HERO	Cox	1821	Gy. E.	Med.	Yellow	Irregl.	Maroon	Fair	Good	A medium-sized flower, in which the colours are not well defined.
BUCKSTONE	Turner	1864	Gy. E.	Med.	Golden	Smooth	Purple	Good	Mod.	A bold and handsome variety.
CAPTAIN BARCLAY	Smith	—	Gy. E.	Lrg.	Orange	Smooth	Violet	Good	Good	Of average form, but ineffective.
CATHERINA	Summerscale	1851	W. E.	Med.	Pa. Yel.	Smooth	Purple	Fair	Mod.	A pleasing flower of fairly good quality.
CHAMPION	Page	1841	Gn. E.	Lrg.	Yellow	Smooth	Purple	Good	Mod.	A finely-formed and attractive flower.
CHAMPION	Gorton	1875	Gn. E.	Med.	Pale	Anglr.	Maroon	Mdng	Strong	Long out of cultivation, but was good in its day.
CHARLES J. PERRY	Turner	1873	Self.	Lrg.	Yellow	Smooth	Violet	Good	Strong	Beautifully formed, effectively coloured, and free in growth.
CHARLES TURNER	Turner	1867	Gy. E.	Lrg.	Yellow	Smooth	Crimson	Good	Good	A handsome well-formed flower.
CHEERFULNESS	Turner	1867	Self.	Lrg.	Yellow	Irregl.	Purple	Fair	Mod.	Showy, but rather rough.
CHESHIRE HERO	Turner	1821	Gn. E.	Med.	Yellow	Smooth	Purple	Good	Mod.	A well-finished pleasing flower.
CLIPPER	Turner	1877	Self.	Med.	Yellow	Smooth	Plum	Good	Good	A medium-sized flower of high finish.
COLONEL	Franklin	—	Gn. E.	Lrg.	Dp. Yel.	Smooth	Purple	Rugh.	Strong	A striking flower, wanting in finish.
COLONEL CHAMPNEYS	Turner	1867	Gy. E.	Lrg.	Yellow	Smooth	Blue	Good	Strong	A fine and effective variety.
COLONEL TAYLOR	Lee	1821	Gn. E.	Lrg.	Lemon	Smooth	Black	Exhnt.	Mod.	Superb quality; took first prizes everywhere in 1831.
COMPETITOR	Turner	—	Gy. E.	Lrg.	Yellow	Smooth	Dark	Good	Free	A fine variety, free in growth, and of high quality.
COMPLETE	Sykes	1831	Gy. E.	Med.	Yellow	Smooth	Black	Exhnt.	Good	A beautiful flower, but wanting in body colour.
CONDUCTOR	Headly	—	Gn. E.	Lrg.	Orange	Smooth	Maroon	Good	Mod.	Fairly good, but unequal to many other flowers of this raiser.
CONFIDENCE	Campbell	—	Gy. E.	Lrg.	Yellow	Smooth	Maroon	Good	Strong	A fine variety producing grand trusses.
CONQUEROR	Poppewell	1785	Gy. E.	Lrg.	Yellow	Smooth	Purple	Good	Mod.	A fine flower, variable in the colour of its edge.
CONQUEROR OF EUROPE	Waterhouse	1841	Gy. E.	Lrg.	Dp. Yel.	Smooth	Dp. Prpl	Exhnt.	Strong	A fine variety, the growth free, and the flowers of fine quality.
CONSERVATIVE	Douglas	1830	W. E.	Lrg.	Orange	Smooth	Purple	Good	Good	A fine variety, in the way of George Lightbody.
CONSTANCE	Horne	1881	Self.	Lrg.	Yellow	Smooth	Blue	Good	Good	Very attractive and well proportioned.
COUNTRESS OF DUNMORE	Lightbody	1853	W. E.	Lrg.	Yellow	Starry	Dp. Red	Rugh.	Strong	A pleasing flower, with a tendency to roughness.
COUNTRESS OF WILTON	Cheetham	1851	W. E.	Med.	Yellow	Smooth	Maroon	Good	Mod.	A pretty flower, with poor constitution.
CROWN PRINCE	Turner	1867	Self.	Lrg.	Yellow	Smooth	Crimson	Good	Good	A fine and most attractive flower.
CRUCIFIX	Clegg	—	W. E.	Med.	White	Starry	Black	Rugh.	Mod.	A second-rate and coarse flower.
CYCLOPS	Horne	1830	Gn. E.	Lrg.	Orange	Smooth	Maroon	Good	Strong	A strong-growing variety of grand proportions.
DORA	Horne	1881	Self.	Lrg.	Yellow	Smooth	Mauve	Good	Good	A beautiful variety of fine form.
DUCHESS OF EDINBURGH	Simpson	—	W. E.	Lrg.	Yellow	Irregl.	Maroon	Poor	Strong	Showy and free, but of poor quality.
DUCHESS OF SUTHERLAND	Butcher	1870	Self.	Lrg.	Yellow	Irregl.	Purple	Good	Mod.	Showy in colour, but wanting in finish.
DUKE OF CAMBRIDGE	Dickson	—	Gy. E.	Med.	Yellow	Irregl.	Purple	Good	Mod.	A showy flower; too broad a ground, and not circular.
DUKE OF WELLINGTON	Dickson	—	Gn. E.	Med.	Yellow	Smooth	Purple	Good	Strong	A bold flower, rather wanting in quality.
EARL GROSVENOR	Lee	1821	W. E.	Med.	Orange	Smooth	Violet	Good	Mod.	Pleasing in colour, but quite second rate.
EARL OF SHAFTESBURY	Turner	1864	Gy. E.	Lrg.	Yellow	Circr.	Maroon	Good	Good	A large and refined flower.
EARL STANHOPE	Dickson	—	Gn. E.	Lrg.	Gn.ish.	Poor	Violet	Anglr.	Free	Showy but second rate.
ECLIPSE	Cockup	—	Gn. E.	Med.	Pa. Yel.	Smooth	Violet	Fair	Good	Showy, but decidedly faulty.
ECLIPSE	Martin	—	Self.	Med.	Lemon	Smooth	Midbr.	Fair	Good	Wanting in size, thin, and irregular.
ELIZA	Sims	—	Self.	Med.	Pa. Yel.	Poor	Crimson	Good	Mod.	Pleasing in colour, but second rate.
EMERALD	Heath	—	Gn. E.	Lrg.	Yellow	Irregl.	Violet	Mod.	Good	Showy and coarse.
EMERALD	Horne	1881	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Exhnt.	Good	An attractive variety of great promise.
EMPRESS	Turner	—	Self.	Lrg.	Yellow	Smooth	Plum	Good	Free	A fine exhibition flower of free growth.
ENSIGN	Turner	1863	Gy. E.	Lrg.	Yellow	Smooth	Maroon	Good	Mod.	A pretty flower rather wanting in finish.
ENTERPRISE	Horne	1831	Gn. E.	Lrg.	Yellow	Smooth	Black	Good	Good	Effective and of high-class quality.
EREBUS	Horne	1881	Self.	Lrg.	Yellow	Smooth	Maroon	Exhnt.	Good	Rich in colour and exquisitely finished.
EXCELLENT	Headly	—	Gn. E.	Smll.	Yellow	Smooth	Violet	Good	Mod.	In the way of Lancashire Hero, but much inferior to it.
FAIR FLORA	Beeston	—	Gy. E.	Med.	Yellow	Irregl.	Purple	Fair	Mod.	Angular in form and inferior.
FAIR MAID	Lightbody	1841	W. E.	Med.	Pa. Yel.	Smooth	Chesnut	Good	Mod.	Attractive but second rate.
FAIRY QUEEN	Lightbody	—	Gn. E.	Smll.	Orange	Smooth	Plum	Fair	Mod.	Pleasing, but too small.
FANNY CROSSLAND	Simonite	1877	W. E.	Lrg.	Yellow	Smooth	Violet	Good	Good	Attractive and of fine form.
FAVOURITE	Taylor	1831	W. E.	Lrg.	Orange	Smooth	Maroon	Good	Good	Bold in appearance, but not first-class in form.
FORMOSA	Smith	1863	Self.	Lrg.	Lemon	Smooth	Crimson	Good	Good	Bright in colour and fairly good in quality.
FRANK SIMONITE	Simonite	1877	Gy. E.	Lrg.	Pa. Yel.	Smooth	Violet	Good	Good	Very beautiful and highly finished.
FREEDOM	Booth	1821	Gn. E.	Lrg.	Lemon	Smooth	Black	Fine	Weak	A beautiful variety of rather weak growth.
FREEMAN	Hilton	—	Gn. E.	Lrg.	Yellow	Smooth	Black	Good	Good	A pleasing flower, moderately good in quality.
FREE TRADE	Lowe	—	Gn. E.	Med.	Orange	Smooth	Chocolt.	Fair	Good	A second-rate flower, now almost forgotten.
GARIBALDI	Pohlman	1863	Self.	Lrg.	Yellow	Smooth	Maroon	Exhnt.	Good	A striking flower of good form.
GENERAL BOLIVAR	Smith	—	Gy. E.	Med.	Yellow	Smooth	Purple	Good	Mod.	Well-formed flower, occasionally cupped; rather weak in growth.
GENERAL HAYLOCK	Trall	—	Gn. E.	Lrg.	Pa. Yel.	Smooth	Maroon	Good	Mod.	A fine flower of large size and good finish.
GENERAL NEIL	Trall	—	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	Useful and of good form.
GEORGE LIGHTBODY	Headly	1857	Gy. E.	Lrg.	Orange	Smooth	Violet	Sprb.	Good	One of the very finest flowers in its class.
GEORGE LIGHTBODY	Trall	—	Gn. E.	Med.	Yellow	Smooth	Maroon	Good	Good	A well-finished medium-sized flower.
GERTRUDE KNIGHT	Turner	1876	Gy. E.	Med.	Yellow	Smooth	Maroon	Good	Free	A striking flower of good form.
GLORY	Taylor	1821	W. E.	Smll.	Lemon	Smooth	Purple	Good	Free	Rather small and beautifully formed.
GREEN HERO	Morris	—	Gn. E.	Lrg.	Orange	Smooth	Purple	Good	Mod.	Fairly well formed, but ineffective.
GREY FRIAR	Llewellyn	1879	Gy. E.	Lrg.	Yellow	Irregl.	Black	Good	Good	A fine flower, although rather faulty in the paste.
HANNIBAL	Faulkner	—	Self.	Lrg.	Orange	Smooth	Maroon	Good	Strong	Bright and effective, but wanting in finish.
HEBE	Turner	—	Self.	Lrg.	Yellow	Smooth	Blue	Good	Free	An attractive flower of fine quality.
HEROINE	Horne	1880	Self.	Lrg.	Yellow	Smooth	Claret	Good	Good	An effective variety of splendid quality.
HIGHLAND LADDIE	Pollitt	1821	Gn. E.	Med.	Yellow	Irregl.	Chesnut	Starry	Good	Showy, but wanting in quality.
HILDA	Headly	—	Gy. E.	Med.	Yellow	Smooth	Maroon	Good	Free	A pleasing and useful flower.
HILDA	Douglas	1881	Gy. E.	Med.	Yellow	Smooth	Black	Good	Good	A medium-sized beautiful flower.
IMPERATOR	Liton	1851	Gn. E.	Smll.	Dp. Yel.	Smooth	Black	Irregl.	Mod.	Attractive and useful, but rather faulty.
INCOMPARABLE	Taylor	1821	W. E.	Med.	Yellow	Smooth	Maroon	Starry	Mod.	Rather pretty but second rate.
IVANHOE	Lowe	—	Self.	Med.	Yellow	Smooth	Violet	Fair	Mod.	Pleasing in colour; small.

A CATALOGUE OF 280 SHOW AURICULAS—continued.

NAME.	RAISER.	YEAR.	CLASS.	SIZE.	TUBE.	PASTE.	GROUND.	SHAPE.	HABIT.	GENERAL REMARKS.
JAMES DICKSON.....	Lightbody	1853	Gy. E.	Lrg.	Yellow	Smooth	Black	Fair	Good	A showy flower with starry pips.
JESSIE ANN.....	Sim	—	Self	Med.	Yellow	Circlr.	Violet	Fair	Mod.	Pleasing in colour; second rate in form.
JOHN BRIGHT.....	Finlayson	—	Gn. E.	Lrg.	Lemon	Irreglr.	Claret	Poor	Strong	Large and coarse.
JOHN PENN.....	Butcher	1865	Self	Lrg.	Yellow	Smooth	Blue	Good	Mod.	An attractive variety which was soon lost.
JOHN PENN.....	Butcher	1867	Self	Lrg.	Yellow	Smooth	Crimson	Good	Good	An attractive flower of good form.
JOHN SIMONITE.....	Walker	1877	W. E.	Lrg.	Yellow	Smooth	Maroon	Sprb.	Good	A fine flower standing high amongst recent introductions.
JOHN WATERSON.....	Cunningham	—	Gy. E.	Lrg.	Yellow	Smooth	Violet	Exlnt.	Good	An attractive flower of superb form and finish.
JOLLY TAR.....	Buckley	1821	Gn. E.	Lrg.	Orange	Smooth	Mlbrry.	Fair	Good	Rather large, but not well proportioned.
JUBILEE.....	Moore	1841	Gn. E.	Med.	Orange	Anglr.	Chesnut	Poor	Mod.	Decidedly inferior.
JULIANA.....	Lightbody	—	Gn. E.	Lrg.	Orange	Starry	Black	Poor	Good	Moderately strong in growth, but coarse.
JUPITER.....	Kaye	1841	Self	Med.	Pa. Yel.	Smooth	Blue	Fair	Mod.	Attractive in colour, but wanting in finish.
KINO.....	Barlow	1831	Gn. E.	Med.	Orange	Smooth	Maroon	Good	Strong	Generally good, but inconstant.
KINO JAMES.....	Headly	—	Gn. E.	Med.	Yellow	Smooth	Purple	Good	Poor	A pleasing variety of weakly constitution.
LADY BLUCHER.....	Clegg	—	Gn. E.	Med.	Orange	Smooth	Purple	Good	Mod.	Very good; too much like Sir J. Moore.
LADY JANE GREY.....	Dickson	—	Gy. E.	Med.	Orange	Smooth	Maroon	Irreglr.	Mod.	Ineffective and wanting in finish.
LADY JANE GREY.....	Trall	—	Gy. E.	Med.	Orange	Smooth	Chesnut	Fair	Good	Fairly well proportioned; dull in colour.
LADY OF THE LAKE.....	Smith	—	W. E.	Med.	Yellow	Smooth	Black	Good	Good	A fine flower, although but little known.
LADY RICHARDSON.....	Gairn	—	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A useful flower of good form.
LADY SALE.....	Smith	1858	Gy. E.	Med.	Yellow	Smooth	Purple	Good	Mod.	Good in form; body colour too narrow.
LADY ANN WILBRAHAM.....	Oliver	1851	Gn. E.	Lrg.	Yellow	Irreglr.	Maroon	Mod.	Good	Pleasing in colour, but coarse.
LANCASHIRE HERO.....	Lancashire	1846	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Good	Strong	One of the very finest auriculas in cultivation.
LORD BROUGHAM.....	—	1841	Gn. E.	Med.	Yellow	Irreglr.	Maroon	Fair	Mod.	An old variety long since superseded.
LORD BYRON.....	Campbell	1858	Gn. E.	Lrg.	Yellow	Irreglr.	Mlbrry.	Good	Mod.	Attractive; rather too much body colour.
LORD CLYDE.....	Lightbody	1863	Self	Lrg.	Lemon	Smooth	Maroon	Exlnt.	Good	A richly-coloured flower of fine quality.
LORD HILL.....	Butcher	1871	Ga. E.	Lrg.	Yellow	Irreglr.	Mauve	Good	Mod.	An attractive flower of fairly good quality.
LORD LASCELLES.....	Wood	1831	Gy. E.	Lrg.	Yellow	Irreglr.	Chstnt.	Poor	Strong	Strong in growth; large and coarse.
LORD LEE.....	Berry	1831	Self	Med.	Lemon	Poor	Plum	Fair	Good	Showy in colour; inferior in quality.
LORD LYNEDOCHE.....	Lightbody	—	Gn. E.	Med.	Yellow	Starry	Black	Fair	Mod.	A poor flower, much below the average of its raiser.
LORD NELSON.....	Howard	1841	Gn. E.	Med.	Orange	Smooth	Maroon	Good	Mod.	A nicely-proportioned flower, but wanting in finish.
LORD PALMERSTON.....	Campbell	—	Gn. E.	Lrg.	Pa. Yel.	Smooth	Maroon	Good	Mod.	A useful flower of fairly good quality.
LORD PRIMATE.....	B-rry	—	Self	Med.	Yellow	Narrow	Maroon	Good	Good	Rich in colour; not well proportioned.
LORD JOHN RUSSELL.....	Smith	—	Gn. E.	Med.	Yellow	Starry	Maroon	Irreglr.	Free	Rich in colour; rough.
LORD SALISBURY.....	Mellor	1880	Self	Lrg.	Yellow	Smooth	Maroon	Good	Good	A beautiful flower, a trifle too narrow in the paste.
LOVELY ANN.....	Oliver	1841	Gn. E.	Lrg.	Lt. Yel.	Smooth	Purple	Exlnt.	Strong	A fine variety; shows in green and grey classes.
LYCURGUS.....	Smith	1858	Gn. E.	Med.	Yellow	Smooth	Violet	Good	Good	An excellent flower; hardly enough body colour.
MABEL.....	Douglas	1881	Gy. E.	Lrg.	Yellow	Smooth	Maroon	Sprb.	Good	A splendid variety in the way of George Lightbody.
MAGGIE LAUDER.....	Lowe	—	W. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A bold flower of good form.
MARIA.....	Chapman	1859	Gy. E.	Med.	Yellow	Smooth	Vio-pur.	Exlnt.	Fine	Very beautiful; one of the best in its class.
MARY.....	Clark	—	Gy. E.	Med.	Orange	Starry	Black	Fair	Good	An inferior flower, long since passed out of cultivation.
MARY ANN.....	Fletcher	1831	Gy. E.	Med.	Yellow	Smooth	Purple	Good	Strong	A fine variety, but inconstant.
MARY GRAY.....	Spalding	—	Self	Med.	Orange	Irreglr.	Chstnt.	Good	Mod.	Bright in colour, but wanting in refinement.
MASTER HOLE.....	Turner	1865	Self	Lrg.	Yellow	Smooth	Maroon	Good	Good	Effective and good quality.
MASTERPIECE.....	Spalding	—	Self	Med.	Yellow	Smooth	Violet	Good	Good	A nicely-finished flower of medium size.
MATILDA.....	Dickson	—	Gy. E.	Med.	Yellow	Smooth	Purple	Good	Poor	A distinct variety; flowers well formed, but the habit is very poor.
MAYFLOWER.....	Trall	—	Gn. E.	Med.	Yellow	Smooth	Chocolt.	Fair	Good	A pleasing flower of no particular merit.
MAY QUEEN.....	Horne	1881	W. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A well-formed and effective flower.
METEOR ELAO.....	Lightbody	1853	Self	Lrg.	Yellow	Starry	Blue	Good	Good	Very striking; paste imperfect.
METROPOLITAN.....	Parker	—	Self	Med.	Orange	Smooth	Plum	Good	Mod.	Bright in colour and effective.
METROPOLITAN.....	Redmayne.	1821	Self	Med.	Lemon	Starry	Maroon	Good	Good	An attractive flower of fairly good form.
METROPOLITAN.....	Spalding	1851	Self	Med.	Yellow	Smooth	Purple	Good	Good	Well formed; rather wanting in substance.
MIDNIGHT.....	Butcher	1868	Self	Lrg.	Pa. Yel.	Irreglr.	Maroon	Fair	Good	Showy, but not well finished.
MINOTAUR.....	Horne	1881	Gn. E.	Lrg.	Pa. Yel.	Smooth	Black	Good	Good	A striking flower of good form.
MISS BLACK.....	Martin	—	Self	Sml.	Yellow	Starry	Maroon	Poor	Mod.	An undersized flower of no value.
MISS BRIGHTLY.....	Spalding	—	Self	Lrg.	Yellow	Irreglr.	Purple	Fair	Good	Showy; rather rough.
MISS GIDDINGS.....	Read	1864	Gy. E.	Lrg.	Yellow	Starry	Purple	Fair	Good	Large, with a tendency to coarseness.
MISS LIGHTBODY.....	Trall	—	Gy. E.	Med.	Yellow	Fair	Maroon	Fair	Mod.	Second-rate, but useful.
MISS WILLOUGHBY.....	Hufon	—	W. E.	Lrg.	Yellow	Starry	Plum	Poor	Good	An ill-proportioned flower of no merit.
MODEL.....	Gairn	—	W. E.	Med.	Yellow	Smooth	Maroon	Good	Mod.	Effective and well proportioned.
MORNING STAR.....	Barlow	1851	Gy. E.	Med.	Orange	Smooth	Maroon	Good	Mod.	Attractive, but not of good quality.
MR. FINCH.....	Chapman	1860	Gy. E.	Lrg.	Yellow	Smooth	Violet	Good	Good	Of fairly good form, but not well finished.
MR. MARNOCK.....	Turner	1864	Gy. E.	Lrg.	Yellow	Smooth	Black	Fair	Mod.	Second rate.
MR. TRAILL.....	Turner	—	Gn. E.	Med.	White	Smooth	Crimson	Fair	Mod.	Second rate in quality and wanting in size.
MRS. BUTCHER.....	Butcher	1867	Gy. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A beautiful variety, although not first class.
MRS. BROWN.....	Turner	1882	Gy. E.	Lrg.	Dp. Yel.	Smooth	Maroon	Exlnt.	Free	A striking flower of grand quality.
MRS. DODWELL.....	Simonite	1880	W. E.	Lrg.	Orange	Smooth	Blue	Good	Good	Bright in colouring, and of exquisite finish.
MRS. DOULAS.....	Simonite	1880	Self	Lrg.	Orange	Smooth	Violet	Sprb.	Good	Rich in colour and of grand form.
MRS. HEADLY.....	Lightbody	1858	W. E.	Med.	Pa. Yel.	Smooth	Violet	Good	Mod.	A pleasing flower of good quality.
MRS. SHIRLEY HIBBERD.....	Turner	1875	W. E.	Lrg.	Pa. Yel.	Smooth	Claret	Good	Good	One of the most finely-formed flowers of its class.
MRS. JAMIESON.....	Jamieson	1864	Gn. E.	Lrg.	Yellow	Irreglr.	Maroon	Good	Good	Showy; the colours not well defined.
MRS. MENDEL.....	Turner	1868	W. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A beautiful variety.
MRS. PURVIS.....	Turner	1876	Gy. E.	Lrg.	Yellow	Smooth	Violet	Good	Good	A beautiful flower of good proportions.
MRS. SIM.....	Smith	—	W. E.	Med.	Yellow	Irreglr.	Maroon	Fair	Mod.	A pretty flower of medium size.
MRS. SMITH.....	Smith	1851	Self	Med.	Yellow	Starry	Violet	Good	Strong	A medium-sized flower, narrow in the paste, but fairly good.
MRS. STURROCK.....	Martin	—	Self	Sml.	Yellow	Smooth	Crimson	Good	Strong	A free-growing high-class variety.
NAPOLEON.....	Trall	—	Gn. E.	Med.	Lemon	Irreglr.	Chocolt.	Good	Mod.	Distinct; wanting in refinement.
NAPOLEON III.....	Butcher	1868	Self	Med.	Yellow	Smooth	Maroon	Fair	Good	Pleasing; not equal to others in its class.
NED LUD.....	Scholes	1831	Self	Lrg.	Orange	Smooth	Purple	Good	Strong	A fine flower, but a poor truss.
NEORO.....	Butcher	1871	Self	Med.	Yellow	Irreglr.	Black	Fair	Mod.	One of the darkest of the selfs, but of little merit.
NE PLUS ULTRA.....	Fletcher	1831	Gy. E.	Lrg.	Pa. Yel.	Smooth	Black	Irreglr.	Strong	Effective; somewhat coarse.
NE PLUS ULTRA.....	Smith	—	W. E.	Lrg.	Pa. Yel.	Irreglr.	Purple	Fair	Good	Large and decidedly coarse.
NEWTOWN HERO.....	Ashworth	—	Gy. E.	Lrg.	Yellow	Irreglr.	Maroon	Fair	Good	Too angular, and not well finished.
NONSUCH.....	Barker	1841	Self	Med.	Yellow	Starry	Violet	Fair	Good	Pleasing in colour; otherwise not desirable.
NORTH STAR.....	Richmond	1860	Self	Lrg.	Orange	Smooth	Violet	Good	Good	A large showy flower, wanting in smoothness.
OLIVER CROMWELL.....	Cumming	—	Gn. E.	Med.	Yellow	Starry	Maroon	Poor	Mod.	Ill-proportioned and inferior.
OMEGA.....	Turner	1878	W. E.	Lrg.	Yellow	Smooth	Black	Good	Good	A striking flower of fine proportions.
ORION.....	Horne	1880	Gn. E.	Med.	Pa. Yel.	Smooth	Black	Good	Good	Pleasing and of fairly good quality.
OTHELLO.....	Netherwood	1831	Self	Sml.	Yellow	Smooth	Maroon	Good	Mod.	A small flower of poor quality.
OXONIAN.....	Maltby	1851	Self	Lrg.	Lemon	Smooth	Maroon	Good	Good	An attractive flower, but surpassed by more recent introductions.
PEACEMAKER.....	Turner	1877	Gy. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A highly-finished flower of medium size.
PERFECTION.....	Bone	—	Gy. E.	Med.	Lemon	Starry	Purple	Fair	Mod.	Attractive, but wanting in proportions.
PEVERIL OF THE PEAK.....	Walker	—	Gy. E.	Med.	Yellow	Smooth	Black	Good	Good	A distinct and desirable variety.
PILAR OF BEAUTY.....	Hughes	1821	W. E.	Lrg.	Lemon	Irreglr.	Black	Fair	Good	Effective, but wanting in refinement.
PIZZARRO.....	Campbell	1858	Self	Lrg.	Orange	Smooth	Maroon	Exlnt.	Good	One of the finest of its class; invaluable to growers for exhibition.
PRINCE ALBERT.....	Dickson	—	Gn. E.	Med.	Yellow	Irreglr.	Purple	Fair	Good	A showy and inferior flower.
PRINCE ALBERT.....	Lewin	—	W. E.	Med.	Pa. Yel.	Smooth	Plum	Good	Mod.	A nicely-formed and pleasing flower.
PRINCE ALBERT.....	Lowe	—	Gn. E.	Sml.	Yellow	Smooth	Purple	Good	Mod.	Of good shape, but too small.
PRINCE ALFRED.....	Turner	1864	Self	Lrg.	Yellow	Starry	Maroon	Poor	Good	Showy in colour; rough.
PRINCE OF GREEN EDGES.....	Trall	—	Gn. E.	Lrg.	Pa. Yel.	Smooth	Maroon	Exlnt.	Good	Weak in the tube, otherwise first-class.
PRINCE OF WALES.....	Ashton	1851	Gn. E.	Med.	Yellow	Smooth	Maroon	Good	Mod.	A well-proportioned flower of medium size.
PRINCESS CHRISTIAN.....	Turner	1871	Gy. E.	Lrg.	Yellow	Smooth	Purple	Good	Good	A beautiful variety, smooth and well proportioned.
PRINCESS OF WALES.....	Turner	1863	Self	Lrg.	Lemon	Smooth	Purple	Good	Strong	An attractive flower of fine quality.
PRIVATEER.....	Grimes	1785	Gy. E.	Med.	Yellow	Smooth	Purple	Good	Free	A pleasing flower when in good condition.
PURPLE KING.....	Butcher	1868	Self	Lrg.	Yellow	Smooth	Puce	Fair	Mod.	Attractive and of fairly good form.
QUEEN'S COBBLER.....	Smith	—	Gn. E.	Med.	Yellow	Smooth	Plum	Fair	Weak	Flowers angular and the growth weak.
QUEEN VICTORIA.....	Kent	—	Gy. E.	Med.	Orange	Smooth	Maroon	Fair	Mod.	Moderately good in form, but wanting in character.
REGULAR.....	Ashworth	1841	W. E.	Sml.	Yellow	Smooth	Chstnt.	Good	Mod.	Pleasing and well finished.

A CATALOGUE OF 280 SHOW AURICULAS—continued.

NAME.	RAISER.	YEAR.	CLASS.	SIZE.	TUBE.	PASTE.	GROUND.	SHAPE.	HABIT.	GENERAL REMARKS.
REGULATOR.....	Pott	1831	W. E.	Med.	Yellow	Irreglr.	Chstnt.	Fair	Good	Fairly good, but wanting in finish.
REVENGE.....	Thompson	1841	Gy. E.	Lrg.	Orange	Smooth	Maroon	Good	Med.	Difficult to propagate, and soon run out.
REV. J. BRAMHALL.....	Turner	1864	Gn. E.	Sml.	Pa. Yel.	Smooth	Maroon	Good	Mod.	Neat, but too small.
REV. G. JEANS.....	Truill	1860	Gy. E.	Med.	Yellow	Smooth	Maroon	Fair	Mod.	A medium-sized second-rate flower.
REV. F. TYMONS.....	Dean	1880	Gy. E.	Med.	Yellow	Smooth	Black	Good	Good	Of medium size; well proportioned.
RICHARD CORDEN.....	Smith	1860	Gn. E.	Lrg.	Yellow	Smooth	Purple	Good	Strong	Free in growth and effective; not well finished.
RICHARD HEADLY.....	Lightbody	1851	Gy. E.	Lrg.	Dp. Yel.	Smooth	Black	Sprb.	Good	Distinct and of good quality.
RIFLEMAN.....	Turner	1861	Self	Med.	Yellow	Circlr.	Mulbry.	Good	Mod.	Effective; hardly up to the mark in form.
RINGDOVE.....	Horner	1879	Self	Med.	Yellow	Smooth	Violet	Exhnt.	Good	One of the most perfectly formed of the selfs.
RINGLEADER.....	Kenyon	1821	Gy. E.	Med.	Yellow	Smooth	Black	Good	Mod.	Somewhat cupped; took eighteen first prizes in 1831.
ROBERT BURNS.....	Campbell	1841	W. E.	Med.	Yellow	Smooth	Violet	Good	Neat.	Pleasing in colour; rather irregular.
ROBERT TRAILL.....	Lightbody	—	Gy. E.	Lrg.	Lemon	Smooth	Maroon	Good	Rob.	A useful flower of fine form.
ROBIN HOOD.....	Hepworth	—	Gn. E.	Lrg.	Yellow	Smooth	Chstnt.	Good	Strong	A medium-sized, well-finished flower.
ROB ROY.....	Dean	1880	Gn. E.	Med.	Yellow	Smooth	Maroon	Good	Good	A well-formed flower; rather small.
RULE ALL.....	Ashworth	1821	W. E.	Med.	Yellow	Smooth	Maroon	Good	Good	Fine in quality, but inconstant.
RULER OF ENGLAND.....	Pollitt	1831	Gn. E.	Med.	Yellow	Smooth	Purple	Good	Good	A fine bold flower and heavy truss.
SARAH.....	Turner	1877	Self	Lrg.	Yellow	Circlr.	Claret	Good	Good	A large and showy flower of good quality.
SELINA.....	Horner	1881	Self	Lrg.	Yellow	Smooth	Maroon	Good	Good	A finely-formed and attractively-coloured flower.
SILVIA.....	Douglas	1878	Gy. E.	Med.	Yellow	Smooth	Purple	Good	Good	A pleasing flower of good quality.
SIR COLIN CAMPBELL.....	Lightbody	1857	Self	Lrg.	Yellow	Smooth	Crimson	Good	Mod.	An attractively-coloured flower of good quality.
SIR HENRY HAVELOCK.....	Jeffrey	—	Gy. E.	Lrg.	Orange	Smooth	Black	Fair	Good	Effective when in good condition, but rough at the edge.
SIR J. MOORE.....	Lightbody	1845	Gn. E.	Lrg.	Yellow	Starry	Purple	Irreglr.	Strong	Large; third-rate.
SIR CHARLES NAPIER.....	Lightbody	1853	Gy. E.	Lrg.	Orange	Smooth	Black	Good	Free	Large, effective, and well finished.
SIR ISAAC NEWTON.....	Storey	—	Gn. E.	Med.	Yellow	Smooth	Maroon	Good	Mod.	Fairly good in form; colours not well defined.
SIR ROBERT PEEL.....	Finlayson	—	Gy. E.	Lrg.	Orange	Starry	Chstnt.	Poor	Strong	Strong in growth and coarse in appearance.
SMILING BEAUTY.....	Heap	—	W. E.	Lrg.	Yellow	Smooth	Black	Exhnt.	Strong	A beautiful variety, occupying a high position in its class.
SNOWDRIFT.....	Horner	1881	W. E.	Lrg.	Yellow	Smooth	Maroon	Sprb.	Good	A magnificent flower, which bids fair to take a high position.
SOPHIA.....	Chapman	—	Gy. E.	Med.	Lt. Yel.	Smooth	Purple	Good	Mod.	Very beautiful, but the ground runs slightly into the edge.
SOPHIA DUMARESCUE.....	Lightbody	—	W. E.	Med.	Yellow	Smooth	Violet	Good	Mod.	A neat flower; the growth rather weak.
SPLENDOUR.....	Headly	—	Gy. E.	Lrg.	Orange	Smooth	Plum	Fair	Good	A showy flower: in quality much below the average of this raiser.
SQUIRE CHILMAN.....	Wilmer	—	Gy. E.	Lrg.	Yellow	Smooth	Plum	Good	Good	Fairly good in quality and effective when in perfection.
SQUIRE SMITH.....	Chapman	—	Self	Sml.	Orange	Starry	Maroon	Poor	Strong	A small flower with no good point.
STADTHOLDER.....	Gorton	1785	Self	Med.	Yellow	Starry	Yellow	Fair	Good	Washy in colour and wanting in substance.
STANDARD OF ENGLAND.....	Pollitt	1831	Gn. E.	Med.	Yellow	Smooth	Purple	Good	Good	A fine flower and bold truss.
STAPLEFORD HERO.....	Headly	—	Gy. E.	Med.	Yellow	Irreglr.	Purple	Good	Good	In the way of Mary Ann, but less refined.
STAR OF BETHLEHEM.....	Lightbody	1851	Gn. E.	Lrg.	Yellow	Smooth	Purple	Good	Strong	A bold flower, with a tendency to coarseness.
SULTANA.....	Turner	—	Self	Lrg.	Yellow	Smooth	Maroon	Good	Free	An attractive flower of splendid quality.
SYBIL.....	Horner	1881	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	An effective and well-finished flower.
SUNSHINE.....	Horner	1881	Self	Lrg.	Pa. Yel.	Circlr.	Yellow	Good	Good	One of the best of the yellow selfs.
SUPERB.....	Headly	—	Gy. E.	Lrg.	Dp. Yel.	Smooth	Purple	Good	Good	A beautiful flower, but too much like Conqueror of Europe.
SUPERINTENDENT.....	Mattley	1860	Gn. E.	Lrg.	Yellow	Smooth	Violet	Good	Small	A small-growing variety of good quality.
SURPASS BLUCHER.....	Willison	1850	Gn. E.	Lrg.	Pa. Yel.	Circlr.	Purple	Good	Good	Effective, but wanting in form.
SURPRISE.....	Buckley	—	Gy. E.	Sml.	Lemon	Smooth	Plum	Irreglr.	Mod.	Irregular in form, and of no particular merit.
TALISMAN.....	Simonite	1877	Gn. E.	Lrg.	Yellow	Smooth	Black	Good	Strong	A high-class flower of attractive appearance.
THEBIS.....	Horner	1880	Gy. E.	Med.	Yellow	Smooth	Black	Good	Good	A pleasing flower of medium size.
THE BRIDE.....	Butcher	1870	Gy. E.	Med.	Yellow	Smooth	Maroon	Fair	Mod.	A brightly-coloured second-rate flower.
THE WARRIOR.....	Butcher	1870	Self	Med.	Yellow	Smooth	Maroon	Poor	Good	Showy in colour, but poor in quality.
TIDY.....	Bradshaw	—	W. E.	Med.	Yellow	Smooth	Blue	Fair	Good	Nicely proportioned, but wanting in size.
TOPSY.....	Kay	—	Self	Lrg.	Yellow	Smooth	Violet	Good	Good	A pleasing flower of average merit.
TRAFALGAR.....	Partington	1821	Gn. E.	Med.	Yellow	Circlr.	Black	Good	Good	A neat flower, of second-rate quality.
TRUE BLUE.....	Whittaker	1821	Self	Sml.	Pa. Yel.	Smooth	Blue	Fair	Weak	Bright in colour, small and weakly.
TRUE BRITON.....	Hepworth	1851	W. E.	Lrg.	Orange	Smooth	Purple	Good	Strong	A useful flower of good constitution and quality.
UNION.....	Warris	—	Gy. E.	Med.	Orange	Smooth	Black	Poor	Mod.	Inferior, and wanting in distinctness.
UNIQUE.....	Dickson	—	Gy. E.	Sml.	Yellow	Smooth	Violet	Good	Good	Pleasing, but too small.
UNIQUE.....	M'Lean	—	Gy. E.	Lrg.	Orange	Smooth	Violet	Mod.	Good	A bold handsome flower, the pip rather crumply.
VICTORY.....	Taylor	1821	Gn. E.	Lrg.	Yellow	Smooth	Maroon	Mod.	Good	Fine for quality and long in favour.
VILLAGE BRIDE.....	Holland	1861	Gy. E.	Med.	Orange	Smooth	Violet	Fair	Good	Angular and second-rate.
VIOLET.....	Moore	—	Gn. E.	Med.	Lemon	Smooth	Violet	Good	Mod.	A well-formed flower wanting in substance.
VOLUNTEER.....	Turner	1860	Self	Med.	Pa. Yel.	Irreglr.	Purple	Fair	Mod.	Attractive; inferior in quality.
VULCAN.....	Sim	—	Self	Lrg.	Yellow	Starry	Maroon	Fair	Free	Rather large with a tendency to coarseness.
WATER LILY.....	Horner	1881	W. E.	Lrg.	Orange	Smooth	Black	Exhnt.	Good	A beautiful and superbly-finished flower.
WATERLOO.....	Hogg	—	Gn. E.	Med.	Yellow	Starry	Plum	Fair	Mod.	Second rate and in no way remarkable.
WATERLOO.....	Eider	1821	Gn. E.	Med.	Yellow	Smooth	Maroon	Fair	Mod.	Small and poor.
WATERLOO.....	Smith	—	Gn. E.	Lrg.	Pa. Yel.	Irreglr.	Violet	Good	Strong	Free in growth, effective, and of good quality.
WAVERLEY.....	Walker	—	Gn. E.	Med.	Yellow	Irreglr.	Maroon	Fair	Mod.	An old variety which now finds but little favour with growers.
WEBSTER.....	Turner	1864	Self	Med.	Yellow	Smooth	Maroon	Fair	Mod.	In the way of Othello, to which it is inferior.
WHITE RIVAL.....	Truill	—	W. E.	Lrg.	Yellow	Starry	Purple	Fair	Free	Rough and ill-proportioned.
WILLIAM BRADSHAW.....	Simonite	1877	Gy. E.	Lrg.	Yellow	Smooth	Maroon	Good	Good	A telling flower of high finish.
WILLIAM RULE.....	Kidd	—	Self	Med.	Lemon	Smooth	Blue	Fair	Mod.	Bright and pleasing, but rather starry.

Calls at Nurseries.

FLORISTS' FLOWERS AT SLOUGH.

ALL classes of florists' flowers are grown so extensively and well at the Royal Nurseries, Slough, that visitors who derive but little pleasure from an inspection of the ordinary occupants of a nursery find at all times plenty to interest and afford matter for critical discussion. At the present moment the subjects which contribute most to the attractions of the nurseries are the azaleas, the herbaceous calceolarias, the cinerarias, the tree carnations, the fancy pelargoniums, the pot roses, and the auriculas; and of those the last-mentioned are perhaps the most important. The auriculas certainly form the largest trade collection in the United Kingdom; in no other collection are they grown with a greater degree of success, as so abundantly testified by the high position invariably occupied by Mr. Turner in the most severe competition, and the majority of the varieties are in the finest possible condition. When we saw them a few days previous to the exhibition at South Kensington, the hundreds of splendid specimens in bloom with which the extensive ranges of frames were filled were well able to show what a wealth of beauty there is in auriculas, and to produce an impression not readily removed.

The report of the Southern exhibition of the National Auricula Society at South Kensington on Tuesday last will render it unnecessary to speak of the show auriculas in detail. In a collection so extensive all the varieties in commerce possessing more or less merit are, as a matter of course, well represented; but it cannot be added in every instance by large stocks, for owing to the increasing popularity of these flowers the demand has become so great that in the case of some of the show flowers it has been a work of extreme difficulty to keep pace with demand. We made note of Turner's Clipper and Turner's Omega, two superb new flowers, as specially worthy the attention of cultivators. The first-mentioned is a splendid dark self, and the other a beautiful white-edged flower, and both have a free habit, so

that no difficulty is likely to arise in their cultivation. Mention must be made also of Turner's Mrs. Brown, a magnificent grey-edged flower, which will probably attain to the highest position in its class. The flowers are of very large size, the colours well proportioned, and both edge and paste are as smooth as could be desired, the truss is exceptionally good, and the growth is robust. As this is the second season of its flowering, some years must necessarily elapse before it can be sent out. The free-growing alpine has had much attention paid to them at Slough, and with but two or three exceptions all the best varieties in cultivation have been raised by Mr. Turner. These are especially well suited to beginners in the cultivation of auriculas, for they are comparatively cheap and of very free growth, and if not equal in beauty to the finest of the show flowers they are exceedingly attractive, and afford an ample return for the little trouble occasioned in their management. The new varieties being distributed this season include John Ball, a superb crimson flower with rich yellow paste; Mrs. Dodwell, a beautiful shaded variety; Mrs. Llewelyn, deep purple-maroon shading to violet; Mrs. Thomson, bright crimson, the paste deep yellow; Philip Frost, purple shaded, the paste white and circular; Sensation, maroon shading to crimson; Sultan, crimson, the paste rich yellow; Thomas Moore, very dark maroon, and William Bragg, deep maroon. The whole of the varieties have flowers of large size and are remarkable for their finish, and produce bold well-proportioned trusses. Amongst the older varieties of a special degree of excellence are Bronze Queen, Fred Copeland, John Leech, King of the Belgians, Mercury, Napoleon III., Percival, Prima Donna, Sanspareil, Slough Rival, Spangle, Sydney, Topaz, and William Fowle.

Increased attention has been paid of late years to the tree or perpetual carnations, which have long formed a strong feature, and there are now three or four large structures devoted to the plants in bloom. They comprise about a dozen new flowers, offered for the first time this season, all the best of the older kinds, and a large number of seedlings, chiefly of the most splendid character. Particularly noteworthy amongst the new flowers were Amazon, yellowish buff edged with scarlet; Coomassie, buff edged and

striped with red; Firefly, brilliant scarlet, a large and telling flower; Heather Bell, delicate pink, the petals elegantly fringed; Meteor, scarlet, free and fine; Mrs. George Hawtry, bright yellow self, a flower of great merit; Mrs. Maclaren, crimson bizarre, a large and exceedingly beautiful flower; Reverse, scarlet, occasionally striped, very attractive, and Worthington G. Smith, deep scarlet, a striking flower of fine quality. Rose Perfection, bright rose, and The Queen, pure white, are of the older varieties deserving of special mention, the last-mentioned specially so, for the flowers are of large size, very smooth, pure white, and produced in great abundance. It is probably the finest of the white tree carnations, and cannot be too strongly recommended to those who have to meet a large demand for cut flowers during the winter and spring months.

The pelargonium houses are now rapidly becoming bright and attractive with the flowers of the fancy varieties, which this season include half a dozen novelties of a most meritorious character. These have been raised by Mr. Turner, and their names and colours are as follow: Mrs. Beck, top petals lake, lower petals rose, centre white; Mrs. Douglas, rosy purple, with white centre and margin, a very effective flower; Mrs. Foster, rose-purple, light edges and centre; Mrs. Gair, crimson shaded purple margin of petal and centre pure white, dwarf in growth; Queen of the Hellenes, white, with rosy pink spots on the petals, very free and effective; and Sims Reeves, top petals maroon shading to purple at the edges, lower petals deep rose, a fine dark flower, and a decided acquisition. The show varieties include a series of ten new varieties of the current season, chiefly of Mr. Foster's raising, and when it is said that the majority have been certificated, it will be understood that they are not less worthy of attention than the fancies.

Amongst the azaleas, which are now producing a brilliant display, are a considerable number of very fine varieties, which deserve to be better known amongst the general body of cultivators. These are, for example, Madame de Grévé, an attractive variety, for which Mr. Little was awarded a floricultural certificate at the March exhibition of the Royal Botanic Society. The flowers are of full size and of a deep rose colour, with white margin and spotted with white; Empress of India, a splendid variety, the flowers semi-double and of a bright rosy salmon with white margin; Louise Pynaert, double white, very fine in quality, and Madaline, a superb semi-double pure white flower. The houses devoted to pot roses present just now, a very attractive appearance, and the fine strains of cinerarias and herbaceous calceolarias show that great care and judgment are exercised in the saving of seed, for in both we have flowers rich in colouring, large in size, and high in quality.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

As the pits and greenhouses are cleared of the plants intended for the decoration of the flower garden during the summer season, they should be devoted to the preparation of stocks of such subjects as are of special value for the embellishment of the conservatory during July and the two following months. In many gardens the conservatory is but sparingly furnished with flowering plants after the azaleas and show and fancy pelargoniums are past their best, in consequence of no steps being taken early in the year to provide suitable plants for succeeding these subjects. It is of course of but little use to cast about for plants to succeed the pelargoniums when the latter are going out of bloom. A beginning must be made now in the work of preparation, and the gradual emptying of the frames will enable the cultivator to afford additional space for the respective subjects brought into requisition as they increase in size. There are some plants of immense value for the decoration of the conservatory in the months referred to that require several years' growth before they are of much value, and when large enough may be had in bloom without being subjected to any special preparation. To these no allusion will on the present occasion be made, as I am writing these notes for the purpose of pointing out a few subjects that can be raised in large numbers in a comparatively short space of time and with but little trouble. We sometimes hear of amateurs being advised to pot up for the conservatory bedding plants that may have been left over after the beds have been cleared, but the advice is not good. There are a few things which may be grown in the beds, and be had in the conservatory at the same time—the abutilons for example; but speaking in a general way, we do not want precisely the same plants under glass as are to be found in plenty in the beds outside. With these preliminary remarks I will proceed to point out a few subjects of special merit.

ABUTILONS.

The dwarf-growing abutilons, of which a large number of excellent varieties have been introduced within the last few years, form a most valuable group for the decoration of the conservatory. They are neat in growth, require but little stopping or training, and are very free and continuous in blooming. Indeed, with the assistance of liquid manure, or occasional top-dressings of Clay's Fertilizer, they will continue in bloom from the time they are taken to the conservatory in July until the autumn. With but little more warmth than that afforded by the conservatory the same plants will continue in bloom throughout the winter. Cuttings of the side shoots may be struck in the spring as freely as fuchsia cuttings if they can have the aid of a little bottom heat. In the autumn cuttings of half-ripened wood will strike readily in a frame. Those who have no stock should put at once thrifty examples in three-inch pots, and the following six would form a nice little collection, as they are perfectly distinct:—Anna Crozy, deep lilac-pink veined with white; Boule de Neige, pure white, the best of the white varieties; Darwini majus, orange-yellow veined with red; Lemoinei, bright yellow, free and fine; Firefly, bright red; Crimson Banner, bright crimson. The abutilons require a compost consisting of friable turfy loam, leaf-mould, well-rotted manure, and sharp silver sand. The drainage should be good, and the plants have liberal supplies of water and a light position near the glass.

ACHIMENES.

These are charming subjects, but unfortunately they require a higher temperature than can be afforded them in the majority of small gardens. They do well with cucumbers and melons when they are not too densely shaded, and in many gardens a few dozen pots of achimenes are grown round the sides of the melon and cucumber pits. Purchased now in three-inch pots, half a dozen plants or so in each, they will with a little care form excellent and attractive specimens by July. On receiving them from the nursery shift into five or six inch pots, filled to about one-third of their depth with small crocks, and use a compost consisting of peat, loam, and leaf-mould in about equal proportions, with a rather liberal sprinkling of sand. The following six comprise some of the best at present in cultivation:—Ambroise Verschaffelt, white with purple centre; Carl Wolfurth, purple-crimson; Diadem, magenta; Dazzle, scarlet; Longiflora major, deep blue; Mauve Perfection, deep mauve; Purpurea elegans, rich purple; Pink Perfection, rosy pink; and Sir Trehern Thomas, purple-crimson.

BEGONIAS.

The tuberous-rooted begonias are of immense value for the decoration of the conservatory when properly grown. Very frequently they are more or less injured by their being grown under a dense shade or in too high a temperature, under the impression that a glimpse of sunlight will be hurtful in its effects, and that plenty of warmth is necessary to sustain a vigorous growth. The best place in which to prepare the begonias is a pit or frame where they can have a position near the glass and enjoy a free circulation of air. Provided the ventilation is properly attended to, the most brilliant sunshine will not injure the plants; but in very bright weather a very light shade will be beneficial during the hottest part of the day. The plants should be placed within about twelve inches of the glass, and the ventilation be liberal without being excessive. From the first air should be admitted during the day, more or less according to the weather, and after the middle of May, when no danger from frost is apprehended, the frames should be ventilated moderately during the night also. A temperature ranging from 60 deg. to 65 deg. is the most suitable, and as the sun acquires power very little artificial heat will suffice to maintain a vigorous growth. They may be successfully grown in a temperature lower than that mentioned, but of course they will not make such rapid progress. The named varieties in commerce represent the pick of many thousands of seedlings, and are of course of the highest quality; but for ordinary decorative purposes selected seedlings are in every way suitable. I should certainly advise the amateur who wants his plants for flowering in the ensuing summer to purchase strong selected seedlings that were raised twelve months since. If seedlings are purchased at prices ranging from twelve to eighteen shillings per dozen strong plants with three or four shoots each will be obtained, and these may be depended upon. But if named varieties are bought worth from seven shillings and sixpence to half a guinea each the chances are that the corms will be so small as to produce not more than one or two weakly shoots each, and from plants of this description it will not be possible to produce a satisfactory display of bloom until the second year. Begonias with tuberous roots are not easy to propagate by means of cuttings, and in consequence every scrap of a shoot suitable has to be taken advantage of. I should further advise the amateur to purchase plants that are fairly started and have shoots two inches or so in length. They will probably be in small or large sixties when received, and as soon as the pots are well filled with roots shift into others five inches in diameter. The strongest should be repotted and put into six or eight inch pots as soon as more root space becomes necessary, but it is important to avoid over-potting. A good drainage is essential, and as the begonias do not root deeply the pots should be filled to about one-third of their depth with crocks. A mellow fibrous loam, to which a small proportion of sand has been added, should be used, and if the loam is not rich in fibrous matter the addition of a small proportion of peat will be desirable. Weak liquid manure alternately with clear water will be of considerable assistance after the plants reach the flowering stage. The following are some of the best of the cheaper single kinds:—Arago, François de Craeu, Emperor, Davis, Monarch, Paul Masurel, and Vesuvius of those with scarlet flowers; Camoens, Leila, Prince of Wales, and Royal Standard of the crimson varieties; Delicata, Madame Valette, Ossian Boinet, and Raphael de Smet of those with rose-coloured flowers; Queen of Buffs, James Duncan, Lady Emily, and Pearcei Improved of the yellow and buff coloured flowers.

COLEUS.

Unless well grown, the coleus have a weedy and decidedly unsatisfactory appearance, and as good cultivation consists chiefly in keeping them near the glass, and maintaining a free circulation of air about them, there is not much difficulty in having them in the best possible condition. No plants strike more freely from cuttings than the coleus, and with an old plant of each variety to cut from a large stock may be readily obtained. Short-jointed side shoots should be selected for cuttings, and after they are inserted, singly or several together, they should be placed in the cucumber frame or melon pit, where they can remain until struck. Pot off separately, and when well rooted shift from the sixties into six-inch pots, which will be quite large enough for all but exhibition specimens. Use a rather light and sandy compost, and place near the glass, and fully expose to the sunlight. As they quickly grow out of shape, and lose their rich colours when placed in a much shaded conservatory, it is a good plan to start two or three batches to form a succession. If a stock has to be purchased, select thrifty plants and take off the tops and strike

them to form a successional batch. The whole of the plants will require stopping two or three times, but, generally speaking, twice will suffice. The six finest varieties in general cultivation are—George Simpson, Mrs. George Simpson, Conrad Rosenthal, Mrs. Knatchbull-Hugessen, John Benary, and Royal Purple; but there are many others of great excellence.

FUCHSIAS.

Fuchsias must of necessity be largely employed in the decoration of the conservatory throughout the summer, and special attention should be paid to them. There is so much difference in the habit and constitution of the many varieties in cultivation that I would advise the amateur to pay more regard to varieties robust in growth than to those having flowers remarkable for perfection of form. The varieties I should specially recommend for the conservatory, whether the construction is of large or small size, are—Ethel, Aurora superba, Polyhymnia, White Souvenir de Chiswick, Beauty of Trowbridge, Lord Falmouth, Marginata, Swanley Gem, Prince Alfred, Miss Lucy Finnis, Blushing Bride, Albert Memorial, James Lye, Royal Standard, and President. A beginning should be made with strong plants in sixties, and these should be shifted into six-inch pots, which will be large enough to carry them through the season, provided they have liquid manure occasionally, or two or three top dressings of Clay's Fertilizer, the latter being the most preferable, as the use of strong-smelling liquids in the conservatory is not desirable. The Fertilizer is spread over the surface at the rate of a dessert spoonful to each pot, and lightly pricked into the soil with a pointed stick. The plants should have a rich compost, and when first potted be kept rather warm and close, but when well established the ventilation should be free and the shading light, as when the growth is firm and short-jointed they stand better in the conservatory. Syringing overhead once or twice a-day will be beneficial until they are coming into bloom.

PLUMBAGO CAPENSIS.

The bright blue flowers of this fine old plant are so eminently attractive that an effort should be made to have half a dozen or so of good examples. As generally met with, this plumbago presents a wretched half-starved appearance, but with ordinary care it may be had with an abundance of leafage of the richest green and bearing a profusion of trusses of its lovely flowers. It thrives under precisely the same conditions as the fuchsias. Large specimens are very effective when well flowered, but the most useful examples are those of medium size, occupying pots five or six inches in diameter.

ZONAL PELARGONIUMS.

The zonals make a most brilliant display, and when varieties are selected to represent the several lines of colour they present an exceedingly pleasing appearance. To have a good display of bloom from the end of June onwards it is simply necessary to select thrifty plants in three-inch pots and shift them into others two sizes larger. Use a compost consisting of rich friable loam three parts and well-rotted manure one part, and provide sufficient drainage to carry off the superfluous moisture without delay. After the potting place in a pit or frame near the glass, ventilate freely, and after they are well established supply liberally with water. The best place for the zonal pelargoniums is perhaps a rather shallow frame in which the pots can be stood upon a bed of coal-ashes without the plants being far removed from the glass. The shoots should be stopped two or three times to encourage the production of a moderate number of side shoots, and two or three short sticks may be required by each plant for the regulation of the growth. Beyond this no training will be required. From eighteen to twenty-four varieties should be grown to ensure a good variety of colouring, and of those obtainable at a comparatively cheap rate the following are of special merit: Double—F. V. Raspail, Sergeant Hoff, Emile de Girardin, Madame F. Desbois, J. C. Rodbard, M. Pasteur, Henri Cannell, Victor Hugo, Nympe, Pioneer, and Enehanting; Single—Mrs. Patchitt, Atala, Correggio, Burns, Tom Bowling, Eva, Mrs. Davidson, Miss Hamilton, Remus, Sophia Birkin, Laura Strachan, Mrs. Strutt, Lady Sheffield, Lady Bailey, Lucy Bosworth, White Clipper, T. Schuier, Apple Blossom, Alice Spencer, and Henry Jacoby.

PETUNIAS.

Double and single petunias are useful for the variety they afford, but a few good examples will suffice. Seedlings raised from a good strain will answer every purpose, and in some respects are preferable to plants raised from cuttings, because of their greater vigour of growth. They should be grown in much the same manner as the fuchsias.

WOODS, FORESTS, AND LAND REVENUES.—The abstract accounts of the Commissioners of Her Majesty's Woods, Forests, and Land Revenues for the year ended March 31, 1881, which have been issued as a Parliamentary paper, show that the total receipts in cash on account of the capital of the Land Revenue were £217,113, and that at the end of the year a balance of £47,868 in cash and £128,183 in stock and other securities was carried forward, and that the total receipts in cash on account of the income of the Land Revenue were £491,176, and that at the end of the year a balance of £9,990 in cash and £2,479 in securities was carried forward. The general abstract shows a total receipt in cash on all accounts of £726,212, and that at the end of the year a balance of £75,232 in cash and £148,662 in securities was carried forward.

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AN ENGLISH GARDEN.

At the top of the old high street of Homburg leading up to the Schloss there is a gateway of beautiful hammered iron-work, through which any visitor can pass into the old-fashioned grounds that surround the Castle. You wander through the garden, past the fountain, across the little bridge over the lake, and then under the plum trees of the orchard, till a wicket-gate takes you out on the high road that, lined with enormous poplars, leads straight away apparently up to the summit of the Taunus range. But, at one side of the dusty road, another wicket gives access to some grounds beautifully laid out and well known in Homburg, and known there, too, for several generations, as "The English Garden." It is laid out in the formal style of the past century, with walks and grottoes and alleys, planted thick with shrubs and old-fashioned flowers, and evidently planned at a time when our modern system of gardening, which reduces everything to geometric precision and apportions colours, with the regularity of a piece of floor-cloth, had yet fortunately not become fashionable. If we might apply to a piece of cultivated ground a term strictly belonging to the language of the architect you would at once set down this garden as "Early English." Hundreds of the habitués of Homburg who wandered last year under its trellised vines will learn with regret that by the next time they visit the little place the grounds will have passed into other hands, the wicket-gate will be closed, and the English Garden will have become a tradition. There are spots on the Continent—and it was one of them—that a Briton regards as part of his own country. There is an English quarter in Paris, and in Rome, in Florence and in Dresden; and it is questionable whether Queen Mary's subjects in the sixteenth century ever had so beneficial an interest in Calais as in this nineteenth Queen Victoria's have in Boulogne.

This English Garden at Homburg had a history of its own. You pass through the courtyard of the Schloss, with its great white watch tower, seen for miles all round, on your way to the little wicket-gate. In the Schloss lived the Landgrave—a bankrupt kind of Prince, whose revenue in the year 1853 was 374,000 florins and whose expenditure in the same year was 377,000. One thinks of Mr. Micawber's gloomy experience of outlay in excess of income, with its result of misery and ruin. The Landgrave was not then backed up by the gaming-tables, nor had the late owner of Monaco come on the scene to save him from utter despair. When Thackeray was at Homburg he went over the old Schloss. He was shown the apartments of the English Princess whose life was spent in that scene of faded feudal splendour. She was one of the fifteen children of our George III., and late in life—that is, at the mature age of forty-eight—married the Landgrave, and transferred her Royal rank and her English fortune to the capital of the Principality. They showed you up in the Schloss the rooms she occupied, the books she used to read, her English-made furniture and the portraits of her Royal brothers of England. Thackeray saw an old clock hanging on the wall of her bedroom and noted the name of the Windsor maker on its face. She died childless in 1840, the year before M. Blanc set up his gaming tables, having survived her husband about ten years. The English Garden was of her planting and laying out. Neither railway nor roulette had as yet rolled their great wheels into the quiet little town, and changed its stately somnolence into the bustle of trade and frivolity. Even now, when M. Blanc and his doings are but legends of the place, there still remains a tradition of the English Princess whose small wealth probably kept the Castle in repair and paid for the salaries of the chamberlains.

A few years ago a dealer in old curiosities used to exhibit in his window priceless bits of Frankenthal or Höchst "from the collection of the Princess Elizabeth." That was at the time when the revolution of the wheel might turn rouleaux of gold into the pocket of some lucky connoisseur, who would be forthwith tempted to pay an extravagant price for a local reminiscence. Since M. Blanc carried off his army of croupiers to the Mediterranean the curiosity shop has been replaced by a pastrycook's, who does a brisker trade in a less permanent commodity. It is now some years since the Princess Elizabeth's china might be bargained for or bought; but the English Garden stands, or at least till very lately. Who shall say how it was that the great gambling chief came to his get ownership over those cultivated grounds? Thackeray tells how one German Prince agreed to sell M. Blanc a famous collection of orange trees, and having made over the property, received the purchase money. Before he left, the Prince took a stroll through the rooms, ventured a little of his newly gotten capital, and soon lost everything. The trees have flourished since, and on a summer afternoon you may drink your coffee under the shade of them. Our English Princess died in 1840, and at that time neither the wells nor the tables of Homburg had been opened. It was long afterwards M. Blanc acquired the land, and the arrangement which shut up his rooms and compensated him for their loss in no way interfered with his title to them. The English Garden, after his death, belonged to his widow, who set up in the midst of it a monument to recall the memory of the dynasty that has become extinct. It was a gracious act, though there was a strange irony in that turn of the wheel of fortune which allowed the wife of the keeper of a French gaming-house to record the memory of the husband of an English Princess. During M. Blanc's life the English Garden was kept and cared for. The flower-beds were laid out in their old formal style. The hedges were cut close, the vines trimmed, the garden paths rolled. The pervasive Englishman almost felt himself at home. The sentimental traveller could believe that the old Landgrave yet flourished—if a condition very like withering deserved that term—and the imaginative traveller found himself, as Thackeray did when he visited the place thirty years ago, in the fabled garden of the Sleeping Beauty. So the place has been for half a century, and so one might imagine it might remain for centuries to come. But the death of M. Blanc has broken up the old conditions. The English Garden at Homburg has followed the fate of other "eligible freehold properties," and when in a few months the tide of our compatriots leave the Thames for the Rhine, and are brought from Frankfurt to Homburg by the slowest, dearest, and dirtiest railway in Europe, they will miss an old attraction, and find that they have lost a familiar haunt.—*Fall Mall Gazette.*

WHO WOULD BE WITHOUT LAMPOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPOUGH, 113, Holborn, London.—[ADVT.]

HYBRID NARCISSI.

THE immense number of these now flowering offer a striking commentary on remarks recently made in these pages on the possibility of freely crossing the more marked of the species. And not less striking are the indications they afford of their parentage—or we should say *apparent* indications, for we might commit ourselves to grave errors in assuming lines of descent from outward features only, although nature is steadfast, and types are persistent. Amongst many of the hybrid forms noted in Mr. Barr's collections, two that are here figured have attracted attention as particularly pleasing and useful as garden flowers. *Narcissus Burbidgei grandiflora* is the boldest of its section, with the leading characteristics of *N. poeticus* strongly marked, and more or less exaggerated, more especially in the prominent cup. But this bold form is never wanting in elegance, the side view of the flower displaying the long slender tube, and slightly swollen ovary in a very pleasing manner. All the "Leedsi" section



NARCISSUS BURBIDGEI GRANDIFLORUS.

have silvery cups, but the most silvery and delicate is *Leedsii argentea*, a true half-way house between *incomparabilis* and *Poeticus*, and a gem for cutting for bouquets and decorations.

NARCISSUS.

THE SINGLE KERRIA JAPONICA.

THE beauties of the double kerria are well known, and Mr. McIntosh has twice exhibited at South Kensington his fine large-flowering variety, with globular flowers of the most brilliant gold-yellow colour. The single kerria is known to but few, although it deserves to be universally grown and admired. It is a quite spirea-like shrub, with bright green ovate serrated leaves and very pretty yellow flowers, which consist of five broadish ligulate petals held in a green calyx with short segments. This plant was obtained from China by Mr. Reeves long after the double variety had become popular, and it was first flowered in the Chelsea Botanic Garden. It was figured in Sweet's "British Flower Garden," second series, iv., 337. The kerria is sometimes classed under *corchorus*, which is an error. The kerrias are rosaceous plants allied to *spirea*; the *corchorus* are *tiliaceus*, and one of them produces jute.

THE LOASA.

IN running after new plants we turn our backs upon old ones. We may at times do this with advantage; but we are apt to think we can always do it with advantage; and thus the passion for novelties may at times prove disastrous to our plant collections, which, as a rule, should consist of good things only. Many a long year has passed since I have seen anywhere except in my own place specimens of loasas. When visiting the Manchester Whitsun Show, some years ago, I saw in one of the conservatories some grand specimens of *schizanthus*, and I thought here surely I shall also find specimen loasas. But there was not one in the place. As climbing plants they are eminently useful for flowering in the greenhouse or on trellises in the open, and they are fine as "wild bedders;" that is, if left to run into a mere mat in a sunny position they flower freely and present a splendid appearance. Being soft in texture and of quick growth, they require somewhat careful treatment, and liberal culture alone will repay. They may be treated as annuals or biennials, and as they are decidedly tender they are of little use unless forwarded under glass for planting out, so as to have them in flower early. I grow many such plants into specimen form for adorning the conservatory during summer, and *Loasa pentlandica* is one of the best of them. The seed is sown in August, and the plants are kept slowly growing all the winter in an intermediate house. When potted into their flowering pots they are carefully trained out on light trellises, and



NARCISSUS LEEDSI ARGENTUS.

being well fed, and kept in the sunniest place that can be found for them, they make rich diffuse specimens with elegant rustic leafage and brilliant crimson flowers.

Another and much more free-growing species, well adapted for a pillar, is *Loasa lateritia*, which quickly runs to twenty feet or more. It is extremely elegant, and peculiar in both leaves and flowers, the former deeply divided and fern-like, the latter borne on long peduncles, and showing curious shades of scarlet and buff. This, like the last, may be planted out for summer flowering.

A hybrid between the two above named was obtained some years ago, and was called *Loasa Herberti*. It combines the characters of both in a very interesting manner, and is in truth a splendid plant. This is only to be secured from cuttings, and it may be proper to note that the others can be grown from cuttings as well as from seeds, and when intended for a bed plants obtained from cuttings are to be preferred.

The cultivator of loasas must be careful of his hands, for contact with the leaves causes an unpleasant stinging sensation. I have never known any harm result from this, but no one likes pain, and the wearing of gloves when handling the plants will prevent the unpleasant experience.

W. B.

THE EARLY-LEAFING HORSE-CHESTNUT, reported on by our old friend Mr. George Rawlings, was, by an error on our part, classed with trees leafing on the 14th of March. But our correspondent writes to say that the date of its leafing was February 3. Mr. Rawlings has settled at Bigsnp, Bigsweir, Colford, near Monmouth, and will be glad to receive trade catalogues and such other trifles as a veteran horticulturist may derive information and entertainment from.

ASPARAGUS CULTURE.

By JOSEPH MACDONALD.

THE winters of 1879-80 and 1880-81 proved in a very conclusive manner that when asparagus is planted in a badly-drained soil it is more liable to injury from severe weather than it is sometimes supposed to be. There are many gardens in which large plantations were seriously injured by the frost, or by frost and wet combined. In the formation of new beds it is therefore necessary to bear this fact in mind, and that where the soil is heavy and insufficiently drained suitable drainage materials must be placed beneath the roots, and a means of escape provided for any surplus water that may accumulate. There are doubtless plenty of gardens in which any preparation in the way of drainage is unnecessary, but it is our duty to point out that asparagus suffers more or less in severe winters when the soil about

bring it into a suitable condition, but it is a rather costly affair. In very light sandy soils the addition to the staple of a few cartloads of loam, according to the space to be planted, will be very advantageous to the plants. In this and in all other cases there must be a liberal supply of good farmyard manure, as well as any other additions, and it is necessary that a great proportion of it be placed at least one foot beneath the surface, because after the beds are once planted there is no means of supplying any manure to the roots in the bottom of the bed. The remainder of the manure should be incorporated with the soil at various depths. When practicable, the preparation of new beds should take place in the winter, to give time for the soil to settle down to its proper level.

According to my experience, asparagus may be planted at any time between the first of April and the middle of August, but probably some time before the end of May is the best. I do not like planting



LOASA PENTLANDICA.

the roots is in a water-logged state. If the spot on which the asparagus is to be grown is well drained, naturally or otherwise, so much the better, for on such a soil the asparagus will thrive best. But if it is necessary to provide drainage the soil should be taken out to a depth of two feet, and six inches of stones or brick rubble be put at the bottom of the excavation. If it is necessary, lay down a drain connecting the lowest end with the main drain, to take away any accumulation of water.

It is not often that there is any choice of soil, but where there is a deep sandy loam should be selected. In any case, it must be understood that asparagus roots deeply, and that at least eighteen inches of good soil must be provided to secure lasting results. The only soil I would care to avoid in the cultivation of asparagus is a cold stubborn clay. It is quite possible by adding lime, old mortar, and leaf-soil to

until the plants have made two or three inches of growth, and I think it better to plant when the shoots are a foot high than when they are quite dormant. Where there are no plants ready for the formation of new beds, and time is of no object, it is a good plan, and probably the best, to sow the seed in the permanent beds. But it must be stated that it will take three years for the plants to become large enough to furnish supplies; even in the third year the cutting must not extend beyond the middle of May. If the plants are to be grown in raised beds, as is generally the case, a space of five feet in width should be marked out to form the bed, which will hold three rows of plants. I am of opinion that it is desirable to have raised beds in all cases where the soil is not naturally light and well drained, as the roots are kept drier during the winter. But where asparagus can be grown on a level surface, and fine grass is expected, the seed should be sown in lines

THE EARNINGS OF THE PEOPLE have increased from £961,000,000 in 1870 to £1,156,000,000 in 1880, an increase of nearly £200,000,000, which equals nearly 6*l.* per head of the entire population. And since the annual expenditure of the people is rather less than £1,100,000,000, it follows that there is a surplus of £60,000,000 per annum to add to the accumulated wealth of the nation. What this accumulated wealth now amounts to, says a writer in *Cassell's Magazine* for April, must seem absolutely fabulous to those who have never studied the subject. It was £3,310,000,000 in 1870; it had grown to £8,960,000,000 in 1880, being an increase of £650,000,000 sterling in the short space of ten years. And yet, strange as it may appear, it is the fact that while our wealth has thus accumulated our use of gold and silver in the transaction of all this business has steadily declined. Sir John Lubbock showed some time ago that the British people now manage to transact 100*l.* of business while actually employing no more than a single half-sovereign in the coin of the realm.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—NATIONAL AURICULA SOCIETY, APRIL 25.

THE exhibition of the Southern Section of the National Auricula Society at South Kensington on Tuesday was in all but the weather a splendid success. There were more exhibitors than on any previous occasion, the competition was very keen in all the classes, and on the whole the flowers were staged in splendid condition. Owing to the mildness of the past winter, the southern growers were placed somewhat at a disadvantage, as a few of their finest flowers were past their best, but the date was the most suitable that could have been fixed for the northern growers, who on this occasion mustered in strong force. There were several new southern exhibitors, who staged very excellent collections. Novelties were numerous, and the majority were of high quality, as exemplified by the comparatively large number of first-class certificates awarded. In addition to the auriculars there was a large and attractive display of pot roses, clematis, amaryllis, tulips, and other subjects. Notwithstanding the steady downpour of rain throughout the afternoon, the large conservatory, in which the show was held, was from the commencement of Mr. Shirley Hibberd's lecture at three o'clock until the close of the exhibition well filled with visitors.

SHOW AURICULAS.—In the great class for twelve distinct varieties the Rev. F. D. Horner, Kirkby Malzeard, Ripon, was first with splendidly-developed examples of Horner's Luna, Simonite's Mrs. Douglas, Traill's Prince of Green Edges, Walker's John Simonite, Horner's Ajax, Horner's Moonlight, Horner's Heroine, Headly's George Lightbody, Horner's Erebus, Horner's Agamemnon, a grand new green-edged flower, and Horner's Excelsior. Mr. Pohlman, Halifax, was a good second, his plants being of medium size, and the flowers remarkable for high finish. His varieties were Read's Acme, Leigh's Colonel Taylor, Pohlman's Brunette, a new self of great merit; Traill's Prince of Green Edges, Kay's Alexander Meiklejohn, Pohlman's Laurel, Campbell's Confidence, Headly's George Lightbody, Pohlman's Garibaldi, Traill's Beauty, Lightbody's Sophia Dumasque, and Spalding's Blackbird. Mr. J. Woodhead, Shebden Head, Halifax, third with good examples of Leigh's Colonel Taylor, Pohlman's Ellen Lancaster, Read's Acme, Litton's Imperator, Woodhouse's Mrs. Dodwell, Woodhead's George Rudd, Woodhead's Neat and Clean, Traill's Prince of Green Edges, Headly's George Lightbody, Woodhead's Charles Turner, a grey-edged flower not, as shown, deserving so distinguished a name; Shebden Beauty, and Walker's John Simonite. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, fourth with Read's Acme, Lancashire's Lancashire Hero, Booth's Freedom, Turner's C. J. Perry, Heap's Smiling Beauty, Simonite's Talisman, Headly's George Lightbody, Traill's Prince of Green Edges, Spalding's Blackbird, Campbell's Pizarro, and two seedlings.

Very strong also was the competition in the class for six distinct varieties, and, as in the preceding class, the post of honour was occupied by the Rev. F. D. Horner. The varieties of which the first prize collection consisted were: Headly's George Lightbody, Walker's John Simonite, Horner's John Daltry, a new green-edged flower possessing considerable merit; Horner's Heroine, and Horner's Miranda; Mr. Woodhead second with Read's Acme, Headly's George Lightbody, Traill's Prince of Green Edges, Turner's Charles J. Perry, and Leigh's Colonel Taylor; Mr. J. Douglas third with Headly's George Lightbody, Heap's Smiling Beauty, Douglas's Dr. Kidd, Turner's Charles J. Perry, and Lancashire's Lancashire Hero; Mr. Pohlman fourth with Campbell's Confidence, Read's Acme, Leigh's Colonel Taylor, Lancashire's Lancashire Hero, Headly's New Green, and Pohlman's Garibaldi; Messrs. H. Cannell and Sons, Swanley, fifth with Hepworth's True Briton, Sim's Vulcan, Traill's Beauty, Turner's Colonel Champneys, Cunningham's John Waterston, and Lancashire's Lancashire Hero; J. T. D. Llewellyn, Esq., Penttargare, Swansea, sixth. The first prize for four distinct varieties was awarded to Mr. Collier, gardener to R. H. Penson, Denham, Ludlow, for well-developed specimens of Headly's George Lightbody, Lancashire's Lancashire Hero, Smith's Eliza, and Simonite's Frank Simonite; the Rev. E. L. Fellowes second with Hepworth's True Briton, Lancashire's Lancashire Hero, Lightbody's Lord Clyde, and Read's Dr. Horner; R. Gorton, Esq., Eccles, Manchester, third with Hepworth's True Briton, Simonite's Frank Simonite, Oliver's Lovely Ann, and Campbell's Pizarro; J. M. Robins, Esq., 70, Tyrwhitt Road, Lewisham, fourth with Headly's George Lightbody, Campbell's Lord of Lorne, Chapman's Maria, and Campbell's Admiral Napier; Mr. T. Fife, Southern Hill, Reading, fifth; and Mr. W. Brockbank, Brockhurst, Didsbury, sixth. For two, Mr. Collier was first with Lancashire's Lancashire Hero and Headly's George Lightbody; Mr. W. Bolton, Wilderspool Road, Warrington, second with Horner's Ringdove and Headly's George Lightbody; Mr. Brockbank third with Pohlman's Garibaldi and Simonite's Frank Simonite; the Rev. E. L. Fellowes fourth with Smith's Ne Plus Ultra and Lancashire's Lancashire Hero; the Rev. H. H. D'Ombrian, Westwell Vicarage, Ashford, Kent, fifth; and S. Barlow, Esq., Stakehill House, Castleton, sixth.

COLLECTIONS OF FIFTY were more numerous than usual, and exceptionally good. In the class, for these Mr. Douglas was first with a splendid lot of plants, although somewhat overgrown, and staged amongst others Kay's Alexander Meiklejohn, Douglas's Dr. Kidd, Heap's Smiling Beauty, Kay's Topsy, Fife's Mrs. Fife, Read's Dr. Horner, Douglas's Silvia, Read's Acme, Spalding's Metropolitan, Simonite's Frank Simonite, Turner's C. J. Perry, Pohlman's Mazzini, and Campbell's Lord Clyde; Mr. Charles Turner, Slough, a close second with flowers remarkable for their superb finish: amongst other varieties were Kay's Alexander Meiklejohn, Low's Mazzini, a superb violet self; Litton's Imperator, Turner's Memnon, Dickson's Duke of Cambridge, Turner's Cheerfulness, Lightbody's Robert Traill, Cunningham's Mrs. Campbell, Traill's Beauty, Turner's James Douglas, Traill's General Neil, Turner's Clipper, and Turner's Mrs. W. B. Brown, a superb new grey-edged flower; J. T. D. Llewellyn, Esq., third; and fourth, H. Cannell and Sons, who had some splendid alpinas in their collection.

ALPINE AURICULAS were shown in large numbers and in splendid condition, and formed a very attractive feature. In the leading class for twelve Mr. Charles Turner was first with a magnificent collection, which consisted of Imperial, Dr. Denny, Fred Copeland, Ethel, Unique, William

Fowle, John Ball, Superb, Lady Aitchison, King of the Belgians, and Philip Frost. J. T. D. Llewellyn, Esq., was second, but the trusses were mostly small and the flowers poor, in consequence of the plants having been allowed to form large tufts instead of being kept to one or two crowns. Mr. J. Douglas third. For six the exhibitor last mentioned was a capital first with Amelia Hardwidge, a beautiful new variety; George Lightbody, Sensation, Mrs. Meiklejohn, Diadem, and a seedling; Mr. Turner second with Gertrude, John Ball, Sensation, King of the Belgians, and Unique; the Rev. E. Fellowes third; J. T. D. Llewellyn, Esq., fourth, and Mr. R. Dean fifth. In this class Mr. Pohlman staged a collection of laced varieties, but although well grown, they had a poor washy appearance in comparison with the other types.

FANCY AURICULAS, in collections of twelve, were exhibited by S. Barlow, Esq., Mr. Douglas, and Mr. R. Dean, who were awarded the prizes in the order of their names.

SINGLE SPECIMEN AURICULAS.—Single specimens were shown in immense numbers, and owing to there having been no well-devised regulations for staging them, great confusion prevailed in the classes provided, and only in a few instances was it found practicable to attach the cards bearing the names of the exhibitors.

The single specimen green-edge flowers were decidedly indifferent, and it will suffice to place on record that the Rev. F. D. Horner was first with Traill's Prince of Green Edges, second with Leigh's Colonel Taylor, and sixth with Simonite's Talisman; Mr. Woodhead third with Leigh's Colonel Taylor, and fourth with Litton's Imperator; Mr. Brockbank fifth with Prince of Green Edges, and Mr. Douglas seventh with Leigh's Colonel Taylor, and eighth with Douglas's Hope. For single specimen grey edge Mr. Collier was first, second, third, sixth, and seventh with Headly's George Lightbody, and fifth with Headly's Alderman Charles B. Brown; Mr. Pohlman fourth, and the Rev. F. D. Horner eighth with Headly's George Lightbody. For a single specimen white edge Mr. Woodhead was first with Read's Acme; Mr. Douglas second with Douglas's Silvia, fifth with Traill's Beauty, and sixth with a seedling; Mr. Pohlman third with Read's Acme, and fourth with Traill's Beauty; the Rev. F. D. Horner seventh, and Mr. Collier eighth. For a single specimen self the Rev. F. D. Horner first with Ringdove, second with Spalding's Blackbird, and seventh with Horner's Sapphire; Mr. Douglas second with Kay's Topsy, fourth with Pohlman's Mazzini, fifth with Pohlman's Garibaldi, and eighth with a seedling; Mr. W. Bolton sixth with Campbell's Lord of Lorne. In the class for single specimen alpinas with gold centre Mr. Turner was first with Amazon, and Mr. Douglas was second, third, fourth, fifth, and sixth. For specimen alpinas with white or creamy centre Mr. C. Turner was first with Charles Darwin; Mr. Turner was also second and fifth, and Mr. Douglas was third, fourth, and sixth.

The premier auricula in the exhibition was the splendid specimen of Headly's George Lightbody staged by the Rev. F. D. Horner, in his first prize collection of twelve.

LACED POLYANTHUSES were rather past their best, and consequently not quite up to the mark. The first prize for six was awarded to S. Barlow, Esq., who staged very fine examples of Prince Regent, Cheshire Favourite, Beauty of England, Red Rover, a promising new flower remarkable for its bright ground; Exile, and Sunrise, a new flower of superb quality. Mr. W. Bolton second with President, Cheshire Favourite, Earl of Lincoln, Exile, George IV., and a seedling. Mr. Douglas was third with Lancer, Exile, George IV., Cheshire Favourite, and Rev. F. D. Horner (Jackson), a poor flower for so good a name. Mr. Barton was first also for three with Cheshire Favourite, Firefly, and Exile; Mr. Bolton second, and Mr. R. Dean third. For a single specimen J. T. D. Llewellyn, Esq., first with Whittaker's Lancashire Hero; Mr. Brockbank second with Cheshire Favourite; Mr. Barlow second, third, fourth, and fifth, and Mr. R. Dean sixth.

FANCY POLYANTHUSES AND PRIMROSES.—The first prize for twelve fancy polyanthuses was awarded to Mr. R. Dean for well-grown examples of a remarkably fine strain of these attractive flowers. In the corresponding classes for single and double primroses Mr. Brockbank was first.

NEW AURICULAS were plentiful, and included several valuable acquisitions.

Certificates of the first class were granted as under:—
To Mr. Pohlman for

Pohlman's Brunette.—A splendid self; the tube rich yellow, the paste dense and smooth, the colour rich maroon, the flowers large and superbly finished, the truss good, and the habit vigorous.

To the Rev. F. D. Horner for

Horner's Luna.—Grey edge, tube bright yellow, the paste smooth, body colour deep maroon, the edge clear and perfectly circular; a large flower of the most perfect form and finish.

Horner's Agamemnon.—Green edge; tube bright orange-yellow; paste dense and circular, ground rich maroon, edge broad, clear, and smooth, flowers very large and well finished. This variety was also awarded the first prize in the class for seedling green edges.

Horner's Corona.—Self; the tube rich yellow; paste dense and circular; body colour deep purplish plum; the flowers large, attractive in colour, and highly finished; the habit good.

To Mr. J. Douglas for

Douglas's Jumbo.—Green edge; tube bright yellow; paste dense and smooth, but rather narrow; body colour claret, edge broad and clear; an effective flower, which was awarded the second prize in the class for seedling green edges.

Douglas's Mrs. Moore.—Grey edge; tube rich yellow; paste very dense and perfectly circular; body colour bright maroon, edge very pure; flowers large, of grand form, and produced in good trusses. Awarded also the first prize in the class for seedling white-edged flowers.

Ada Hardwidge (Douglas).—Alpine; a superb variety, the centre rich golden yellow, the colour maroon shading to crimson.

Amelia Hardwidge (Douglas).—Alpine; a fine flower, centre bright yellow, the colour claret shading to rosy red.

To Mr. Charles Turner for

Amazon.—Alpine; a beautiful variety, the centre bright yellow, the colour deep red shading to lighter red; flowers very large and of grand form. This was awarded the first prize in the class for seedling alpinas.

Charles Darwin (Turner).—Alpine; a distinct and handsome variety; the centre creamy white, the colour rich maroon shading to rosy purple; flowers large and beautifully finished.

To the Rev. E. L. Fellowes for
Fellowes's Blue Bell.—Grey edge; tube pale yellow, paste dense, body colour rich violet, edge very smooth; an exquisitely-coloured flower of high quality. Awarded the second prize for a seedling grey edge.

To Mr. Woodhead for
Woodhead's George Rudd.—Grey edge; tube rich yellow, paste dense and circular; body colour bright maroon, an effective and well-proportioned flower of high finish.

FLORAL COMMITTEE.

The subjects brought before the committee comprised numerous important collections, which sufficed to form an attractive bank extending the whole length of the conservatory. The following awards were made:—Silver Flora Medal to Messrs. J. Veitch and Sons for a magnificent collection of standard pot roses, in the cultivation of which the only manurial matter employed was Clay's Fertilizer, which has been found of special value for roses in pots. The Silver Flora Medal to Mr. C. Noble, Bagshot, for an excellent collection of specimen clematis, and to Messrs. W. Paul and Son, Waltham Cross, Herts, and Messrs. H. Lane and Son, Great Berkhamstead, for fine collections of pot roses. The Silver Banksian Medal to Mr. C. Boun, Gunnersbury, for a beautiful group of azaleas. The Bronze Banksian Medal to Captain Patton, St. John's Wood, for an interesting collection of tulips in pots and in a cut state, and fine specimens of *Astilbe japonica* and *Dielytra spectabilis*; to Mr. H. Hooper, Bath, for several boxes of cut pansies; to Messrs. Barr and Sugden for a collection of daffodils and other cut flowers; to Mr. B. S. Williams for a beautiful group of varieties of *Primula Sieboldi*; and to Mr. G. W. Piper, Uckfield, for several beautiful boxes of cut roses, chiefly teas. Votes of thanks were accorded to Mr. C. Turner for a group of remarkably fine tree carnations; and to Messrs. Cannell for cut pelargoniums. A cultural commendation was voted R. Warner, Esq., for an excellent specimen of a beautiful variety of *Masdevallia Lindeni*.

First-class Certificates were granted as under:—

To Robert Warner, Esq., Broomfield, Chelmsford, for
Masdevallia imperialis.—An attractive species, the growth robust, and the flowers remarkable for their beautiful colour.

To Mr. William Ball, Chelsea, for
Alsophila Rebecce.—An elegant tree fern, distinct in character, and of slender growth.

To Mr. H. Hooper, Bath, for
Pansy Mrs. Llewelyn.—A beautiful bedding variety, the flowers large, stout in substance, and of a rich golden yellow.

Pansy Mrs. Laing.—A distinct bedding variety; the flowers, of full size and splendid substance, are of a pleasing creamy white.

Messrs. Dixon and Co., Amhurst Park Nurseries, Hackney, for
Gymnogramma Laucheana grandiceps.—A fine form of this beautiful golden fern, with elegantly-tasseled fronds.

To Mr. R. Dean, Ealing, for
Aubrietia violacea.—A distinct bold-growing form, with large flowers of a rich purplish violet; likely to prove of immense value for spring bedding.

To J. H. Mangles, Haslemere, for
Rhododendron Alice Mangles.—A distinct variety, of the most attractive character.

ROYAL BOTANIC SOCIETY.—SECOND SPRING EXHIBITION, APRIL 26.

The exhibition of spring flowers held by the Royal Botanic Society on Wednesday, although not so large as that of March, was of considerable extent, and the subjects staged sufficed to produce a very beautiful display. Roses in pots were admirably represented, and formed one of the chief features; auriculas were staged in greater numbers than for some years past; and stove and greenhouse plants, azaleas, pelargoniums, cinerarias, amaryllis, and rhododendrons were presented in capital condition.

Roses in pots were contributed in sufficient numbers to nearly fill one side of the corridor, and as they were well grown and admirably bloomed they formed a beautiful bank. For nine specimen roses Messrs. Paul and Son, Cheshunt, were first with *Comtesse de Sereny*, Mrs. Laxton, Edouard Morren, La France, Madame Villermoz, John Stuart Mill, Juno, Magna Charta, and Madame Lacharme. In the class for six new roses the same firm was first, staging *Comtesse de Camondo*, a well-formed globular flower of a rich purple-crimson; Guillaume Guillemot, deep rose, thin and rather rough; Gloire de Bourg-la-Reine, an excellent flower, the colour blackish crimson, shading to fiery scarlet; Mad. Isaac Perier, deep lilac-rose, large, and of fine form; Madame Angèle Jaquier, a beautiful tea, creamy white tinted with rose; Jules Finger, pale pink, small. In the amateurs' class for six, Mr. Wiggins, gardener to Henry Little, Esq., Hillingdon Place, near Uxbridge, was first with rather small but fresh and well-flowered examples. The varieties were: Hon. George Bancroft, Madame Lacharme, Baroness Rothschild, Marquise de Castellane, Marguerite Brassae, and Mrs. Bosanquet. Messrs. W. Paul and Son, Waltham Cross, Herts, were awarded the silver gilt medal for a splendid bank of pot roses, in which the plants were remarkable for the vigour of their growth and the large size and freshness of their flowers. Conspicuous in the collection were Crown Prince, Magna Charta, Pride of Waltham, and Countess of Rosebery, which are equally as valuable for pot-culture as for exhibition in a cut state. Messrs. J. Veitch and Sons, Chelsea, were awarded the large silver medal for the group of standard roses which attracted so much attention at South Kensington on the previous day. A medal of the same value was awarded to Messrs. H. Lane and Son for a well-grown group of pot roses, and to Messrs. Paul and Son was awarded the small silver medal for a group of roses in pots and three beautiful baskets of cut roses, two of which were filled with well-developed blooms of *Maréchal Niel*.

PELARGONIUMS were admirably shown by Mr. Charles Turner, Slough, and Mr. J. Wiggins. The prizes for nine were awarded to these exhibitors in the order of their names, and Mr. C. Turner staged *La Patrie*, Duchess of Bedford, Princess Hortense, Digby Grand, Suppho, Maid of Kent, Le Grand, Venus, and Duchesse de Morny. In the group from Mr. Wiggins were *Duchesse de Morny*, *Admirable*, *Bracelet*, *Exhibitor*, *Emperor* of *Pelargoniums*, *Minnie*, *Rosy Morn*, *Madame Thibaut*, and *Kingston Beauty*.

AURICULAS had one class provided for them, and in this the competi-

tion was very keen. Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was first with Campbell's Lord of Lorne, Smith's Ne Plus Ultra, Lancashire's Lancashire Hero, Cunningham's John Waterston, Heap's Smiling Beauty, Douglas's Jumbo, Kay's Alexander Meiklejohn, Reid's Dr. Horner, Headly's George Lightbody, and Turner's C. J. Perry; Mr. C. Turner second, and J. T. D. Llewelyn, Esq., third. Messrs. H. Cannell and Sons, Swanley, also staged a very excellent twelve. The firm last mentioned and Mr. C. Turner also staged splendid collections in the miscellaneous class, which attracted much attention.

CINERARIAS were shown in good style in the class for nine by Mr. Odell, Hillingdon, and Mr. Wiggins, who were first and second respectively.

AMARYLLIS were represented by two excellent collections from Mr. Wiggins and Mr. Butler, St. Dunstan's, Regent's Park, who were awarded the prizes in the order of their names.

STOVE AND GREENHOUSE PLANTS were well shown by Messrs. Peed and Son, Norbury Nurseries, Lower Streatham, who were first with a collection, in which the azaleas were remarkably good, and by Mr. G. Wheeler, St. John's Lodge, and Mr. Eason, Highgate, who were second and third respectively. Azaleas, in collections of six, were exhibited by Mr. Turner, Mr. G. Wheeler, Mr. Peed, and Mr. Eason, the best being those from Slough.

HARDY RHODODENDRONS were shown by Messrs. H. Lane and Son, who had densely-flowered bushes of *Auguste Van Geert*, Guido, Sir Robert Peel, Favourite, *Verschaffelti*, *Atrosanguinea*, and other fine kinds.

MISCELLANEOUS CLASS was, as usual, well filled, and in addition to the medals already mentioned the following awards were made: Large bronze medal to Captain Patton, Alpha House, St. John's Wood, for an excellent collection of early-flowering tulips, comprising a considerable number of the finest varieties, a collection of show tulips in pots, and well-developed specimens of *Astilbe japonica* and *Dielytra spectabilis*; large silver medal to Mr. B. S. Williams for a group of orchids and amaryllis; small silver medals to Mr. Wiggins and Mr. Wheeler for collections of miscellaneous plants; small silver medal to Mr. C. Noble for a beautiful collection of clematis; bronze medal to Mr. Hooper for cut pansies; two certificates to Messrs. H. Cannell and Sons, one for cut zonals and the other for a group of *Primula Sieboldi*; and a certificate to Mr. Piper, Uckfield, for cut roses.

NEW PLANTS AND FLOWERS were fewer in number than at the March exhibition, but they included several novelties of importance. Botanical certificates were granted to Messrs. Dixon and Co., Hackney, for *Gymnogramma Laucheana grandiceps*; to Mr. B. S. Williams, for *Crinum Mackoyana* and *Celogyne Massangeana*; to Mr. W. Bull, for *Adiantum Pacotti*, a beautiful form, in which the pinnae are so thickly set as to give the fronds a moss-like appearance, *Adiantum Victoriae*, *Davallia fijiensis plumosa*, and *Medinilla ababilis*. Floricultural certificates were awarded to Mr. C. Turner for *Alpine auriculas Gladiator* (Turner), a fine flower, with yellow centre, colour maroon, shading to claret; *Hector* (Turner), creamy centre, colour purple, large and fine; *J. D. Llewelyn* (Turner), a striking flower, centre yellow, colour maroon, shading to purple; *Amazona* (Turner); to Mr. Hooper for bedding pansies *Mrs. Laing* and *Mrs. Llewelyn*; to Mr. Wiggins for *Pelargonium Bridesmaid*; to Messrs. J. Veitch and Sons for *Azalea ponticum narcissiflora*; to Mr. J. Douglas for *auriculas Mrs. Moore* (Douglas) and *Jumbo* (Douglas); Mr. B. S. Williams for *Amaryllis Mrs. B. S. Williams*, a beautiful white flower of large size and good shape; and to Mr. C. Noble for *Darwin*, *Daniel Deronda*, and *Princess Beatrice* clematises, three varieties of great excellence.

MR. HIBBERD'S LECTURE ON THE AURICULA.

On the occasion of the exhibition of the National Auricula Society at South Kensington, April 25, a lecture on the "Early History of the Auricula" was given by Mr. Shirley Hibberd, of which the following is an abstract:—

In this eventful history, the endeavour to begin at the beginning is likely to be frustrated by the meagreness and vagueness of the facts. Many observant florists have speculated on the origin of the auricula, and have scarcely as yet arrived at satisfactory conclusions. In the delightful discourse by the Rev. F. D. Horner in this place, on the 19th of April last year, several species of *primula* were named as likely progenitors of this remarkable flower, but I must confess I have not been able to satisfy my mind in respect to more than two or three of them. Those that appear to have the largest claims are *Primula auricula*, *P. hortensis*, and *P. ciliata*. Possibly *P. amona* may have some claim, and it would be convenient to regard it so because of its purple colour. But although we thus obtain four names we have in reality only two species, for *hortensis* and *ciliata* are but varieties of *auricula*, and *amona* comes too near to the common primrose to be classed with the ancestry of our exhibition favourite. Mr. Darwin, in his "Forms of Flowers" (page 43), declares, on the authority of Kerner, that "the garden auriculas are descended from *P. pubescens* (Jacq.), which is a hybrid between the true *P. auricula*, and *P. hirsuta*. This hybrid," he continues, "has now been propagated for about 300 years, and produces, when legitimately fertilized, a large number of seeds." But in this supposed pedigree we have the making, at the utmost, of an alpine auricula, and in *Primula villosa*, which I take to be the same as *pubescens*, we seem often to have the alpine auricula ready made, as, for example, in the plant figured in the *Botanical Magazine*, t. 14. The Hon. W. Herbert, in "Horticultural Transactions," IV., 20, gives reasons for regarding *P. auricula*, *P. helvetica*, *P. nivalis*, and *P. viscosa* as varieties of the same species. One of his reasons is that he raised a powdered auricula and a *P. helvetica* from the seed of *P. nivalis*. But a powdered auricula is not enough for our purpose; we want an edged auricula. However, the raising of an auricula of any kind from the species named is a fact of great importance, and suggests a more Darwinian view of the case than the one Mr. Darwin himself adopted. It certainly takes us, on the basis of experiment, back to the variable *P. auricula*, and for other blood we seem to search in vain. Therefore, if we are bound to begin with a plausible beginning, we must take the wild auricula as the sole basis of this department of floriculture, and pronounce the current opinion to have many claims on our acceptance as at once philosophical and historical. The wild auricula is very widely distributed and on the Carpathians, the lower ranges of the Alps, the higher ranges of the Black Forest, and on the northern slopes of the Caucasian range. In places where a scattering of fertile soil on stony declivities favours its

growth it is met with in thousands; it is, in fact, more abundant in certain localities than is the common primrose in some of our own western valleys. The interest of the inquiry all turns upon the apparent impossibility of deriving from this humble flower of a pale yellow colour the variety and the exceeding beauty of the flowers that are cherished by the florists for their sharply-defined edges, their rich body colours, their pure paste, and brilliant centres that are like perforated nuggets of the purest gold. But I shall ask you to believe that the flowers we find especial delight in to-day are the true descendants of *Primula auricula*, without admixture of blood from any other source whatever. Our common primrose is a sportive beauty that is now yellow, now white, and anon purple, crimson, and amethyst, and in form single, double, and hose-in-hose. And it happens too that the wild auricula sports without man's aid into red and purple, and thus provides us with some of the colours ready made for working up into the glorious edged flowers that now afford us so much pleasure, mingled with surprise. But although the plant that ranges far and varies much, and is often so abundant as to pave with a solid floor of its own lovely herbage the meadowy levels and sunny slopes of the mountain ranges of central Europe, there is no record of the faintest hint of an edged flower having been discovered in any of the wild forms. And thus the auricula of the florist comes before us as peculiarly and pre-eminently the production of the florist; he has discovered how to develop its capabilities of varying in colour, and more especially how to augment and redistribute the farina or meal which nature has provided for the defence of the plant in the oftentimes trying circumstances of its wild life on the mountains. The richness and precision of the body colour, whatever it may be, has less interest from a scientific point of view than the distribution of the meal, which in the wild plant is only found sparingly on the leaves and in the centre of the flower, whereas in some of the florists' varieties the leaves are as white as wool, and the paste in the flower is as dense as the ice on a bride cake, though infinitely purer in quality.

This change, so marvellously distinct, and so full of fine floral character, has been accomplished in so short a space of time that the truth is hard to believe. The auricula is literally a flower of yesterday, and there is nothing worth searching for in the old books to throw light on its history. The grower of carnations and tulips may find a feast prepared for him in the books that take us far back in the annals of floriculture, but although on the mountains the auricula has been blooming plentifully since the third day of creation, it makes but little show on the classic heights of horticultural literature. We may assume it was not known at Antwerp or Leyden in the middle of the sixteenth century, for had it been it must have obtained the notice of Rembert Dodoens, who commenced publishing in 1552, and in none of his works has he mentioned it. In his "History of Plants" he describes a few "petite mulleyns" or "prime roses," including the common primrose, the oxlip, and the cowslip, and speaks of divers kinds "single and double," but there is no hint of the flower before us. We have, however, the important information that in his time primroses, and oxlips, and cowslips were "used daily amongst other pot herbs," a statement suggestive of extreme poverty in the kitchen garden. Gerard and Parkinson are necessarily quoted by writers on this subject, but they give us far less help than they have had credit for; however, one must excuse them if they do not describe a flower that in their day had no existence. Gerard appears to have had two or three auriculas of the class now known to us as alpine, with yellow, red, and purple flowers. He indeed in the "Herbal" of 1597 describes, at p. 640, eight sorts of mountain cowslips or bear's ears, as they were then called, but three at least of the number are not auriculas, and of the remaining five one is doubtful. In Johnson's edition of Gerard, published 1633, the story and the picture differ but little from the original work, but a note is added at p. 785 to the following effect:—"There are divers varieties of these flowers, and the chief differences arise, either from the leaves or flowers, which are either smooth or greene, or else gray and hoary, againe they are smooth about the edges, or snipt more or lesse; The flowers some are fairer then othersome, and their colours are so various that it is hard to finde words to express them, but they may be refer'd to whites, reds, yellows, and purples; for of all the varieties and mixtures of these they chiefly consist. The gardens of Mr. Tradescant and Mr. Tuggie are at this present furnished with great varieties of these flowers." The great John Parkinson, of blessed memory, publishing in the year 1629, which for our present purpose may be regarded as strictly synchronous with Johnson, describes twenty-one sorts of *Auricula ursi*, or "Beares-Ears," and we seem to be getting warm when in a receptive state of mind we turn over pages 235 to 246. But criticism founded on knowledge will quickly reduce the twenty-one to a smaller number; and at the very best there is not an edged flower, and perhaps not a proper self, amongst them. Of the eight varieties figured by Parkinson, on page 237, two are not auriculas, and the remaining four differ but little in their characters, and we really cannot say that the history of the flower begins there.

In Mr. Horner's lecture mention is made of the Flemish weavers who settled in Norwich, Ipswich, Rochdale, and Middleton about the year 1570, and who brought with them tulips and auriculas from their cherished gardens of the Netherlands. There were ample reasons for Netherlandsers to take refuge in England at that time, for the Spanish power, under the Duke of Alva, was in process of consolidation by the agency of plunder, perjury, and murder; the entire people, without regard to age or sex, had been condemned for contumacy to the gibbet; and a tax of ten per cent. was levied on all articles of personal property or merchandise, to be paid as often as it should be sold; which as a matter of course would, in ten sales, eat up its whole value. England was then as now the asylum of the persecuted, and so long as the Channel tunnel is not completed it is likely to remain so. The artisans of the Low Countries found it difficult to escape from a land that had been cursed by an infamous foreign rule, but they contrived to bring with them their favourite garden flowers, and thus wherever in this country the sound of the shuttle is heard there we may expect to find the poor man's garden a real treasury of delights. But the auriculas of that time did in no way represent the auriculas of this time; for in 1570, and for many years thereafter, the edged auricula was a thing unknown.

In the second edition of Philip Miller's renowned Dictionary, published in 1733, we are told that "to enumerate the diversities of this plant would be almost endless and impossible, for every year produces vast quantities of new flowers, differing in shape, size, or colour." And he proceeds to give a

table of characters, five in number, from which we may infer that at that date the edged flower was unknown, and from which we may learn that if known, it was certainly not regarded as of any special value. The characters as given by Miller may be thus summed up: The flowers must be borne on a strong stem; they must be in a regular and close umbel; the neck of each flower should be short, and the face flat and not inclined to cup; the colours bright and well mixed; eye large, round, of a good white or yellow. In the sixth edition, published in 1771, these characters are repeated. I turn from Miller's Dictionary to the "Eden" of Dr. John Hill, a handsome folio, published 1757, and therein we hear of yellow and purple auriculas, but not of edged flowers and not of named flowers of any kind whatever. The Rev. William Hanbury's "Body of Gardening," in two fine folio volumes, 1770, tells of varieties "almost infinite in number" of this "luscious flower," but there is no hint even here of a proper auricula; we are still rioting amongst alpine and border flowers, double and single, but the tone of the writer does suggest that in 1770 it had long since passed into the hands of the florists for weal or woe. We learn from Hanbury that the florists rejected the double flowers and made a broad distinction between the self-coloured and the variegated, and at that point Mr. Hanbury leaves us to our own conjectures.

Thus we began with the third day of creation, and we have nearly reached the close of the eighteenth century, and we have not heard of any such auriculas as have brought us together to-day. It will be seen, however, that Hanbury affords a clue to the time of their first appearance, which was doubtless about the middle of the eighteenth century, and we may reasonably conclude that for some time after the flower acquired the characters for which it is now valued writers on horticulture were in some instances unaware of its existence and in others were prejudiced against it. Indeed, Mr. Hanbury was evidently familiar with the characteristics of the auricula "fancy," and seems to have set up his back at it because of his confessed partiality for double flowers.

We have, however, a somewhat remarkable proof of the comparative lateness of the formation and acceptance of edged flowers in a paper published in the *Florist* in the year 1849. This professes to be a copy of a manuscript dated 1732, and bears all the needful evidences of genuineness. In this document we have a table of properties, twelve in number, from which we gather that the pips should be round and flat, the body colour solid, flaked, or striped; the bottom circular and without powder, and the eye showing a full thrum. Whatever may be the exact meaning of the terms employed in this code—and we should probably have but little trouble to master it in every detail—it seems to demonstrate that whoever drew it up was a thorough florist, but had never seen, or at all events had never recognized as proper, an edged flower of the modern type.

However, Mr. John Slater, in the "Amateur Florist's Guide," published at Manchester some ten years since, gives a list of edged flowers that were in cultivation in 1776, some of which no doubt were known in 1750, which, for present purposes, I will assume to be the year in which the auricula first acquired its proper form as a florists' flower. Mr. Slater has searched the records of the cultivators of Middleton and Rochdale and other of the ancient homes of floriculture, and he makes a distinct declaration at page 18 of his book that the oldest known varieties were *Rule Arbiter*, with a green edge, and *Hortaine*, with a white edge; and these, he says, can be traced as far back as 1757. *Potts's Eclipse*, a green edge, he traces to the year 1767. About the year 1785 several sorts that are now known were introduced, such as *Grimes's Piratree*, grey edge; *Popplewell's Conqueror*, white edge; *Gorton's Champion*, green edge; and *Wrigley's Northern Hero*, green edge. Thus, the negative evidence derived from our exploration of the old books agrees with the positive evidence derived from the modern books, and we may safely regard the auricula as dating from 1750, and it is therefore as a florists' flower a quite modern achievement. The first table of properties appears to have been published by James Thompson, a florist of Newcastle in the year 1757. Maddock published his table of properties in the "Florists' Directory" in the year 1792, and Emmerton improved thereon in his "Treatise on the Auricula," published in 1815. Hence in Martin's edition of Miller, published in 1807, the edged flowers are recognized, and their properties stated on the authority of Maddock, and agree pretty nearly with the properties required in the present day.

Thus we arrive at a distinct epoch in the history of the flower, and the early history is completed. I shall scarcely err in saying that it is at this time in high favour, well understood, and its quality justifies the century and a half of labour that has been bestowed upon it. We may hear of collections numbering four to five hundred varieties, but probably no one at the present time possesses or desires so many; for the annual exhibitions tend to the weeding out of the inferior kinds, and the maintenance of a high standard of merit. And this standard of merit, usually described as arbitrary, is in the main in strict accordance with the laws of nature. The stout smooth pip, the pure colours, the rich bold thrum-eye, the ample healthy leafage, are several signs of vigour and power of reproduction, and claim a forward place for the plant in the "struggle for life," which tends ever to the "survival of the fittest." The evolutionists appear to be forever eager to run a tilt at the florists, but they are apt to forget that if the florists are not always prepared to vindicate their cause by appealing to phenomena that date from the aggregation of molecules in the nebular spaces, they can appeal to their flowers as manifesting qualities that Nature is evidently disposed to encourage. Mr. Darwin, in the work I have already referred to on the "Forms of Flowers," has treated at great length the relative values to the plant, without regard to the ideas of the florist, of the long and short styles, or in other words of pin-eyed and thrum-eyed flowers. At page 48 he quotes from the experiments of Mr. Scott to show that the thrum-eyed flowers of the auricula are more fertile than the pin-eyed; and at page 43 he states the ratio of their relative fertility to be 25 per cent. in favour of the thrum-eyed flowers. It is interesting to see the evolutionist and the florist walking side by side, the one speculating on what Nature might accomplish under certain circumstances, the other demonstrating her capabilities by the exercise of his taste and the work of his hands.

The evolutionists may be invited to give some special attention to this flower, the origin of which dates back only 130 years. It may be properly described as the creation of the florist, and it suggests a very interesting consideration as to the future of life on this planet. The evolutionists can tell us, apparently by appeal to their own moral consciousness, how all things have originated out of some primordial mud or fortuitous aggregation of stellar molecules. I would invite them to take note of a factor engaged

In the forties, Johann Sieckmann came to the front, as second first among dahlia-growers, with his *England's Rival*, his *Triumph von Köstritz* in 1849, and his *Deutsche Sonne* in 1859, &c. About this time the following were highly distinguished among German dahlia growers: Mardner, with *Princess Alice*, *Perle*, &c., and later, Halbentz and Engelmann, with *Deutsche Kaiserin*, *Lieb Söhnehen*, *Kleine Goldelse*, *Stern von Deutschland*, &c.; and later again, C. H. Muschen, with his *Deutsche Kaiser*, *Director Raspe*, *Zolla*, *Gluthurban*, &c. After fifteen years with his father (Christian Deegen), the writer of the paper set up, in 1871, on his own account, as a grower of this flower, and with the aid of his many years' experience has succeeded in running the local past-masters of the art very close in some of his new varieties, as, for example, *Ernst Schleicher*, *Frau Emma Deegen*, *Blumenfürstin*, *Max Deegen's Zogling*, &c. Without arrogance, it may be said that the emulatory efforts of the Köstritz growers have brought dahlia growing in Germany to a pitch of perfection altogether surpassing any other country, and that Köstritz is now the centre and chief resort of this branch of culture. England and France mostly raise large-flowered varieties, such as *Victor Dufloy*, *Virginalis*, *Vulkain*, *Phédre*, *Pr. Broignard*, *Le pere Celeste*, *Mad. la Maréchale de McMahon*, *Mandarin*, *Roundhead*, *Prince of Wales*, &c., which by reason of their splendid colours and the gigantic size of their blooms are well named "Exhibition Dahlias," but which yet are wanting in symmetry, carry their flowers badly, are late and not very free bloomers, and wanting generally in compactness of habit. On the other hand, it may be asserted with equal confidence that the German dahlias, with their lower and more elegant growth, their many new and perfected types of flowers, borne erect on tall slender stalks, or presented horizontally to view—and not like bashful maidens requiring to be taken by the chin to make them show their faces—their early and abundant bloom, lasting all through the summer, are a nearer approach to perfection. This is the best testimony to the skill and perseverance of German growers.

From the older six-foot high dahlias have been obtained the so-called Dwarf Bedding Dahlias (*Zwerg-Dahlien*—*Dahlias Nains*) with a dwarf compact growth of 18 in. or less, which thus display their bloom to better effect, and as single plants are excellent for pots. Finally, not only have gigantic blooms 6 in. in diameter, and 4 in. deep been raised, but likewise miniature blooms, of the *Bellis perennis* type, not more than $\frac{3}{4}$ in. to 2 in. across. The latter, the so-called "Bouquet" or "Pompon Dahlias" (*Lilliputen Dahlien*, *Pompones à petites fleurs*), by their neatness of habit, attractive forms, moderate growth, and the profusion and symmetrical arrangement of their blooms, are charming flowers in the truest sense of the word, and for beds or pot culture, and more especially for bouquets, fresh or dried, are of inestimable value. Dahlias with flowers 2 in. to 6 in. in diameter, and forming bushes $3\frac{1}{2}$ ft. to 6 ft. or more in height are classed in trade catalogues under the head of "Exhibition Dahlias" (*Gross-blumige Dahlien*), produce a brilliant effect by the purity and intensity of their colouring, and the gigantic size of their flowers, and further possess the incontestable advantage of producing, as a rule, thanks to their greater development of head, larger and stronger roots, which can be wintered with less loss of vegetative power. Many large-flowered sorts, of showy colours or pure white, are very effective when planted singly or in groups in the centre of lower growing plants, and both the miniature and large-flowered varieties may be recommended for planting in groups along garden walks, in parks, on lawns, &c., in circular, star-shaped, or arabesque figures, as borders to shrubberies, or wherever else the dictates of good taste may suggest. The dahlia has long been in favour with us in Germany as a garden plant, and of late years the sorts adopted for the purpose have been employed in increasing numbers for pots, baskets, vases, &c., with the happiest effect. A drawback to dahlia growing in pots is that the plants require rather large-sized pots, and are prone to run to leaf with comparatively little bloom; but this defect vanishes when, instead of the garden roots, good strong pot roots are used. These pot roots, or plants of the same, are set in March, in 3-in. (7 cent.) pots, and when five to six inches in height are shifted into 5-in. (12 cent.) pots, and after a few weeks are given a third shift into 6-in. to 8-in. (16 to 18 cent.) pots. During the dry summer weather the pots may be plunged in the ground at sufficient distances apart to give the plants plenty of air, and should be watered from time to time with liquid manure. During heavy rain the heads should be sheltered, so as to preserve the blooms. For striking and planting out good garden soil should be used, or a mixture of sand, leaf-mould, compost, and heavy garden soil, in equal proportions, should be used. For pots, the Lilliputian-flowered varieties and dwarf sorts with miniature blooms are to be preferred, particularly such as are remarkable as early and abundant bloomers. In this way not only is a more certain and abundant show of bloom secured, but there is the additional advantage that with the small pots used a greater display can be made in a given space than when garden roots, which need more room, are employed. Oftentimes two successive plantings may be made, so that also the requirements of the windows can be met, and the variety, dimensions, and duration of the bloom will bear comparison with the best pot plants.

In every imaginable shade, and in the purest colours—cornflower blue excepted—the dahlia stands forth pre-eminently the colour-queen of the floral world, displaying her inexhaustible fertility, more especially in harmonies, or contrasts of two or more colours (fancy dahlias), such as rose colour with a sharply-defined white centre, or purple with rose centre, or fiery crimson zoned or broadly tipped with white, or dazzling scarlet edged or tipped or spotted with gold. Grounds of one colour are specked, spotted, streaked, striped, banded with others in endless variety. But, besides this diversity of colour, observant growers have noted varieties of floral shapes. The original flattened bracteate type of flower has been improved into globular, pyramidal, rosiform, turban-shaped, chrysanthemum-shaped, zinnia-shaped, aster-shaped, ranunculus-shaped, pearl-shaped, quilled, celled, conchiform, fir-cone-shaped, and other types and combinations of the same, as the quilled bracteate, the conchiform globe, the celled pyramid, and so on. Many of them have all the appearance of having been produced artificially. Their petals are pointed, slit, twisted, plaited, rolled reflexed, but ever with perfect symmetry of contour, the slightest deviation of outline being sought in vain. But not all these improved types seed equally well, and in the selection of seeds for yet choicer strains it is only by a careful study of the sorts best adapted for seed bearers that satisfactory results can be ensured. The seeds must be carefully protected or removed from the plants before the temperature falls to 34 to 36 degrees Fahrenheit. They can be sown in a moderately warm

place from the middle to the end of March. After germination, air is given gradually until the young plants are hardened off sufficiently to be planted out, about the middle of May, in the open, in moist soil, which has been dug at least twelve inches deep. It is a good plan to have the young plants previously pricked out in pots. Garden roots may be set about the beginning of May, and pot roots about the middle of the month, when the night frosts are no longer to be feared, putting them in two inches below the surface, and unless it rains sufficiently watering them in well. The soil may be close, heavy even, if it be rich enough. Liquid manure and well-rotted cowdung or compost suit them well. Water may be given during the blooming season, but not over the flowers, as after rain the brilliancy goes off, and we have to wait for fresh blooms ere the beauty of the flowers returns. Cooler damp autumnal days deepen and intensify the hues, and heighten the effect of the bloom. If very forward bloom and vigorous growth are desired, garden roots are to be preferred, with due attention to the times and seasons in the work of propagation. Rooted cuttings transplanted give a lower and less robust growth, with good, though somewhat more backward bloom, and are sometimes desirable. But the best blooms and the most regular growth are obtained with pot roots. One essential point is the separation of the larger roots, so that each tuber or plant may be left to grow singly. Staking betimes, and tying out again and again as required, are indispensable to a good display of bloom.

When the night frosts set in in autumn it is well to leave the roots a little while longer in the ground, but before the temperature falls to freezing they should be lifted, as the stems readily freeze down to the collar, and it is then impossible to prevent the roots rotting off. Timely removal of the roots after lifting is an advantage. Large strong roots for spring planting may be lifted in autumn with the garden fork; but rooted plants should be taken up with the spade, carefully avoiding to handle them by the stems, which would probably entail rubbing off of some of the eyes. Larger roots can be freed from earth with a pointed stick, but should never be shaken. After leaving them for a day or two exposed to the sun and air to dry, they should be cleaned, trimmed, and stratified with dry sand, earth, or charcoal, out of reach of frost and wet, in pits, with the earth heaped over and covered with a few planks, as a protection against snow and rain; or the roots, dried and covered up, may be laid on shelves, under the staves in the growing house, or in some not too warm place under the flue, where they can be looked over from time to time more conveniently.

For purposes of propagation the plants are struck in hotbeds or pots, using single roots each with $1\frac{1}{2}$ to 2 in. of stem, taking care that the latter is not cut back below the leaf-buds, placing in moderately warm (in spring and summer cold) sand, or singly in pots, with a finely-sifted mixture of leaf-mould with plenty of sand, shading well at first and less by degrees where they stand in the close frame or hotbed, and watering at least once daily until the plants are sufficiently hardened and the weather is mild enough for them to be planted out in open beds or shifted into larger pots.

The earwigs (*Forficula auricularis*) are the most formidable foe of the dahlia, inasmuch as not only do they injure the plants, but evince a special preference for the finest blooms, which they will ruthlessly destroy in a single night. Hanging cow horns and hoops to the stakes, in which the insects will hide during the daytime, and which can be shaken out from time to time to get rid of the brood, will be found the best preventive. That, for the rest, the plant is fitly named *variabilis* is proved by the fact that the sorts most perfect in bloom often revert partially to the primitive type, either deteriorating generally or producing occasional flowers of a different colour, sometimes on a single spray only, or else half the flowers will be self-coloured and the other half variegated, and so on—all accidents familiar enough to dahlia growers, but which not unfrequently lead outsiders to doubt the purity of the strain. They are attributable to climate, to wrong treatment, as planting out in too much shade or in impoverished soil, &c., as well as to other not reconducive causes.

On account of the favour in which miniature blooms are held, many varieties are incorrectly described in trade catalogues as having "bouquet" or Lilliputian flowers. Blooms of $\frac{3}{4}$ in. to 2 in. in diameter should be classed as bouquet. In the same way, dwarf varieties are frequently described as lower than they really are. For such a height of 16 in. to 36 in. should be allowed, and not only the head but the topmost blooms reckoned in the height.

Laudable and momentous to the improvement of the flower as are the annual labours of the great dahlia growers, it becomes matter for regret when we see a firm sending out in a year, and year after year, perhaps as many as six hundred so-called "novelties," which by a little circumspection might well have been reduced to fifty. The affair thus becomes one mere parade of numbers, whereof the units may be looked for in vain in subsequent catalogues. The difficulty of finding names for so many "novelties" sufficiently explains the fact that a great number of them are "absurdly" named.

The beautiful in Nature is gradual of attainment. The goal of perfection is reached step by step; so to *Dahlia variabilis*, which was introduced here by my father, and since has acquired a world-wide repute as an ornamental garden plant. After many years' participation in its culture, I now exclusively devote my attention to it. My aim is by sowing and planting out on an extended scale, to obtain new and yet choicer varieties; and my several dahlia grounds here, during the blooming season (August and beginning of September), with their countless thousands of blooms of the most diversified hues (resembling true floral carpets of many colours), and of the most perfect shapes—veritable shrines for the dahlia fancier—bear testimony that the dahlia is at once the most magnificent and the most thankworthy of all cultivated flowers, and that under proper treatment it is entitled to unqualified admiration.

My collections contain the very best novelties of my own raising, together with a choice selection of the finest older varieties. I trust that dahlia fanciers and trade growers, as well as the owners of private gardens, will here find all their requirements, and feel justified in according to my collections of dahlias and of other plants and garden requisites their best recommendations. Detailed particulars will be found in my catalogue.

As there is more than one other firm of the same name in this neighbourhood, I would request my friends to insert the Christian name in all communications addressed to me.

MAX DEEGEN, JUN. II., *Dahlia Grower and Florist*,
Köstritz, Germany, 1882.

Notes of Observation.

NEW ROSES.

At the second of the March meetings of the Royal Horticultural Society several new roses were exhibited, and evidently regarded with much interest Mr. H. Bennett, of Shepperton, and on *Her Majesty*, which formed one of the by many of the visitors. The most important were the varieties exhibited by group, a first-class certificate was conferred. This is evidently a strong-growing variety with ample foliage and bearing large full flowers with handsome petals, and of delicate pink, deepening to bright pink in the centre. In size and fullness it leaves but little to be desired; but, so far as I could determine it, without the slightest trace of perfume. A much more valuable rose shown by Mr. Bennett is the *Earl of Pembroke*, and a great injustice was done in not conferring a certificate upon it. This has large flowers, perfectly globular, very full, of a rich bright red colour, and delightfully fragrant; in the growth there are distinct traces of the tea parentage, and in the perfume of the flowers these traces are even more prominent. I anticipate the *Earl of Pembroke* becoming one of the most popular of the brightly coloured roses, and growers will do well to look after it. The other variety of importance represented at the meeting is *Helen Paul*, raised by M. Lacharme, and sent out by him last autumn. This was exhibited by Messrs. Paul and Son, and bears very large flowers, globular in form, and of a delicate blush with pale pink centre. It has a magnificent petal, is very strong in growth, judging from the vigour of the example, and it is perfectly safe to suggest that it will ultimately take a leading position both in the garden and on the exhibition table. It should certainly be included in the new rose orders for the current season.

VIATOR

DAHLIA SHIRLEY HIBBERD.

As a matter of some importance to cultivators, I should like to supplement my notes on show and fancy dahlias with a mention of that splendid show flower Shirley Hibberd. It is of full size, grandly built, and of a rich shade of deep maroon. We have no flower of higher quality in its colour, and it has the merit of constancy, and it can be depended upon, even in the most unfavourable season, to produce blooms fit for the exhibition stand. This variety, it may be added, was raised by Messrs. Rawlings Brothers, of Old Church, Romford.

OLD DAHLIA FANCIER.

HARDY PRIMROSES.

Owing to various causes, I have not for several years been able to indulge in the luxury of a greenhouse, and I have in consequence devoted some attention to a few classes of hardy plants. Amongst other things that I have grown are the fancy polyanthus and the single and double primroses, and the varieties of *Primula Sieboldi*. From the end of January time I have had a succession of flowers that could not, I am convinced, be surpassed in beauty, and I am quite sure that no other class of flowers could afford the same degree of pleasure at a lower cost of either money or labour. I have about twenty of the most beautiful of the named primroses and polyanthus in commerce, and thirty or forty selected seedlings, some of the latter being superior to those bearing names, and, with very few exceptions, they are all equal to them. I have eight of the varieties of *Primula Sieboldi*, or *Primula cortusoides amœna*, and of each of these, as of each of the named primroses and polyanthus, I have about six plants. The cost of the named sorts was very trifling, and the seedlings I have raised myself. The trouble of growing the stock is by no means great, for after they go out of bloom they are planted in a shady border, where they remain until September, when they are lifted, and after being potted placed in frames. The soil of the border has been made light and rich by liberal additions of coarse sand and well-rotted manure; the plants are carefully watered during the summer, and when they are lifted in the autumn they are divided into portions of two or three crowns each. During the winter they receive moderate supplies of water, and the frame is covered with a mat during frosty weather. My object in penning this note is to suggest that those amateurs who are fond of flowers, and are not able to have a spacious greenhouse fitted with a good hot-water apparatus, would save themselves much trouble and vexation by turning their attention to such beautiful subjects as those mentioned as can be grown in a garden frame.

AMATEUR FLORIST.

EARLY-FORCED STRAWBERRIES.

In case it should be any consolation to the correspondent who complains (see page 179) that his early-forced strawberries have not done so well this year as usual, I will tell him he is not alone. Our earliest crop was anything but a satisfactory one, but in my case it was an easy matter to account for the unsatisfactory results. Many of the flowers came destitute of anthers, in fact, the greater portion of them were imperfect, and it was a difficult matter to obtain sufficient pollen to fertilize more than a few flowers; a light crop was in consequence the result. I do not know if the same thing has occurred with others, but I have heard of two or three other cases of failure this year. Later crops of the same kinds are however coming all right now, although not so vigorous as I have known them before. There seems to be a degree of weakness in our plants not very easily accounted for.

J. C. CLARKE.

DEUTZIAS.

In my walk round the recent exhibition of the Royal Botanic Society, it struck me that it was a mistake to encourage such unwieldly specimens as those to which the first prize was awarded. That they were of large size and well flowered I readily acknowledge, but the style of training was so stiff and formal as to quite obliterate the natural elegance of the shrub. The second prize lot was not good enough to be put before them, and it occurred to me that the judges would have done well to have awarded the second and third prizes only to mark their disapprobation of the training of the larger specimens. There is perhaps some difficulty in bringing deutzias to the place of exhibition when allowed to grow naturally, but if they cannot be presented to public notice without their being so stiffly trained as on this occasion it is worth considering whether it would not be better to discontinue the offering of prizes for them.

LOOKER-ON.

DAHLIA IMPERIALIS.

When in Lisbon, in November, 1880, I saw some fine specimens of the stately *Dahlia imperialis*, and they pleased me very much. Since then I have been strongly impressed with the idea that its cultivation would be well worth trying in sheltered situations in this country. It would not be a serious matter if the experiment failed. To ensure success, the positions would probably have to be free from both early and late frosts, and it would certainly be necessary to put out strong, well-established plants.

GEORGE RAWLINGS.

Bignap, Bigswear, Coleford.

RUBUS ROSÆFOLIUS CORONARIUS.

I know nothing as to the cultural requirements of this plant further than that I saw it in flower the other day in a greenhouse. But I can vouch for its exquisite beauty. The flower may be correctly described as an enlarged double-flowering plum, for it is as pure in its whiteness as the double-white prunes, and I know of no plant more delicate in appearance. The habit of the plant which I saw was all that could be desired. Messrs. Cannell say in their catalogue that it will flower all the winter in a warm greenhouse. If that is so, it will be a boon to all who require pure white flowers in the winter. I have taken care not to be without it next winter.

J. C. C.

A BOXFUL OF SPRING FLOWERS.

Mr. Caudwell, of the Ivies, Wantage, sent me by post a boxful of first-rate garden flowers, which being set up in a glass dish made a pretty decoration for the table. I selected a few for special note because of their special merit, as they belong to the category of things one can hardly have too many of. Border polyanthus comprise *Queen of Whites*, flowers large creamy white with rich rayed centre of two shades of orange. *Cowslip Cloth of Gold*, flowers drooping in cowslip fashion, pips very large, rich sulphur-yellow with deep orange centre. *Crimson King*, deep crimson, orange eye. *Hose-in-Hose Irish Cowslip*, a dense head of medium size centre five rays of red: "these be rubies fairies favours." *Sultan*, very large flowers, deep maroon, large eye of deep yellow. Primroses comprise *Golden Queen of England*, soft cinquefoil-yellow with rayed orange centre. *Aurora*, a grand flower, very large, primrose-yellow with rich rayed centre of deep orange. *Jupiter*, probably a polyanthus, but the flowers came in separate pips, very dark maroon, large rayed orange centre. *Harlequin*, sent in separate pips, and therefore assumed to be a primrose; flowers very large and smooth body, colour brilliant purplish crimson with small white spot in centre of margin of each segment, centre deep orange. *Galligaskin*, a very old garden flower, but not the true Gallegaskin as figured by Parkinson, in "Paradisus," p. 243. It is really a crimson-flowered "Jack-an-apes on Horseback," the "husks," as Parkinson calls the calyx, being developed into true leaves an inch to an inch and a half long, which embrace and partly conceal the deep crimson flower. Fancy pansies comprise *King Alfred*, the side and bottom petals rich maroon with gold edge, the top barred gold, maroon, and purple; also yellows, blues, whites, and other colours, with rich and fantastic markings.

S. H.

MAGNOLIA GRANDIFLORA.

Those who wish to plant out this magnolia cannot do it at a more suitable season of the year than the present, and any one having large specimens to remove is recommended to do so at once. In removing large plants it will be an advantage for some of the branches to be shortened back three or four feet. Of course they must be removed carefully, and the surface soil be covered, after the planting is completed, with half-rotten manure. Plenty of water must be supplied to the roots throughout the summer.

J. M.

Replies to Queries.

G. A. D.—The subscription to the Royal Horticultural Society is four guineas and two guineas per annum. We are ready at any time to assist persons who wish to join the society, and will gladly supply the needful forms for intending candidates.

Amateur.—Your cucumber plants are probably very dry at the roots. Thrust a clean dry stick into the bed and leave it there for half an hour. When withdrawn it will tell you if there is a reasonable amount of moisture below.

S. B.—Plant the lilliums out of pots at once, and bait the bed with slices of potato, fresh and fresh, for the wireworms. The baits must be taken up daily and burned. Gladioli may be grown with lilies very well, both as regards the taste and the science of the proceeding.

Mushrooms in Cellars.—F. S. II.—Unless there are openings by which the exhalations from the manure when the bed is first made up can escape direct into the open air the cultivation of mushrooms in the cellar should not be attempted. In no case should there be a mushroom bed in a cellar used as a larder.

TRADE CATALOGUES.

ELLWANGER AND BARRY, MOUNT HOPE NURSERIES, ROCHESTER, N.Y.—*List of Roses, New and Rare.*

WOOD AND INGRAM, HUNTINGDON.—*Catalogue of Bedding Plants, Chrysanthemums, Dahlias, Pelargoniums, &c.*

T. S. WARE, HALE FARM NURSERIES, TOTTENHAM.—*Catalogue of Single Dahlias, French Marguerites, Pyrethrum, &c.*

T. GREEN, THORPE, NORWICH.—*Pelargoniums, Fuchsias, Chrysanthemums, Dahlias, &c.*

CHRISTOP STEINFÖCK, ALTLENGBACH.—*Verzeichniss Focalpen- und Alpenpflanzen, &c. (Catalogue of Hardy and Alpine Plants, &c.)*

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7s. 6d. and 1s. 6d., labelled, "JAMES EPPS AND CO., HOMEOPATHIC CHEMISTS, LONDON." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Club-wick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
7	S	4th Sunday after Easter.	4 24	3 38	7 30	11 42	7 27	4 13	4 35	1 13	1 33	52.5	Anemone apennina, H.	Blue.	127
8	M	Half Quarter Day.	4 22	3 42	7 32	Morn.	8 37	4 55	5 15	2 0	2 20	52.8	" ranunculoides, H.	Yellow.	123
9	Tu	Schiller died, 1805.	4 21	3 45	7 33	0 19	9 53	5 49	6 7	2 40	3 5	53.0	Callia palustris fl. pl., H.	Yellow.	129
10	W	Lat Quarter, Oh. 35m. after.	4 19	3 43	7 35	0 51	11 11	6 35	7 5	3 32	4 0	53.2	Dipladenia boliviensis, S.	White.	130
11	Th	Sir J. W. F. Horsfield died, 1874.	4 17	3 59	7 36	1 17	After.	7 40	8 12	4 39	5 5	53.4	Erica colorans superba, G.	Rose-red.	131
12	F	Passage of the Douro, 1809.	4 15	3 52	7 38	1 41	1 49	8 50	9 30	5 37	6 15	53.6	Genetyllis fuchsoides, G.	Red.	132
13	S	Pope Pius IX. born, 1792.	4 14	3 53	7 39	2 5	3 9	10 5	10 33	6 55	7 30	53.8	Trollius caucasicus, G.	Yellow.	133

The Gardeners' Magazine.

SATURDAY, MAY 6, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 6s.; 6 Months, 11s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s. 6d. EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, MAY 9.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

WEDNESDAY, MAY 10.—BATH.—Floral Fête.

FRIDAY, MAY 12.—ROYAL BOTANIC SOCIETY.—Botanical Lecture, at 4 p.m.

Auction Sales for the Ensuing Week.

MONDAY, MAY 8, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.
TUESDAY, MAY 9, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Established Orchids.
WEDNESDAY, MAY 10, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Established Orchids.
THURSDAY, MAY 11, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

VILLA FARMS of a somewhat novel character are discoursed upon in a pleasant manner in the latest issue of the *Estates Roll* of Messrs. Dowsett and Woods. As every country house, and in many cases the suburban villa, has, in addition to the garden and playground, something in the nature of a farm, it will appear at the outset that our friends merely propose to extend an institution that is well established already. But it would be an injustice to them to regard their idea, for the present, as of a commonplace character, for it is in its way at once novel and practical, and peculiarly adapted to the requirements of the present time. To enclose a few acres for grass and woodland, and to grow milk and butter and eggs at home, and to designate the department devoted to these matters "the farm," or, as we have shaped the phrase to suit the case, "the Home Farm," is at once a simple and commonplace proceeding, commendable and desirable, and for the most part well understood. But Messrs. Dowsett and Woods have in view, not to plant a villa here and a tower there, and a mansion or cottage somewhere else, on the outskirts of a town, but to buy a large estate in the "heart of the country," somewhat remote from a railway, and divide the property into lots suitable for small farms and gentlemanly residences. Instead of bringing a bit of the country into the town, as when we reserve a few acres for the advantage of a suburban residence, we should, in the plan now proposed, take a bit of the town into the country, and form a sort of elegant hamlet, or classic village, where farming would be "made to pay," by making all its features subservient to the wants of a comfortable household. In the balance-sheet of one of these villa farms we should of course expect to find entries to represent the values of milk, butter, poultry, hay, fruit, and honey; but it would be proper also to make entries to represent health, enjoyment of life, and money saved by removal from the region of temptations. The hygienic advantages are of course to be considered, and æsthetical considerations may come in, even if it be found difficult to reduce them to figures for the balance-sheet.

Once upon a time there was a great demand for forty-shilling freeholds, and land societies were formed for the purpose of creating them. They served their purpose very well no doubt, but as the extension of the electoral system destroyed the charm of the forty-shilling freehold, the land societies were merged in building societies, and thus became in fact what from the first they were in theory. The proposed villa farms would rest on a basis approximating to the land society, but the working out of the plan would differ very considerably, for high-priced land would not be sought, and there-

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fore the neighbourhood of a great town would be avoided, and in many instances it would be needful, in order to secure land at a comparatively low price, to purchase an estate somewhat remote from a railway. The apparent disadvantages do not, perhaps, tell against the proposal at all, because those who are tied to the town by circumstances, or prefer, as a matter of taste, to be always in the midst of its bustle and bricks, would not touch one of these villa farms at any price. But there are many who have the means, and the taste, and the opportunity for country life in the country, who neither care to rent a farm and bear the consequent burden of anxieties, nor are prepared to purchase a large property; and it is to such as these that the proposal before us appeals with peculiar force. The villa farm should not be devoted to cereals so much as to crops consumable on the spot, or transferable at small cost of money and labour to the best market within easy reach. To cart the goods to the nearest station and despatch them would in no case present a difficulty. But we apprehend that there would be but little marketing required, either for selling or buying, because the tillage would be very strictly adapted to home requirements, and we have before us now, not a group of cottagers, whose wants are few, but a community of well-doing people, keeping substantial tables, and looking to farming and country life less for a living than for health, quiet, and the constant enjoyment of rural scenes and sports. But as our friends have seriously considered this question, it will be well to allow them to speak for themselves. They say: "To the question, 'Will villa farming pay?' we unhesitatingly answer, 'Yes.' First, it must be apparent that if land can be bought at an agricultural price, and then converted into a residential estate, that the value would be perhaps quadrupled in a few years. But beyond this we have another answer, and we say that agriculturally the villa farm will pay if its occupant gives ordinary thoughtfulness and care to its management. Does a market garden pay? Yes; very liberally, and yet look at the adjoining fields cultivated by the farmer, fields having precisely the same soil, but not bearing anything like the same heavy crops. Why? Because one is carefully and highly farmed, and the other is not. If all the land in England was farmed as some is our Government returns of export and import would assume very different proportions. But as to cereal crops it has been shown that the English farmer can grow wheat at 3s. 10d. per bushel, even under the present imperfect system. Messrs. Read and Pell, the Commissioners sent by the Government to America, report their conviction 'that the American farmers cannot deliver wheat at Liverpool at less than 5s. per bushel, i.e., 40s. per quarter, develop the prairies as much as they will.' And Mr. Clay, the Commissioner appointed to the Californian States, gave his opinion that if the farmers of those States sold wheat at Liverpool at 45s. per quarter they could not live. Therefore, even in cereal crops, and even under the antiquated system of the past, there are brighter prospects ahead."

Notwithstanding the proposal to make the villa farm "pay," in the strictly commercial sense of the term, we apprehend that the class to whom the notion is likely to prove most acceptable will gladly take larger views than can be compassed by the ledger and the cash book. London is capable of supplying occupants who can pay their way in the first instance for villa farms not more than thirty to forty miles removed; and in all probability, if a beginning were made, the demand would be continuous, and might even become clamorous. But the social element must be considered. Mere removal from the town will not suffice; nor will beautiful scenes and fresh air. The class of people who will take to villa farms will want society, and estates large enough for the formation of villages should be secured in the first instance, for a few isolated residences dotted over a great hungry space would not for long command substantial occupants. For the country gentleman the villa farm will have no attractions, and the idiosyncrasies of the town man must be taken into account in the details of the project.

THE PELARGONIUM SOCIETY will hold its eighth exhibition in the gardens of the Royal Horticultural Society, South Kensington, on Tuesday, June 27. The time has arrived, therefore, when intending exhibitors may refer to the schedule with advantage, and may "look round the house" to see how the plants stand for the ordeal that awaits them. The schedule is framed on the pattern of former years, but with some difference of detail. In the section for new varieties the classes for three plants and one plant remain, but the classes for

two plants are suppressed. Again, in the section for specimen plants, the classes for nine plants are reduced to six, which will probably bring in new exhibitors, to the advantage of the exhibition, not many growers being able to muster nine great plants in fit condition on a given day. The classes for cut flowers remain as before, and the total amount of prizes remains nearly the same as in former years. We have now to notice a distinct innovation, which has somewhat of scientific interest. Prizes of £5 are offered for the best hybrids of *Geranium pratense* or *G. sanguineum* and *Pelargonium oblongatum*. These new classes are not, so far as can be declared with decision at this moment, in any way chimerical. A hybrid of the blue geranium by pollen of a pelargonium was spoken of not long since as actually existing in the garden of E. J. Lowe, Esq., of Highfield House, Nottingham. Many of the raisers of seedlings have, within the past few years, made experiments with the plants named in the schedule, in the hope of raising useful garden plants with blue or yellow flowers. It is quite within the province of the society, and in fact a proper part of its mission, to invite the competition suggested by the schedule, and for the present we may at least hope that hybrids of the kinds provided for will be forthcoming.

While this subject is before us it seems proper to remark that the society's operations are strictly measured by its means from year to year. It has no endowments and no magic modes of making money. Consequently we may always, with propriety, ask the friends of floriculture to contribute by their influence and their subscriptions to the continuance of the work. The qualification of membership is an annual subscription of one guinea, and this ensures the right of competing, with other privileges, such as free admission to the exhibition and to the society's collections of pelargoniums at Chiswick, &c. We shall be very glad to enrol new members at the present time in order to secure a full budget for the forthcoming show. Persons intending to join the society may communicate with the honorary treasurer, H. Little, Esq., Hillingdon Place, Uxbridge; or the honorary secretary, Mr. Shirley Hibberd, 15, Brownswood Park, London, N.

AN EXHIBITION OF FURNITURE has been opened in the Agricultural Hall, Islington, and will continue until Saturday next, May 13.

THE PROPOSED FISHERIES EXHIBITION will be held in the gardens of the R.H.S., South Kensington, and in the adjoining Royal Albert Hall.

THE QUEEN WILL VISIT EPPING FOREST this present Saturday (May 6), notwithstanding the calamity that prevented the King of the Netherlands accepting the hospitality of the Corporation of London.

VEGETABLES FROM ITALY.—The Italian Consul in London has been instructed by the Government of Italy to report upon the advisability of running very fast trains through the St. Gothard Tunnel, with a view to supplying the English market with garden produce.

ROYAL NATIONAL TULIP SOCIETY.—A meeting will be held this day (Saturday, May 6) at the Bull's Head Inn, off Market Place, Manchester, at three p.m., to make arrangements for the exhibition of this year.

"THE THEORY OF DESCENT," a series of studies of the lepidoptera, by Dr. A. Weismann, of Freiburg, has been translated by Mr. Meldola, and published in two volumes by Messrs. Low and Co. It will be read with interest by naturalists of all schools, but it appeals directly to the Darwinians.

SUN-SPOTS AND BUTTERFLIES.—A correspondent of *Nature* has been at great trouble to prove that there is a remarkable correspondence between the recurrence of sun-spot cycles and the reappearance of rarer species of lepidoptera. Of course, the fact, if fact it be, is dependent on meteorological coincidences.

ESSEX FIELD CLUB.—Dr. Woodward's lecture on the "Ancient Fauna of Essex," arranged for delivery this day (May 6), will be delivered in the private lecture theatre of the Natural History Museum, South Kensington, on Saturday next, May 13, at 3.30 precisely.

CHANNEL ISLANDS VINERIES AND EARLY PRODUCE COMPANY (Limited).—The summarized objects of the company are to purchase land and to erect on it vineries, and to distribute the produce throughout the United Kingdom, by means of appointed agencies in every town of importance. The shares are £1 each.

THE STORM OF SATURDAY LAST has made many wrecks in parks and gardens. Trees have been thrown out from the root and many noble trees that were unmovable at the roots have lost much of their head gear, &c., to the detriment of their completeness and symmetry. Bushey Park, now in the full splendour of chestnut bloom, is strewn with wrecked trees and big boughs from other trees, and is very much the worse for the visitation.

"PAXTON'S FLOWER GARDEN."—The number just published contains coloured figures of *Phyllocactus anguliger*, a noble succulent allied to *Cereus phyllanthus*; and the better known and very useful *Ceanothus dentatus*, which, perhaps, is hardly showy enough for a coloured plate, although as here treated it is attractive by reasons of its delicate accuracy. Amongst the "gleanings" we find a very full list of *Oncidium*s with a series of index figures.

THE ELECTRIC LIGHT AND VEGETATION.—*Les Mondes*, in a paper on "The Illumination of Conservatories by the Electric Light," states that the naked rays were found to be injurious to the plants, but the light having passed through glass globes did not appear to affect them. Nocturnal illumination is not fatal to plants, but there is no proof that it is beneficial. Upon the whole, M. l'Abbé Moigno says, the results obtained at the Palace of Industry were not favourable.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—In the schedule for the exhibition to be held September 13 and 14, a few alterations have been made, and it will be well for intending exhibitors to correct with pen or pencil their copies as follows:—Page 11, No. 7, First £15, Second £10, Third £5. Page 13, No. 50, First 15s, Second £10, Third £5. Additional prizes offered to Gardeners, Hand Bouquet, First £1, Second 10s. To Nurserymen, Hand Bouquet, First £1, second 10s.

GIANT EMPRESS ANEMONES are unknown as yet, but we anticipate that fame awaits them. Messrs. Carter and Co. have favoured us with a bunch of flowers, which are of the "poppy anemone" type, but of enormous size, averaging three to four inches across the cup, and of the rich and varied colours for which the poppy section is renowned. These are not yet in commerce, but there can be no doubt of their favourable reception when the public have acquired a fair idea of their resplendent character.

HERBACEOUS CALCEOLARIAS of a somewhat new type are in great force just now at Swanley. One of the span-roof houses over 100 feet in length in Messrs. Cannell's nurseries is filled with the plants, which average only fifteen inches high, and are not only compact and leafy, but covered with flowers from the rim of the pot. The colours, of course, are various, but the forms are good, and the general effect of the immense group is so brilliant that we cannot hope by any eulogy to convey a proper idea of it. A run to Swanley will be found a good antidote to present political and pecuniary troubles.

THE HOLY CROSS at Christmas next is likely to be large and ruddy, for hollies are now flowering most profusely. Many of the trees in collections are extremely beautiful, either with the rich purple-red of the dense clusters of flower buds or the foamy white of the open flowers. The holly is so modest in its flowering that as a beautiful tree in the month of May it obtains but little attention, but large trees of the kind known as "Laurifolia" are conspicuous for their profusion of bloom, from which is diffused on sunny days a most delicious perfume.

ROSA BONHEUR'S NOBLE PICTURE of "The Lion at Home" is seriously prejudiced by a blunder in the botany. The lion and lioness have made their home in a jungle of opuntias, a thing almost impossible and altogether improbable. There may be parts of the Old World where opuntias have run wild from plantations, and a pair of lions might make their abode in such a jungle, but the event is one of the most unlikely that can be imagined. All the cactus tribe belong exclusively to the New World, where lions are as unknown (except in menageries) as the cacti in the Old World. This may be hypercriticism, but the association of lions and opuntias is a blunder at the best.

LONDON HAS CHANGED ITS COMPLEXION very considerably within the past few days. The gale of Saturday wrought vast havoc that was at once apparent, but all the havoc was not made manifest for several days. Now it is fully revealed. The trees that were green are now purple, brown, or of no colour at all. Many of them have a scorched appearance, the consequence of the death of the leaves that were torn or battered by the gale. In many parts of Surrey and Kent the same melancholy picture of blighted greenery confronts us, and the damage to fruit crops proves to have been very considerable.

New Plants, Flowers, and Fruits.

PERPETUAL-FLOWERING TREE CARNATIONS.—A group of new varieties staged by Mr. C. Turner at the National Auricula Society's Show on Tuesday last scarcely attracted the attention they deserved. They were not entered for the Floral Committee, but during the afternoon a good representative jury of the committee of the National Carnation and Picotee Society, including northern and southern representatives, was extemporized, and first-class certificates of merit were awarded to the following varieties, nearly all of scarlet shades:—*Rufus*, rich scarlet, slightly streaked with dark, very large, bright, full, and fine; *Whipper-in*, scarlet ground flaked with black, a unique combination, very fine form and full substance; *Enchantress*, pale rose or deep pink, flaked with dark purple, a fine flower of rare substance; *Hector*, pale red, fine petal, and full flower; *Conqueror*, salmon-rose, slightly striped with purple, a very distinct and pleasing combination, large and full; *Juliette*, pale bright rose, very fine and full, good petal, extra fine; *Nimrod*, pale clear red, very fine petal, large and full; *Premier*, bright crimson, large flowered, full substance, a little rough, but good in colour, and *Flambeau*, pale ground, the petals deeply rayed with dark and dull wine-red, fine petal and full substance.

These varieties represent what might be termed a new break, and they give to lovers of the perpetual carnation a group of flowers as large in size as the clove carnations that appear in the open border in July, while in every case the habit of growth is vigorous and free. They will augment a remarkable group of new tree carnations raised at Slough during the past six or eight years.

FOREST TREES AND FURNACE GASES.—It has long been observed that the gases from the furnaces of iron districts are very injurious to the trees in their neighbourhood, and a German physicist, Herr Reuss, has lately investigated the subject in the forests of the Upper Harz. His results point to the presence of sulphurous acid in the gases as the chief enemy to vegetation. The leaves absorb this gas, and either die or cause the death of the branch from which they hang, and sometimes the death of the whole tree. Strong-looking trees naturally resist the insidious attacks of the gas longer than sickly trees, and those of a deciduous order, especially the oak, much better than pines and other coniferous trees. The inference is that oak forests should be cultivated in mining districts in preference to those of other kinds, more especially pine trees.

Calls at Nurseries.

MR. WILLIAM BULL'S, KING'S ROAD, CHELSEA.

THE orchid houses in the nurseries of Mr. William Bull, especially those in the Ashburnham Park Nursery, are just now exceedingly attractive, and, from present appearances, their attractiveness will increase very considerably as the season opens up. The more important subjects in bloom are the odontoglossums, masdevallias, oncidiums, cypripediums, cattleyas, and dendrobiums, and of some of the genera there are several hundred examples in flower. The odontoglossums are perhaps the most conspicuous, as those two valuable species, *O. Alexandræ* and *O. Pescatorei*, are flowering freely, and are supported by many other species and varieties of great beauty. To dwell upon the merits of these two famous species is not necessary. But it may be mentioned that they should be grown in considerable numbers in all gardens in which the requisite degree of warmth can be afforded them, even if there is no structure specially provided for orchids, and that amongst the large number of plants in flower in Mr. Bull's nursery are many very fine varieties. Very effective also was *O. cirrhosum*, one of the most elegant and beautiful of the odontoglossums, many of the spikes being unusually large. *O. citrosimum* roseum was flowering freely, and may be mentioned as one of the most beautiful of the light-coloured forms. *O. Halli* was represented by a considerable number of flowering specimens, amongst which were the beautiful varieties, *O. Halli leucoglossum* and *O. Halli xanthoglossum*, which have white and yellow labellums respectively. *O. Rossi majus* was blooming freely, as also was the lovely *O. Roezli*, and mention may be made of *O. triumphans* for its handsome appearance and value for contrasting with the light-flowered kinds. It is yet too early for the glorious *O. vexillarium* to be in bloom in quantities, but it may be mentioned that Mr. Bull will have shortly one of the most splendid displays of this fine species yet seen. The flowering specimens suffice to occupy the greater part of one of the spacious orchid houses in the Ashburnham Park Nursery, and, owing to their robust state of health, are producing an immense number of flower spikes. The richly-coloured *O. vexillarium rubrum*, which differs from the specific form in the greater depth of the colour of the flowers, was in bloom, and its intrinsic value fully apparent. *O. heroicum*, a new and promising species, was in capital condition, the flowers large and of a creamy yellow blotched with bright red. The lady's slippers in bloom comprise numerous examples of *Cypripedium Argus*, a bold-growing species remarkable for the rich spotting of the flowers; *A. Boxalli*, a very handsome form, with richly-coloured flowers, having the varnished appearance of *C. villosum*, which, by the way, was blooming freely and is one of the most distinct and valuable in the genus; *C. caudatum*, one of the most distinct and beautiful of the lady's slippers, the caudal appendages unusually well developed; *C. Dayanum*, *C. Domini*, *C. Harrisianum*, *C. Hookeræ*, *C. lævigatum*, *C. niveum*, and *C. Roezli*, all of which are well known and justly appreciated. The comparatively scarce *C. Warneri*, remarkable for the beautiful colouring of the upper sepal, was also flowering most satisfactorily, and was by no means the least interesting and attractive of the numerous forms. Amongst the oncidids in flower were: *O. oncolor*, one of the most distinct and beautiful of the many forms which have a place in the genus, the flowers being large in size, of a peculiarly soft shade of lemon-yellow, and produced in elegant pendent spikes; *O. fuscum*, a handsome species, with rich purple flowers; *O. serratum*, an effective form, with chestnut flowers margined with yellow, the edges of the sepals very distinctly crisped. The magnificent *Cymbidium Lowianum*, introduced a few years since, was represented by several specimens bearing numerous finely-developed spikes of flowers which are remarkable not less for their distinctness than for their beauty. The dendrobies included the exquisitely-coloured *D. crassinode* and the beautiful *D. Jamesianum* and *D. infundibulum*, and the distinct *D. sulcatum*, the latter a yellow-flowered form not often seen. Conspicuous amongst the masdevallias were *M. ignea*, a compact and free-flowering form with bright red flowers; *M. Veitchiana*, the most brilliantly coloured of the many species forming the genus; *M. Lindeni*, *M. Harryana cærulescens*, one of the most richly-coloured varieties of this beautiful species; *M. Shuttleworthi*, a charming species of small growth, with rose-coloured and pale yellow flowers, and *M. exanthina*, a pretty little species with yellow flowers. Very attractive were the brilliant scarlet flowers of *Ada aurantiaca*, and the noble specimens of *Angraecum sesquipedale* and *Phaius Wallichii*.

The new plant houses, as usual at this season of the year, are remarkably interesting, and contain many subjects of special value to cultivators. So great is the care and sound the judgment exercised by Mr. Bull in the selection of the plants for distribution, that all the novelties are more or less meritorious, but the following may be mentioned as especially deserving of the attention of our readers:—*Alsophila Rebecca*, an elegant tree fern from Queensland, with slender stem and bipinnate fronds; *Arenga Wightii* and *Calamus subangulatus*, two handsome stove palms, the first mentioned from the region of Coimbatore, and the others from the East Indies; *Crinum pedunculatum pacificum*, a notable addition to its class, producing large umbels of pure white flowers, which are very sweet scented; *Croton illustris*, a striking form with trilobed leaves richly variegated with yellow; *C. insignis*, a handsome variety specially suited for specimens, the leaves long and narrow and brilliantly coloured with golden yellow and rose-crimson; *C. spectabilis* a valuable acquisition amongst the large-leaved forms with yellow variegation; *C. tricolor*, a narrow-leaved form richly variegated with yellow and crimson; *Davallia fijiensis plumosa*, a remarkably graceful variety of this beautiful stove fern; *Dieffenbachia majestica* and *D. princeps* will be valued by cultivators of these handsome free-growing arads for their distinct and effective markings; *Epipremnum mirabile*, a bold free-growing arad, is decidedly ornamental and remarkable as furnishing "Tonga," a drug which has been recently introduced as a specific for neuralgia; *Euaenia eminens*, a Liberian plant, which will probably be much appreciated for its distinct and pleasing inflorescence; *Heliconia metallica* is a handsome free-growing plant with dark bronzy leafage; *Ixora concinna* and *I. venusta* are two beautiful additions to the list of stove flowering plants, and *Rhododendron Pink Beauty* and *R. Rosy Gem* are two fine hybrids with long tubed flowers which are borne in large trusses and are of the colours indicated by the names.

It is not without interest that Mr. Bull is offering a series of fuchsias

selected from the seed beds of Mr. Bland and Mr. Eckford, but of course it is too early to see them in bloom, and we cannot offer an opinion on their merits. We made note however, of the following coleus as especially worthy of the attention of cultivators of these free-growing and attractively-coloured subjects, namely, *Comet*, *Crimson Gem*, *Cascade*, *Counsellor*, *Glow-worm*, *Matchless*, *Meleor*, *Monarch*, *Sunshine*, and *Valentine*.

THE TEACHING OF FORESTRY.

By COLONEL G. F. PEARSON.

Read at a meeting of the Society of Arts, under the presidency of Sir J. Lubbock, Bart., M.P., F.R.S., March 1, 1882.

FORESTRY is daily attracting more and more attention in all the countries of Europe, as well as in the colonies of Great Britain, and in the United States of America. This is, no doubt, owing in part to the depressed condition of agriculture during the last few years in Europe; but it is due also largely to the increased demand for timber which the advance of civilization brings with it. For where in some industries, as in ship-building, iron has largely taken the place of wood, in numberless others, as in railway works, the drain on the forests has enormously increased. I trust, that, without entering into any complex questions of sylviculture, which, however interesting in themselves, would be too long to discuss here I may be able to place before you a few facts which may be worthy of your attention. I will first endeavour to give you a short sketch of the rise and progress of scientific forestry in European countries, and afterwards very briefly to explain the principles on which it is based.

Sylviculture, or the culture of forests, as it is understood and applied in the countries of Europe, where it has been studied as a science, is the application to woodland property of certain economical principles, which, in their spirit, contain nothing more than what is held to be necessary for the well-ordered management of landed property in general; and which may be summed up as follows:—

1st. The obtaining, within approximate limits, of a regular sustained revenue from the land which the forest covers.

2nd. The utilization to the fullest extent possible of the natural productive powers of the soil.

3rd. Progressive improvement in the value of the property.

4th. Final realization of the crop to the greatest advantage.

It is in the development of these principles, and in their application to forests of different sorts, that the true science of forestry consists.

Now, for various reasons, but chiefly on account of the abundance of coal in Great Britain and the facilities of obtaining at cheap rates all sorts of timber from other countries, which our commerce affords, the management of forests has not as yet attracted so much attention among ourselves as it has done elsewhere; and even where, as in Scotland, considerable natural forests existed in times past, since railways have penetrated into distant parts of the country, they have too often been cut down, and their value realized; and in consequence natural mature forests of any great extent do not at present exist in Great Britain; and though there are a fair amount of plantations, in various stages of growth, and some of them of considerable extent and in excellent order, their treatment has up to the present time been confined to simple cultural operations, and their management as forest property has been but little thought of. To this may be added the fact, that all the great forest properties in Scotland, and most of those in England, belong to private owners, whose interests will not always allow of their working their forests, for results which can only be properly developed after a long series of years. These and other similar reasons have, up to the present date, stood in the way of the growth among us of any sound system of managing our forests; but there can be no doubt that the subject is now beginning to attract a far larger amount of attention than it has ever yet done before.

Before going any further, it may be interesting to sketch briefly the history of the rise and progress of forest science on the Continent of Europe.

During the early periods of civilization which succeeded the Roman occupation of Gaul and Great Britain, the forests, both in our own country and on the Continent, covered vast areas of country, and it was one long-continued struggle of the population against their growth, which was then equally an enemy to pasturage and cultivation; often, too, where border feuds and wars were of constant occurrence—as in Scotland between the different clans, and also between the lowlands and the border counties of England—the forests were burned and destroyed by the conquerors, in order that they might not be used as a refuge by the other party, or as a shelter for making reprisals. The timber, as such, had then no value whatever. Later on, while the population was still sparse, and roads and other means of communication were few and difficult, timber had but little value, except near the large towns, and at this time the forests were objects of interest only to the princes and nobles, who used them as their hunting grounds, and who carefully preserved them from encroachment as long as their interests in this particular were not interfered with—but not otherwise, for it was at this period that those common rights sprang into existence, which, arising out of compromises between the population and the nobility, have in later times proved such a fertile source of trouble to forest conservators both in England and on the Continent.

It was about the beginning of the seventeenth century that the then rapid disappearance of the forests seems to have first attracted attention in the different countries of Europe; and among the first traces of attempts at forest management certain regulations may be quoted, which were made so far back as the reign of Elizabeth, to regulate the number of standard trees in the oak-coppiced forests belonging to the crown. In France, the ordinance of 1669, issued at the instance of the great minister Colbert, had a similar object. These regulations, however, were simple measures of police, restricting the felling of certain trees, under certain conditions, and they contained no scientific principle whatever; while the agents employed to carry them into execution were probably persons of the lowest class, living in the immediate neighbourhood of the forest, and consequently too often ignorant, dishonest, and interested, as the long lists of fines and punishments inflicted on them for frauds and embezzlements, which still exist, seem to indicate. It is very doubtful if the forests even benefited at all from their care. Nevertheless, the subject was not entirely lost sight

of in France, as the studies of Duhamel de Monceau, Linné, Bernard de Jussieu, Buffon, and Cuvier go to prove. Later on, attempts were made to work on what we should call, now, a regular system; by fixing a certain period called a revolution, in which the forest was destined to be cleared off entirely, and reproduced by natural seeding; and to this end it was divided into a number of compartments equal to the number of years in the revolution, one of which was felled every year, or at such regular intervals of time as was determined in the working plan, a few standard trees only being left as seed-bearers. This system was known in France as that of *tire et aire*, and continued in operation till within the last half century. But this, as is now well known, will not suffice to ensure the regular natural reproduction of a forest, and in consequence, it often happened that those so operated on were either ruined entirely, or were changed altogether in their character. Indeed, any approach to sound forestry was unknown in France till the forest school was established at Nancy, in 1824.

Previous, however, to this date, and, indeed, before the close of the last century, considerable progress had been made in the right direction by the German foresters on the other side of the Rhine, who were undoubtedly the first to base the principles of forestry on observation, and to treat it in a scientific manner—Hartig (1762-1837), Cotta (1763-1844), Hundeshagen (1783-1844), were the founders of that system of working forests by thinning at regular intervals, first, for the improvement of the crop, and afterwards for its realization, which has since been developed into a regular science in the forest schools of Germany and France. Hartig founded the school of Dillenberg, in Nassau, where, in the year 1800, he had at least seventy pupils. Cotta founded that of Thorandt, in Saxony, which in the year 1812, numbered upwards of 100. These schools seem to have disappeared about the year 1820, and were replaced by others in all the German States, viz., at Elberswalde, in Prussia (founded in 1867), Tharand, in Saxony (founded on the old establishment of Cotta, soon after 1820); Münden, in Hanover; Giessen, in Hesse; Aschaffenburg, in Bavaria; Tübingen, in Wurtemberg; Eisenach, in Coburg. It was not till the year 1824 that any step was taken in the same direction in France, when the Nancy school was founded, with Lorenz as its first director. The *Code Forestier* was published in France in 1827, but it was not till 1837 that the first edition of a work on forestry appeared there, in the shape of the lectures of Lorenz, edited and published by his successor, Parade, at the Nancy school. Since then, however, the works in France have been vigorously developed, and the Nancy school has taken a high place among the schools of Europe, chiefly owing to the long and happily uninterrupted labours there of Monsieur Nanquette, the late director, the late Professor Bagnieris, who for twenty-two years was Professor of Forestry at the school, and Professor Broillard, now Conservator of Forests at Macon, whose teaching, and whose work on forest management, have done more, perhaps, than anything else to clear the subject of forestry in France from empiricism, and to place it on a thoroughly practical foundation. Nor have the Germans, who first led the way, remained behind their French colleagues, as any one who will take the trouble to visit their admirably managed forests must allow. Nowhere can the practical results of the natural system be seen better than in some of the German forests, where it has been in operation in some places for at least a century.

Besides the establishments for teaching forest management in Germany and France, schools of sylviculture now exist in all the principal countries of Europe, except in Great Britain. Austria, Italy, Russia, Switzerland, and even Roumania, most of them, after sending pupils for a few years to the French and German schools, have set up schools of their own, and thus rendered themselves independent of foreign educational aid. The United States of America, only last year, sent an able and distinguished man (Dr. Hough) to visit all the forest schools in Europe, with a view of founding one in America; and it is no doubt to be regretted that, as yet, no steps have been taken to do the same in Great Britain; for with us, as elsewhere, a forest school would become, not only an establishment for teaching sylviculture, but also a centre of study and practical observation, from whence a knowledge of sylviculture, as a science, would be spread abroad, for the benefit of society in general.

It is certain that unless the forests of a country are properly and economically managed, the time may come, when as was the case in India, it will find itself without the means of procuring the needful supply of timber, except at an extravagant price; while at the same time the general interests of the community require that a fairly abundant and cheap supply should be constantly available. This is especially the case where, as in the great continental areas, deficiency in the means of transport or the distance from the timber-producing tracts, adds materially to its cost. In such cases experience has shown that the only practicable way out of the difficulty is for the State to intervene; and although in England we have special facilities for supplying our wants from abroad, owing to our extended commerce with all countries, the extreme limits of a reasonably cheap supply seem to have been reached, and at all events State action seems so far desirable as to help private proprietors to make the best use of their timber-producing lands.

In India considerable progress has already been made in the right direction; for there the question forced itself into notice more than a quarter of a century ago, and the first steps for forming a regular forest administration there were taken immediately after the mutiny. Dr. Brandis was appointed Inspector-General of Forests in 1863, and in 1867, his scheme for training foresters for India in the schools of France and Germany was, after much discussion, adopted finally by both the Home and Indian Governments. Indeed, as a matter of fact, at home there were neither foresters who could teach the science of sylviculture, nor schools in which it could be taught. It is not too much to say that, in spite of the drawbacks inherent in such a system, the result has amply justified Dr. Brandis's expectations, for the foreign schools have given the State a body of able men, thoroughly grounded in the management of natural forests covering extensive tracts of country, as they do in India. But meanwhile, nothing has been effected for the advancement of forest science at home; and this is, in consequence, the weak point in an otherwise admirable system. The practical disadvantage of this is now beginning to make itself felt in regard to our Colonies, where forest management is now manifesting itself as the great economic question of the day. Within the last two years both the Cape of Good Hope and Cyprus have been furnished with forest officers from France, owing to the absence of any available educated men in our own country. The Mauritius, Ceylon, the Straits

Settlement, Hongkong, Fiji, and other colonies, are all following suit, and have recourse to Kew and other similar institutions for foresters. But these institutions are incapable of supplying their wants, for the creation of plantations is a very different study from the management of forests which already exist in a natural state.

Now, the cause of the present difficulty is not far to seek. It is that there lacks with us anything like a central establishment at the headquarters of the Empire, from which experts might be sent to the colonies, and from which our own great proprietors of woodlands would doubtless often too gladly supply their wants for foresters. We have now in India a fair number of educated foresters who know their work well, and some of whom at least are men of high professional attainments, able to hold their own with the highly-educated foresters of the Continent. It is not too much to hope that the services of some of these men might be utilized to teach forestry at home and to put in order some portion of forest in England and Scotland, where practical instruction in what is known as the natural system of sylviculture might be given. Thus in due course England might become independent of foreign countries for the education of her foresters.

PART II.

It will be now right that I should, with your permission, explain as briefly as possible what are the principles of forest management as taught in these schools.

Forestry divides itself into two branches; the first is called sylviculture, or the culture of woodlands in all that concerns the crop which grows upon them; the second refers to their administration to an economic point of view, or, in regard to the supply of timber for sale or use by the community, and the revenue to be derived from them.

As regards the first, it may be said that there is no mystery in scientific forestry. It means simply to observe the action of nature in a forest, and to follow it, or to utilize it for our advantage, when we are able to do so. Its object, then, should be to obtain the utmost possible advantage from the soil, by keeping it always covered by a growing crop of trees; and, when the trees arrive at maturity, to remove them in such a manner that the smallest possible interruption may be caused to the productive work of nature in the forest.

Now, the natural reproduction of the forest, when the trees are removed, is the corollary of the above considerations. In a natural state, the reproduction of the forest is effected by the germination of the seed which falls from the trees in it, whenever the necessary air, light, and warmth are admitted to the ground, by the fall of any tree, either from accident or age; the work being carried out gradually, and the soil never being exposed over any large area at once. For the young seedlings which spring up would wither and perish at once, unless they were sufficiently shaded. So in forest operations, when the time has come for the removal of the timber, on no account should the ground be anywhere cleared of trees at once; but a commencement should be made by felling a tree here and there, and so breaking the thick cover of the forest, to allow sufficient air and light to reach the ground, and so cause the seed which has fallen to germinate. In this way, about one-fifth of the mature trees should be removed every five or six years, never breaking the cover by making large gaps in it, but taking a tree here and there, and always leaving the finest and most vigorous trees till the last; so that in about thirty years the whole of the old trees will be cleared off, and a new forest established in their place. Thus the seeding of the forest will be effected by the agency of the finest trees, which will be themselves all the while increasing in bulk, and thus the productive power of the soil will be utilized to the fullest possible amount. A short calculation will show that a tree ten feet in girth, which makes a ring of wood of only one-eighth of an inch in thickness, adds to its bulk at the rate of rather more than one cubic foot of timber annually for every ten feet of the length of its stem; or, in other words, such a tree, if its stem be thirty feet in height, will, in thirty years, have increased in bulk by at least 100 cubic feet of solid timber. At the same time, during these thirty years, the young trees which are springing up will become perfectly hardy, and capable of supporting the whole force of the summer heat and winter frost. Nothing, then, is lost by the system of natural reproduction, as must be the case when a forest is cut down to be replanted; for not only in the latter case is there a degradation of soil from exposure, but also a dead loss in the production of woody material during the whole time that both the old crop and the young can remain on the ground together with mutual advantage.

But it is not only in the removal of the timber and the reproduction of the forest, that we ought to study the action of nature. It is equally necessary that we should do so in the felling for improving the growing crop, or as they are commonly called, thinnings. To understand this, let us glance at the constitution of a high timber forest, in its natural state, that is to say, a forest, whatever be its age, springing from seed, and therefore, capable of living and thriving through a long series of years. In such a forest the trees will, when young, form an almost impenetrable thicket of various heights; later on, they begin to assume a definite form, and being in close contact with each other, they soon begin gradually to lose their lower branches, which fall off and wither; but as a compensation, they throw all the vigour of their growth into their heads; and as these push themselves upwards, seeking the light of the sun, the stronger ones overtake the weaker so that a certain number of the latter perish and disappear each year. When about half their full age, the trees will have attained their full height; but from that time till they arrive at maturity they go on always augmenting the diameter of their stems, but at the same time decreasing in number; so we may calculate that, if 1,600 trees of four inches in diameter can stand and thrive on an acre of ground, there will not be above 400 when the trees are eight inches, 200 when they have attained twelve inches, and from 100 to 140 when they are sixteen inches in diameter. In our thinning operations, then, these considerations should be our guide. In the early stages of a forest's growth, there is little to be done except to keep the heads of the young trees of the most valuable species from being overtopped by those which stand near them; and this can be best done, not by removing the others, but by cutting off or breaking their tops; for it is in this stage that the process of natural pruning is going on, which nature does so much better herself than we can do it for her, and to this end it is necessary that the trees should grow as close as possible together. Later on, when the trees have taken a more regular form, we can assist nature, and at the same time save much valuable produce, by

judicious thinnings, which should be arranged so as to pass through the whole forest at intervals of from ten to fifteen years, so that the whole area may be operated on in turn. In executing these, the most delicate of all forest operations, it will be well to remember that their object is to give room to the heads of the trees and not to their stems; for the stems will never be too close together as long as the heads have room properly to develop themselves. The details, however, which govern the operation of thinning differ, for almost every species of tree operated on, and to touch on them would be to enter upon a whole course of lectures on forestry. It will be enough to say here that in every case the favouring of the most promising trees, and the removal of the weaker ones, together with the preservation of continuous shade to the surface of the ground, while all the trees have sufficient room to grow, should be the object aimed at.

The second point to be considered is the administration of forests from an economic point of view, or with reference to the revenue to be derived from them.

Now, the basis on which all sound forest management depends is the revenue which any forest can be made to pay—that is to say, the income which it will produce in proportion to the volume of the standing trees; or, in other words, its capitalized value. This principle has been accepted as the base of the science equally in the French as in the German schools, which, differing considerably as they do in the details of forest treatment, both start from this same point. To this end a forest should be considered as so much capital, represented by so many cubic feet of wood; while the amount of wood produced each year by its growth represents the interest thereon, and in fact is the revenue of the forest. It is evident that it is possible to cut and remove every year a quantity of timber equal to this annual increase of wood without diminishing the volume of the standing crop. The quantity that can be so removed is the proper yield of the forest—that is to say, the continuous yield; and French foresters have called it “the possibility”—or possible annual yield—of the forest.

Now, if we suppose that a period of 150 years will be required for the youngest trees in a forest to arrive at maturity, it is evident that the 150th portion of it might be felled every year, and that the increase of timber in the rest of the forest would equal the volume taken away. But, as we cannot apply such a plan in practice, and at the same time insure the reproduction of a high timber forest, we arrive at the possible annual yield in another way.

1st. In order that we may have to deal only with areas of a workable size, the forest is divided, in the first place, into large blocks, or divisions, which should not be more than 2,500 or 3,000 acres each, and arranged generally so as to be convenient for the roads, rivers, or other means of transport for the timber. Each of these must be considered and dealt with as a separate forest by itself; and to each a period is assigned, in which the whole of the present crop of trees will be removed, and the youngest now on the ground will have come to maturity. This will be about 200 years for oaks, 120 to 150 for beeches and Scotch firs, and so on. These divisions are again subdivided into (usually) four or five working subdivisions, or compartments, to each of which a sub-period of thirty years or thereabouts is assigned as being sufficient for the removal of all the old trees in it, and the reproduction of the new crop. There must be, then, as many sub-periods in the number of years assigned for the complete working out of the forest as there are sub-divisions in the whole forest. We take whichever of these sub-divisions contains the greatest number of mature trees, and assign to it the first sub-period of 30 years, calling it No. 1. We count and measure the trees in it (neglecting all, if there be any, of less than four inches in diameter), and ascertain the total volume of timber they contain. This, divided by 30, or whatever is the number, the number of years in the sub-period will give, as is evident, an amount or volume of timber somewhat short of the possible annual yield, but near enough to it for all practical purposes; it remains then only to remove, each year, from this compartment the quota of timber indicated above, following, in doing so, the method for the reproduction of forests explained just above—that is, we should remove one-fifth of the trees from one-sixth of the surface of the subdivision each year, or thereabouts; taking care not to exceed the volume indicated as the possible annual crop.*

The other sub-divisions or counterparts will be numbered 2, 3, 4, &c., and to each of them a sub-period will be assigned in succession. In the meanwhile, the necessary thinnings and the removal of trees that would otherwise perish must be carried on continually during the first sub-period in all the other sub-divisions, so as to go over the whole ground at regular intervals, not exceeding 15 years each. At the conclusion of the first period, No. 1 will contain a young crop of trees, from one to 30 years old; and then No. 2 will be taken in hand; and after No. 2, then No. 3, and so on until, in the full period, the whole forest will have been renewed without the ground having been once entirely cleared of trees. Anyone visiting Baden Baden will do well to explore the forests in the beautiful valleys of the Oos and the Murg, in its immediate neighbourhood, which furnish a splendid example of the successful working of forests on this system. These forests are easy of access, being on the high road to Switzerland, and I mention them on that account. As examples of private forests, which have been admirably managed in the same way, I may mention those of Prince Furstenburg, near Rippoldsau, to the east of Baden Baden, where there are some excellently constructed and most ingenious devices for bringing timber down the mountain torrents to points from which it may be carted away.

But besides forests which spring from seed, there are others which consist of shoots springing from the stools or stumps of trees which have been felled, and which are commonly called coppiced forests. In many cases these give very good returns for hop-poles, mine-stays, bark, and other purposes for which large timber is not wanted. Their management is well understood, and the only points on which suggestions may be offered are:—

1st. The necessity of giving sufficiently long intervals between each felling, as every time the copse is cut the soil suffers from exposure, and its fertilizing power is wasted, as it is also by the production, during the first four or five years after the cutting, of a mass of useless grass and leaves which profit nothing.

* Trees cannot be made to grow spontaneously in a forest, as we can place the men on the squares of a chess-board. The distribution of the fellings must, therefore, really depend on numerous cultural exigencies which develop themselves from time to time, which time will not admit your noticing here.

2nd. The necessity of using sharp instruments for felling and cutting the wood close to the ground, leaving the stools or stumps of such a form that the wet may run off them. These precautions are necessary for ensuring healthy re-shoots.

3rd. The cutting of the copse, if possible, in the early spring instead of in the winter, as is usually the case. If the work is done just before the sap begins to move, the shoots are made at once, before wet and rot have attacked the stools, and rendered the production of healthy, vigorous shoots impossible.

It may be added that the more standard trees that are reserved in a coppiced forest the greater will be its value; and there is nothing to prevent their flourishing over the lower growth, which serves to keep up their heads, and give them a clean stem.

Now, what is the practical application of all this? We have in Scotland about 800,000 acres of forest which have been planted during the last hundred years, for few of them exceed that age. Besides these, there are a small remnant of the old natural forests in Strathspey. In England we have belonging to the Crown about 50,000 acres of forest, the greater portion of which has been planted within the last hundred years also, with some remnants of the old natural forest, chiefly in the New Forest. It is impossible to speak too highly of the admirable work done by the able men who have created these forests at Scone, Blair Athole, Dunkeld, in Strathspey, on the Findhorn, and at Beuly, in Scotland, as well as in some of the English Crown Forests. In our colonies, including India, there are millions and millions of acres of forest land, some of which is of the greatest value, so that Great Britain is perhaps the country most richly endowed in forest wealth of all the countries of the earth. Every one, not only in our own country, but elsewhere, is interested that all this great forest wealth should not be wasted or frittered away by a single generation of men. But, nevertheless, what is the future of all the forests? I have visited many of them, and scarcely anywhere did I see any of that young growth which are the links uniting the forest now on the ground with that of the future. Can any one say, then, that the future of these forests is assured? As at present they exist, one of two conditions must befall them. Either they will be cut down and the timber sold, or they will in due course perish naturally and disappear of themselves. In either case the result is deeply to be deplored, for when once a forest disappears it can only be replaced at a great expense of time and money.

It is for this reason that I am here to advocate the establishment—be it on the smallest scale even to commence with—of some system of national instruction in scientific forestry. Hitherto, we have been entirely dependent on Continental schools for this training, and at the present moment we have officers of the French forest service, who have been lent to the British Government, at the head of the forest administrations both at the Cape of Good Hope and at Cyprus. It seems, then, time that some stir should be made to help ourselves in this matter. It would, perhaps, suffice at first to establish a course of lectures on forestry at one of our public educational establishments, at which young men desirous of following a forest career might attend; provision being made for their instruction in practical work, if possible, in our own Crown forests, but otherwise in some of the State forests on the Continent. It might be hoped that the Indian and Colonial Governments would as an encouragement place some appointments in their forest services at the disposal of young men so educated.

As a proof of what has been already effected in India by the forest officers educated in the Continental schools, I may mention that in that country there are at the present date 9,820,000 acres of reserved forests, the whole of which are managed generally on the principles above detailed, and 2,493,000 of which are protected from fire, as well as cattle and sheep grazing, and consequently, are now in a condition to reproduce themselves under the natural system; and as, perhaps, the most convincing proof, from a practical point of view, of the value of the system, I may add that the forest revenue of India, which in 1870 was only £357,000, with a net revenue of £52,000, in 1880 reached £545,000, with a net revenue of £215,000. That is to say, the revenue had increased 56 per cent., while the charges had only increased 8 per cent.

In South Australia a serious commencement has been made in the right direction also. By an Act passed in 1873 the sum of £2 per acre is paid to landowners, in certain districts of the colony, to form plantations of trees. In 1875, a Forest Board was constituted, as certain districts of the colony were formally defined as forest reserves. In 1878 a Forest Act was passed, and a conservator of forests (Mr. Brown) was appointed. Last year, about a quarter of a million trees were planted out, and the forest revenue amounted to £6,517—of which £1,380 was for timber sold—against an expenditure of £6,200.

If then, so much has been done by the Indian and Colonial Governments to secure the future of their forests, can nothing be accomplished at the head-quarters of the Empire? This is the question now before us, and I trust that it may be answered, by instituting a course of instruction which may eventually develop into a forest school for Great Britain.

(To be continued.)

ARE TOADS POISONOUS?—After recounting instances of toads taken inwardly without any evil effects, Goldsmith, in his *Animated Nature* (vol. vii., p. 100), proceeds thus:—“From all this it will appear with what injustice this animal has hitherto been treated. It has undergone every reproach; and mankind have been taught to consider as an enemy a creature that destroys that insect tribe which are their real invaders. We are to treat therefore as fables those accounts that represent the toad as possessed of poison to kill at a distance; of its ejecting its venom, which burns wherever it touches; of its infecting those vegetables near which it resides; of its excessive fondness for sage, which it renders poisonous by its approach; these, and a hundred others of the same kind, probably took rise from an antipathy which some have to all animals of the kind. It is a harmless, defenceless creature, torpid and unvenomous, and seeking the darkest retreats, not from the malignity of its nature, but the multitude of its enemies.”

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THE BLUE-FLOWERED TROPÆOLUM.

(Tropæolum azureum.)

CURIOUS notions prevail as to the possibility of finding blue, red, and yellow flowers on plants of the same genus, but the truth is that Nature observes no strict rules in these matters. As regards blue flowers, they are few and far between in this world, and the evolutionists profess to know the reason why. But they appear as close akin to flowers of all other colours, as in *Leschenaultia*, *Tropæolum*, *Primula*, and others. It is true, however, that where yellows and reds predominate we do not often see shades of true blue. The blue dahlia and the blue rose are both wanting. Many genera are severely restricted in range of colour, as, for example, *Campanulas* are mostly blue and white, *Acacias* are mostly yellow, *Narcissi* are yellow and white, and *Gentians* are renowned for their shades of blue, although amongst many there are a few examples of yellow and white.

requires careful culture; but wherever the beautiful *T. tricolorum* is well grown this beauty will be found to give no special trouble. To be dry at any time when growing is prejudicial to its beauty, but an excess of moisture at any time will be not less injurious. An airy greenhouse will be better for the plant than a warm, close structure; nevertheless, it must be considered a warm greenhouse plant, and one that should never be put out of sight, or even out of reach. The flowers open a rich violet colour, shading to bluish white in the centre, but they change afterwards to a beautiful soft blue, like that of *Eutoca viscida*. It is figured in Paxton's *Magazine of Botany*, ix. 247.

THE WHITE CRINUM OF SOCOTRA.

(Crinum Balfouri.)

THIS is one of the most beautiful species of crinum known, and at the present time a plant of much interest, as it is one of the many acqui-



TROPÆOLUM AZUREUM.

The blue tropæolum was introduced in the year 1842 by the Messrs. Veitch and Son, through their collector, Mr. Lobb, who found it near Valparaiso, at a place called Cuesta Dormeda.

It had been much talked of previously, and yet, although its first flowering in this country was regarded as an interesting event, the plant is at this time a rarity, so unusual is it to meet with an example of it in any private garden. In the summer of last year we saw a beautiful specimen in one of the pelargonium houses of the Royal Horticultural Society at Chiswick, and have endeavoured to represent it truthfully in the engraving that accompanies this notice, hoping it may attract the attention of amateurs who have not yet vowed to live on bedding plants alone.

The plant is of delicate habit, having slender stems and leaves divided into narrow segments, and its flowers appear as if suspended by hairs to the supports that are required to give stability. It

sitions of Dr. I. B. Balfour in his recent botanical explorations in the island of Socotra. It is necessarily a tender plant, and will ordinarily require the heat of the stove, although under some circumstances it may be treated as a warm greenhouse plant. The growth is free but neat, both bulb and leaves being smaller than the customary crinum type. The flowers are white, very fragrant, the segments narrow and ligulate, the umbel, comprising about a dozen of them, borne on a stout stem one to two feet high. In the notice of the plant in *B. M.*, 6,570, Mr. J. G. Baker says:—"Its nearest alliance is with two Himalayan species, *C. amœnum* and *longifolium* of Roxburgh; but all the three sub-genera of crinum, *Stenaster*, *Platyaster*, and *Codonocrinum*, are represented in each of the three tropical countries, and also in Australia."

BEDDING AND POMPONE DAHLIAS.

JUDICIOUSLY arranged, the pompone and bedding dahlias contribute in no small degree to the attractions of the flower garden, and in many instances their cultivation may be extended with considerable advantage. To discuss the relative values of the two classes is not necessary; both have their merits, and should have a place in the same garden. The pompone varieties, which attain a height of about four feet, and produce their neat little flowers in great profusion, are admirably suited for the back rows of the mixed border and furnishing flowers for decorative purposes. The bedding varieties, on the other hand, are, from their dwarf growth and freedom of flowering, well adapted for beds and for the formation of distinct groups along the front of spacious borders. They also make effective lines in borders when care is taken to select the colours with judgment; but they are decidedly more attractive when arranged in bold groups at suitable intervals.

In the cultivation of these two important sections, the exercise of a small amount of skill and attention will ensure the most satisfactory results, for after they are established in their summer quarters making secure with stake and bast the shoots likely to be injured by the wind is all that will be necessary. The most important points are the production of strong plants, the selection of suitable positions and the tasteful arrangement of the colours. Sufficient in a general way has perhaps been said with reference to the importance of putting out strong plants of dahlias, and now there is no occasion to do more than state that it is especially important to have the plants strong enough to make a vigorous growth from the first and begin to produce their flowers within a very short period of their being put out. Our summers are not so long that we can afford to have the beds and borders occupied with plants that do not contribute their share to the attractions of the garden until five or six weeks have elapsed. Plants well established in five or six inch pots are decidedly the best, and every practicable effort should be made to obtain them. They of course require more space than small examples in sixties, and some additional labour is necessary, but no trouble should be considered too great, and it will be better to limit the number than to have a large stock of plants that are small and weakly. A rich soil is not necessary, as a moderate growth and a plentiful production of flowers of average quality are more to be desired than robustness and a few blooms of extra large size. The soil ought to be in fairly good condition, and beds and borders that are in an exhausted state should have a moderate dressing of manure when undergoing the necessary preparation. The positions in the flower garden selected for the dahlias should as far as possible be open without being unduly exposed, so that they will enjoy the sunshine without being injured by the rough westerly winds in the autumn. Borders filled with the roots of trees or much shaded are the least to be desired, as in these the

growth is invariably so weak and long-jointed that the plentiful production of flowers is quite out of the question. A moderate amount of shade will not do much harm, and there are but few gardens in which positions in every way suitable for dahlias cannot be found.

About the third week of May is a good time for planting dahlias in most parts of the United Kingdom, for if they are strong and well hardened there is not much danger of the morning frosts being severe enough to do them any material injury. But the cultivator will of course be guided by the district and the weather, and if the district is much subject to spring frosts or the weather cold the planting should be delayed for a week or ten days. In arranging them in beds they should be put about two feet apart each way, and if several colours are

planted in one bed due care must be taken to equally distribute them. The dwarf bedding kinds may be allowed to grow erect, but the pompones should be pegged down, as they harmonize better with the other bedders, are more effective, and the labour and expense incidental to the employment of sticks are avoided. To admit of their being more readily pegged down, they should be planted aslant and all lean the same way. They ought, indeed, to be planted in as horizontal a position as possible, and as soon as they commence to grow freely have a stout peg to hold them down. As the main shoots and the lateral branches progress they must be pegged down, and in every case the pegging ought to be done before the shoots have had time to make much growth in an upright direction. The pegging should be continued until the surface is covered, and then the growth can be allowed to extend naturally, and the result will be beds of the most pleasing and effective description. Beds of the dwarf sorts may have the outer row of plants pegged down, as when they are allowed to grow more naturally without an enclosing band of some dwarf-growing subjects the lower part of the stem is too prominent, and they present an appearance not altogether pleasant. A striking effect may be produced by enclosing a bed of rose, purple, or maroon varieties with an outer row of a good white kind pegged down, and a bed of a crimson or scarlet variety with one bearing yellow flowers, also pegged down.

The most important matter of all is perhaps the selection of varieties, and as many beautiful varieties have been introduced during the past two or three years,

more especially in the pompone class, cultivators should be careful to include some at least of the recently-introduced varieties in their collections. The following pompones would form a most excellent collection, as the varieties represent all the most distinct colours and include several of the beautiful flowers received from Germany in the two past seasons:—*Adonis*, a very dwarf variety, the flowers rosy carmine on a blush-coloured ground; *Bijou*, pale lilac edged with lake, very pleasing; *Burning Coal*, golden yellow tipped with scarlet, very effective in colouring; *Carl Mendel*, brilliant crimson, flowers beautifully formed; *Comtesse Von Sternberg*,



CRINUM BALFOURI.

yellow tipped white, dwarf and free; *Dove*, white delicately tipped lilac, flowers perfect in form and invaluable for cutting; *F. A. Zachman* is in the same style of colouring and desirable in large collections; *Dr. Rauch*, orange-red, a miniature flower of a brilliant shade of colour, and very useful in a cut state; *Dr. Schwebes*, bright scarlet, one of the most effective in the border; *Fraulien E. Richter*, pure white tipped with rosy purple, a beautiful flower in colour and form; *Frau Professor Klug*, light rose, a charming variety, probably the best of its colour; *German Favourite*, bright lake tipped white; *Grass an Wien*, bright buff, a distinct and fairly effective shade of colour; *Lady Blanch*, a small pure white flower of the most perfect form, and simply invaluable for cutting; *Lilacina*, delicate lilac, free and useful; *Little Beauty*, crimson tipped white, very attractive; *Louis Rodani*, deep lilac, the best of its particular line; *Mdlle. Valentine Fancourt*, a distinct flower, striped purple and white; *North Light*, bright scarlet, the finest of the scarlet pompones; *Prince of Lilliputians*, dark maroon, a charming little dark flower; *Professor Bergeat*, rose-crimson, distinct and very attractive; *Rosetta*, light purple; *White Aster*, a pretty little white fringed flower, and *Wilhelm Nitsche*, red tipped with white, one of the prettiest of the tipped flowers.

Of the numerous bedding varieties the following are unquestionably the best in their respective colours:—*Crimson Gem*, bright rich crimson; *Faust*, deep maroon; *George Thomson*, bright yellow, the best of its colour, and very effective; *Marguerite Bruant*, pure white, a fine free-flowering variety, surpassing *Alba floribunda* and other of the white bedding dahlias; *Royal Purple*, deep purple, as indicated by its name; *Rising Sun*, brilliant scarlet; *Yellow Pet*, golden yellow, and *Zelinda*, crimson-purple. The foregoing range from one and a half feet in height, much depending upon the soil and season.

AN OLD DAHLIA FANCIER.

SHORT NOTES FOR SMALL GARDENS.

By THE VICAR'S GARDENER.

THE flower garden will now occupy much of the attention of the amateur, and a few suggestions on the following matters will probably be useful to many owners of small gardens.

ABUTILONS AS BEDDING PLANTS.

Knowing how effective the dwarf-growing abutilons are in the flower garden, I should like to see them grown more extensively in the beds and borders. Handsome in foliage, they are particularly attractive when in bloom, whether grown singly in the mixed borders or in masses in beds. All the varieties mentioned already as specially adapted for the conservatory are equally well suited for the flower beds. But if they are too expensive, *Darwini majus*, *Darwini robustum*, *Vesuvius*, *Fleur d'Or*, *Orange Perfection*, and *Boule de Neige* may be selected. Their effectiveness when grown in beds will be much enhanced by an edging of one of the golden-leaved varieties, the comparatively cheap *A. Thompsoni* being still one of the best. An ordinary soil will suit abutilons, and the only attention necessary will be to supply them with water when first put out, and to nip out the growing point as soon as they begin to make new growth, to encourage the production of side shoots. They should be put out about twelve inches apart each way. If a warm greenhouse is available a few of the most compact and thrifty examples may be lifted in September and put in pots for winter flowering. When lifted and potted in a careful manner, and placed where they can enjoy a temperature ranging from 55 deg. to 60 deg., they will bloom freely throughout the winter. They can be kept in an ordinary greenhouse, but they must have more warmth than that structure affords when wanted in bloom. The slender-growing *A. vexillarium variegatum* makes a charming marginal band to beds filled with dwarf-growing subjects and affords a pleasing variety.

LIFTING SPRING-FLOWERING PLANTS.

The spring-flowering plants that are to be kept through the summer, such as the daisies, primroses, candytufts, and pansies, should be handled with care, and not be allowed to remain out of the ground any longer than is absolutely necessary. Some amateurs lift the spring-flowering plants and place them in a shady position, where they can remain until the beds have been refilled, instead of replanting them at once. Nearly all the subjects employed for the decoration of the flower garden during the spring require a rather shady position in the summer, more especially the daisies, primroses, polyanthus, and pansies, and their near allies, the violas. The candytufts and alyssums are best in a sunny position, provided the precaution is taken to supply them liberally with water until they show signs of having become established. They should all be lifted as carefully as possible, and the polyanthus, primroses, and daisies be broken up into clumps of moderate size, and be planted a few inches apart in rows with a foot space between them. The pansies and violas may be laid in trenches the same distance apart, without being divided or undergoing any preparation, and have the soil pressed closely about the roots. The plants so disposed of are required simply for furnishing cuttings for raising a stock for the following season. Young plants are so decidedly superior to old examples that a new stock should be raised annually; and there is no better way of doing this than by striking the cuttings as early in the summer as they can be had, and when struck planting them out in nursery beds to strengthen. Young shoots pushing up from the base are the best for propagating purposes, and a cold pit or a handlight the most suitable place for the cuttings until they are struck. Should it be intended to use the plants a second time, trim them up moderately, divide those of a large size, and plant about four inches apart. The alyssum and evergreen candytufts should have a slight pruning before they are replanted to keep them compact. *Arabis* and *aubrietias*

ought to be broken up moderately, and have a portion of the roots cut away, for when planted as lifted from the beds the plants are so ungainly that it is no easy task to so arrange them as to give the beds a neat appearance. The whole of the plants mentioned should be well watered in to settle the soil about the roots, and leaf-mould, cocoanut-fibre refuse, or short grass should be spread over the space between the rows to maintain the soil in a cool and moist state. Tulips ought to remain in the beds as late in the month as practicable, and then be transplanted to a sunny border to ripen.

TOBACCO PLANTS IN THE FLOWER GARDEN.

Most of the forms of the tobacco plant are very effective in the mixed border when judiciously arranged towards the back with the dahlias, double sunflowers, abutilons, prince's feather, and other things of tall growth. To raise a stock is very easy, as the seed, which is very cheap, germinates quickly, and the plants grow rapidly. It is now, however, too late to sow the seeds of the tobaccos, and the object of this note is to direct the attention of the amateur to the beautiful but little-known *Nicotiana affinis* and *N. suaveolens*, which produce long tubular flowers of the purest white and very sweet scented. The best of the two is perhaps the first mentioned, which has flowers between three and four inches in length and about two inches across the limb, and in appearance are not unlike a *bouvardia* flower; they are waxy in texture, pure white, and very sweet, particularly in the evening. The plants of dwarf growth, the average height being two feet, and blooms most abundantly from early in the summer until the frosts make an end of tender vegetation in the autumn. Seed may be obtained of *N. affinis*, but it will be better to purchase two or three plants.

PLANTING ROSES IN SPRING.

During the next two or three weeks the amateur will have a most favourable opportunity for the formation of beds of roses, and for making additions to the borders. The plants must be obtained in pots, and where the difference in the cost is not of much consequence strong examples well established in five-inch pots should be purchased. With reference to the selection of varieties, I shall not do more than advise the purchase of the strong-growing sorts, and as many of them as possible on their own roots. When a rose bush is on its own roots there is not much risk of losing it, for when cut down by severe frosts it breaks freely on the return of spring, and in a very short time recovers itself. Moreover, there is no trouble in keeping down suckers, as in the case of those on the brier or the manetti, and one source of anxiety is avoided. A six-inch layer of maiden loam and the same quantity of manure will undoubtedly be promotive of a vigorous growth, but when roses are grown for garden decoration such extravagance is quite unnecessary. Again, some writers advise, in addition to the incorporation of quantities of loam and manure with the soil, the spreading of four or five inches of partly-decayed manure over the surface. The fact that manure is an expensive commodity, and not particularly sightly when covering the surface of beds in the flower garden, is quite overlooked. I shall recommend a more inexpensive course of procedure. The beds should receive a moderate dressing of manure—about as much as will cover the surface to a depth of three inches—and the soil be dug over to a depth of twelve inches. From fifteen to eighteen inches is a good distance at which to put the roses apart, and as they will not produce any effect the first season, the intervening spaces may be filled with annuals or the ordinary bedders. The beds must not be filled too full of the supplementary subjects, or they will crowd up the roses and do them much injury. Established roses ought to be liberally supplied with water when the weather is dry, for it is more important that they have plenty of moisture at the roots now than when coming into bloom. It is too much the practice to defer the use of the watering-pot until the flowers are expanding. The time roses want plenty of moisture is when they are making new growth.

Literature.

Cassell's Illustrated Bible is compounded of the authorized text, with marginal notes, and abundant illustrations in black and white and in colour. We are not favourably impressed with it; indeed, to give two quarto sheets and several wood engravings and a coloured picture for sevenpence is cutting the thing too fine. To be satisfactory, even in the commercial sense of the term, the price should be just double what is charged for it. But this cheap picture Bible will no doubt have its uses, and will find a home where many strange books go—"in the country."

Canaries and Cage Birds. By W. A. BLACKSTON, W. SWAYSLAND, and AUG. F. WIENER. (Cassell).—A comprehensive work on caged birds has long been wanted, for although Bochein has treated the subject fully and with the hand of a master, English readers can only command an abridged and garbled version of what he has written. Messrs. Cassell have secured the aid of three good men for the production of a good book, which, perhaps, is a trifle too cheap, because coloured pictures will cost money, no matter how they are produced or who is responsible for their production. This work, published at sixpence each part, is, judged as a whole, good, and the literary portion is excellent. But we should rather see it published at a shilling each part, to allow of a more liberal expenditure on the coloured pictures.

The Bible Educator. By the Very Reverend E. H. PLUMPTRE, D.D. (Cassell).—A new edition of this admirable work, to be completed in twenty-four parts, has been commenced by Messrs. Cassell, with a view to provide correct and copious information on biblical antiquities, and the plants, animals, and geography of the Bible for the home library. The first part, just issued, is freely and effectively illustrated, and suggests that when completed the book will be full of wholesome attractions, and very often in use.

The House, Garden, and Home Farm.

THE BITTER CUP.

It must have been for one of us, my own,
To drink this cup and eat this bitter bread.
Had not my tears upon thy face been shed,
Thy tears had dropped on mine; if I alone
Did not walk now, thy spirit would have known
My loneliness, and did my feet not tread
This weary path and steep, thy feet had bled
For mine, and thy mouth had for mine made moan;
And so it comforts me, yea, not in vain,
To think of thy eternity of sleep,
To know thine eyes are tearless though mine weep:
And when this cup's last bitterness I drain,
One thought shall still its primal sweetness keep—
Thou hadst the peace and I the undying pain.

P. B. MARSTON.

THE HOUSE.

Window boxes and baskets for suspending in balconies must within the next fortnight be prepared for the summer. The plants selected for filling them should be well able to withstand the effects of occasional periods of drought, for with the greatest care it is not always possible to prevent the soil becoming very dry, and remaining so for a short time. The pelargoniums are unquestionably the most useful subjects for boxes and baskets placed in sunny positions, the zonals for the main furniture, and the ivy-leaved varieties for trailing over the sides. Very charming baskets may be formed with ivy-leaved pelargoniums, provided due care is taken to have an equal proportion of light and dark flowered varieties. Zonals for window-boxes should be moderately vigorous in growth and decidedly neat in habit. A moderately rich compost is necessary, and there is nothing better than a mixture formed with loam three parts and well-rotted manure one part. If there is any difficulty in obtaining manure add a small proportion of Clay's Fertilizer in preparing the compost, and apply a light top dressing of it about once a month throughout the summer season.

THE GARDEN.

ACHIMENES, Gloxinias, and Gesneras require a moist atmosphere with a generous temperature. They must have some shade, but Gesneras will stand the full sun the best. Train out Achimenes betimes, and give air to keep the growth robust.

CELERY trenches ought to be prepared in good time, and not, as is so often the case, be deferred until the plants have really become weak through overcrowding. In a small garden it is never advisable to have celery very forward, for the simple reason that trenches cannot be made for it until peas come off and other early crops are over. The less check to the plant the better, and to ensure fine celery the cultivator must be in advance of events rather than lag behind them. Plenty of manure must be used; it is scarcely possible, in fact, to employ too much, and liberality is not waste, because the ground will be in capital condition for the next crop. There are many modes of planting celery, but the simplest is to make the trenches four feet apart and a foot and a half wide, and put the plants nine to twelve inches apart, according to the sorts. In planting take off suckers and observe if any of the leaves are blistered, and if they are, finish by dusting the plantation with soot.

CUCUMBERS in trenches planted out at once, and protected with hand glasses, will produce better crops than if kept in pots until more or less weakened. Make the trench two and a half feet wide, and one foot deep. Fill it twelve inches above the surface with hot dung that has been twice turned, or a mixture of leaves, straw, and grass mowings. Three days afterwards put on six inches of soil, and leave it a couple of days, then put on three or four inches more soil, and plant. They will then have a steady bottom heat, and if sheltered for a time will do well.

FORCED FRUITS.—Give air freely to these, or they will lack flavour and colour. Lay in wood as required, and thin away all other growths to obtain wood worth keeping, instead of a forest of mere spray.

KITCHEN GARDEN.—Sow beet for a winter supply. Thin beets already up, and if any gaps in the drills, fill up by transplanting the thinnings in showery weather. Sow Walcheren Broccoli, Collards, Cauliflower, Endive, Kidney Beans, Lettuce, Leeks, Spinach. Plant out Marrows, Ridge Cucumbers, Capsicums, and Tomatoes, if protection can be afforded; also Celery, and anything that may be strong enough from seed beds of Cabbage and Winter Greens.

MELONS in fruit to have less water as soon as the fruit begins to ripen. Let them have the full sun, no matter how it may roast them; shut up early with a good heat, and syringe the leaves at the same time. Those lately planted out to have soil added to the hills as required, and linings if the heat declines.

ONIONS for pickling should now be sown thickly on poor ground. The plants are not to be thinned, but may be allowed to stand as thick as pebbles on the seashore. The starving system produces abundance of small handsome bulbs that ripen early, which are the very things wanted for pickling. The Paris Silver-skin is one of the best for the purpose, but any kind of onion will serve for pickling, except the red sorts, if grown as here advised.

ORCHARD HOUSE TREES are now swelling their fruit, and need the help of liquid manure alternately with plain water. Stone fruits not yet beginning to swell should be kept without it for the present. Use the syringe freely, and with force, to wash off withered blossoms; give air night and day, and wherever you see a curled leaf search for the cause of it, and you will find grub or fly, with either of which deal promptly.

PELARGONIUMS that are well furnished with flower buds may be aided by weak liquid manure, but if there is a rank growth and little show of bloom stimulants will do more harm than good. Give air abundantly on fine days.

SPINACH will run to seed quickly if overcrowded. Very nice gatherings for the table may be made by thinning the rows of all the strong plants and leaving the weaker for a succession.

STOVE.—Sprinkle water frequently upon the paths to keep up a moist atmosphere, especially where begonias and other soft-leaved plants are

growing. Give orchids plenty of water, and wherever sunshine can be admitted without positive harm give it a welcome as a positive good. Propagate Clerodendrons, Erythrinias, Poinsettias, Euphorbias, &c.

VINES.—Where crops are ripening raise the temperature to a maximum of 90 deg., with a minimum of 65 deg. Muscats are worth nothing in a low temperature. Stop laterals, remove superfluous shoots, and on all the wood left, whether young wood or bearing shoots, let every leaf remain. See that all vines are sufficiently moist at the root, and look to the stock of young vines intended for fruiting in pots next season.

THE HOME FARM.

On the home farm tares are of special importance, as they are of great value for feeding horses and stock of all kinds, especially in the early part of the summer, when a large extent of meadow land is closed for hay. The heaviest crops are produced on strong loams; but under a good system of culture there are few soils on which good crops may not be obtained. Tares are rather gross feeders, and to ensure really heavy crops a good dressing of manure must be applied and the soil ploughed to a moderate depth. Farmyard manure is the best, but in cases where it is scarce guano should be employed instead of the manure from the farmyard, or for supplementing it. When farmyard manure is used in a fresh state, from twenty to twenty-four tons per acre should be applied, but if it has been fermented and is in a partly-decayed state, about fifteen tons will form a good dressing. Of the artificial guano is decidedly the best, and about 5 cwt. per acre should be applied just previous to the ploughing, or at the time of sowing the seed. In the latter case it should be mixed with an equal weight of dry finely-sifted ashes, and drilled with the seed. When a supply extending over as long a period as possible is desired, two sowings should be made—one in September, to stand over the winter, and the other in the spring, and the winter and summer varieties respectively sown. About two bushels of seed per acre are required, and should be drilled in rows twelve inches apart. When the plant is well above the surface, the surface should be stirred with the hand or horse hoe to keep down weeds. Beyond this the crop will be pretty well able to take care of itself, for the growth, under favourable circumstances, is so dense that there is little danger of weeds making much headway and doing any mischief. Tares should, as a rule, be given to sheep as well as horses and stock in a cut state.

Notes of Observation.

BEDDING TULIPS.

THE garden under my charge has to be made as attractive as possible during the spring months, and in consequence I have had to pay particular attention to the early-flowering tulips. Nearly all the kinds in general cultivation that are obtainable at a moderate price have been subjected to a careful trial, and I have not overlooked those met with in private gardens and public parks. As the result of my observations at home and abroad, I have arrived at the conclusion that the self-coloured flowers are decidedly more effective than the feathered and edged flowers, and the latter are indeed so inferior that I have discontinued their cultivation in the open beds. I continue to grow them in pots, for when on the conservatory stage the markings come more immediately under the eye they are very pleasing. In the open beds the combination fails to produce that striking effect so essential, and the yellow-edged flowers present a dingy appearance immediately the flowers are past their best, and become decidedly objectionable by the time the self flowers of the same age show signs of having lost their freshness. I was particularly struck with the objectionable appearance those old favourites Gloria Solis and the Tournesol when passing through the Regent's Park the other day on my way to the gardens of the Royal Botanic Society. In the Regent's Park there has been a very fine display of early tulips as in previous seasons, and the two varieties mentioned were planted in several of the beds. They had been planted the proper distance apart to produce a good effect, and they had done remarkably well. But when I saw them they were just past their best, and the fading of the yellow margin gave the flowers a dull and dirty appearance. I discontinued their culture two seasons ago, and now trust almost entirely to the selfs, such as Artus, Bacchus, Cottage Maid, Couronne Pourpre, Cramoisie Superbe, Globe Rigaut, Molière, White Pottebakker, Yellow Prince, Imperator Rubrorum, La Candeur, and the Yellow Tournesol. The Yellow Rose is very effective, but it is too late in flowering to be of service for filling the beds. A few clumps in the borders arranged alternately with the brilliant scarlet Tulipa Gesneriana are found useful.

FORCING CROWN IMPERIALS.

Your correspondent "Clifton" has, I expect, grown small bulbs of crown imperials that have not been of sufficient strength to flower. Of course with them, as with other bulbs, all that is required in cultivation are satisfactory conditions to bring the already formed flower spike to perfection. Crown imperials like good rich soil and a rather sheltered position in the borders, and the roots are better if not disturbed for several years. If they are planted in a bleak situation care should be taken to securely stake the flower spikes to prevent their being blown over by the wind. The stake must not be put too near the stems or it will injure the bulbs, and they should be left till the stem has died down, as till then the bulb is not matured for another season. I have found that six or eight inches is the most suitable depth to plant them. As regards their adaptability for forcing purposes, I only made the experiment last autumn. I potted one dozen bulbs, which cost three shillings, out of which eleven bloomed. They require pots eight or nine inches in diameter, and should be potted about halfway down the pots. They were potted in the ordinary hyacinth compost. Mine were potted about the end of September and plunged in ashes with the other bulbs. They were taken out of the plunge beds about the middle of December, by which time they were peeping through the soil. I introduced the most forward two to a gentle heat and they were soon in bloom; the others followed in succession. The duration of the flowers in perfection is about a fortnight.

Cheshire.

W. M.

POLYANTHUS COX'S PRINCE REGENT.

In the collection of six plants of gold-laced polyanthus with which Mr. S. Barlow, Stakehill, Manchester, won the first prize at the National Auricula Show on Tuesday last, appeared a plant of the true form of this fine old variety. It was, I think, the most perfect of the gold-laced polyanthus produced on this occasion. The pip flat, smooth, and circular; the lacing narrow, exquisitely perfect, and very regular; the centre bright gold, with the lacing of the same colour; the ground black, or nearly so. The truss displays itself in a regular manner, and the habit is good in every respect. There are so many spurious forms of this in cultivation that it is pleasant to know the true form is not altogether lost. R. DEAN.

FRENCH BEANS FOR SMALL GARDENS.

The practical man with plenty of space at his disposal will regulate his crops of kidney beans by the demand made upon him for supplies. But the amateur with a small garden may be advised to grow two sorts only, and to make one sowing of each to furnish supplies in advance of the scarlet runners. The two sorts I would recommend are Sir Joseph Paxton and the Canadian Wonder. The first mentioned is a dwarf early variety, and yields a heavy crop of pods, which are all ready for gathering in about ten days. The Canadian Wonder is much stronger, and, as now well known, produces successional supplies of its large fleshy pods, and will produce pods ready for gathering by the time Sir Joseph Paxton is exhausted, or very shortly afterwards. Lastly, I grew White Advancer, which was certificated at Chiswick, and is strongly recommended in most of the seed catalogues, but I shall not grow it again. It made a more robust growth than the Canadian Wonder, and continued in full growth and in bearing during the greater part of the season, but the crop was very light.

R. S.

CONTINUOUS AND FREE FLOWERING PLANTS.

I was very pleased to see a note by a correspondent on Abutilons, for they are one of the classes of plants that produce their bloom all the year round, and they ought to have a higher place in general esteem. There are two or three other subjects I should like especially to point out for their long-continued and free blooming habit. One is the allamanda, which flowers eight months out of the year. Gloxinias are another very useful class. We are seldom, if ever, without flowers, as by keeping a succession of plants coming on a continuous supply of blooming plants is maintained. We sow, I would state, a packet of seed every year. Zonal pelargoniums are very free and continuous in blooming, and with two or three sets of plants potted on a supply of flowers may be maintained throughout the year. The begonias of the Nitida and Ingrami section are almost continually in bloom and very useful, and from a good collection of tea roses flowers may be cut nearly all the year round. I might also add the eucharis, as they produce their very beautiful blooms at intervals throughout the year.

Cheshire.

W. M.

CINERARIAS AND PRIMULAS.

The remarks made by your correspondent Mr. J. C. Clarke in reference to cineraria seed are in accordance with my experience. Several years I have obtained packets of the high-priced seed, and have not obtained many plants. Two years ago I determined to try a packet of seed advertised by a small firm as Dwarf French. I was highly pleased with the result, and last season I grew that strain only, with the result of having a splendid show. Some heads of bloom measured above two feet over, and the plants were very dwarf—in fact, the plants were just what are wanted for decorative purposes. I have had many inquiries this season where I obtained my seed. I find the case different with the primulas, which I believe improve every season, and are quite up to the standard as advertised. But to obtain really large plants I save the best of my one-year-old stock and re-pot them on; they make larger and better flowered specimens than seedlings. I very much prefer the cinerarias and primulas to calceolarias. The first-named give us flowers over such a long season, and are doubly valuable, as they flower through the winter, and they last well into the spring. I shall have cinerarias this season as long as the calceolarias will last, and they have only just begun to bloom.

Cheshire.

W. M.

RHUBARB RUNNING TO SEED.

Complaints are made by some of my neighbours to the effect that after the early part of the season they obtain but little rhubarb from stools that ought to produce a large quantity. I heard the same complaint the other day when visiting a friend, and I asked him to show me his plants, which he did. To my surprise, I found that he had allowed the flowering spikes to remain. Some of them were from four to five feet high, and they were appropriating to themselves the nourishment drawn up by the roots. Without waiting for the permission of my friend, I instantly took out my knife, and cut off the long spikes of bloom, and then quietly told him if he wanted to obtain fine rhubarb in abundance he must cut away the flower stems as soon as they are visible. This occurred a fortnight ago. In a letter I received from him this morning, he writes: "My rhubarb is already showing signs of improvement, which no doubt may be attributed to your removing the flower stems."

J. M.

ONCIDIUM CONCOLOR.

Of the few good oncidis flowering in April and May there is not one more distinct or more beautiful than the species of which the name is given at the head of this note. It is of compact habit and rather dwarf growth, and succeeds admirably in a pot, basket, or shallow pan filled with peat or sphagnum, and on a block to which a little sphagnum has been attached. The best way of growing it is perhaps in a pan filled with tough fibrous peat, and suspended within twelve or fifteen inches of the glass. The flowers, which are produced in long drooping spikes, are large in size and differ in form from those of the stove species, are of a bright lemon-yellow: the colour is particularly soft and pleasing, and may be likened to that of a lemon before it has attained to perfect maturity, but it is without the slightest trace of green. It makes a very effective specimen in a competitive group, and small examples bearing two or three spikes suspended in the orchid house are exceedingly attractive. In common with many other Brazilian orchids it requires the temperature of the intermediate house.

ORCHIDOPHILIST.

PLANTING PAMPAS GRASS.

It may not be generally known that May is the best month of the whole year in which to plant the Pampas grass. It can be planted at other times with good results, but in my own practice May has been found the best in which to do the work. The severe winters of 1879-80 and 1880-81 have left their mark on many old plants, especially on the side facing the east and directly exposed to the cold winds. We have quite recently overhauled all our old plants that had suffered, and in doing so were able to secure some thriving young examples. With the offsets so obtained we have made good any bare places at the sides of old plants. They were put in some fresh soil, and they will soon in all probability become established and do well. The old plants suffer most from severe winters, and I believe the cold winds do more injury to them than the frosts. J. C. C.

CINERARIA SEED.

In a "Note of Observation" contributed to the GARDENERS' MAGAZINE of April 15, I directed attention to the inferiority of much of the cineraria seed distributed every year, and to the difficulty cultivators experience in procuring good seed, that is to say, seed which will produce plants of compact habit and bearing large well-formed flowers. At page 290 of last volume I stated that I had grown Messrs. Sutton and Sons' strain of cinerarias three years, and had found it exceptionally good. With reference to these two communications, it has been suggested to me that the readers of the Magazine who remember both may infer that Messrs. Suttons' strain has deteriorated. In case such an inference should be drawn by any of my readers I would at once state that my opinion of the strain is as high as when my note of last year was penned, I did not mention the Reading cinerarias in my last communication, as my object was to condemn the practice of distributing seed saved from inferior strains. Moreover I am at all times anxious to avoid the appearance of showing favour to any particular firm. J. C. CLARKE.

BORONIA MEGASTIGMA.

This boronia has been much praised since its introduction four or five years since, and deservedly so, for in the matter of fragrance its flowers are unsurpassed by those of any other occupant of the greenhouse. They are indeed so fragrant that a moderate-sized example is quite sufficient to perfume an indoor apartment or a small conservatory, and the perfume is so grateful that even in a house entirely filled with the species it is not overpowering. Boronia megastigma has one peculiarity to which as yet no reference has been made, and that is the impracticability of producing large or medium-sized specimens. I have made many attempts to grow the plants on after they have become large enough to require six-inch pots, but have invariably failed to maintain them in a satisfactory condition. Some of my friends, including three experienced plantmen, tell me that they also have not succeeded in producing specimens of even medium size, and they agree with me that it is of but little use to make the attempt. No difficulty is experienced in striking the cuttings or in growing the plants on until they have attained to a decorative size; but when they are pruned after they have flowered they break indifferently, and the growth is very weak. When allowed to remain unpruned the growth is equally unsatisfactory. This is not mentioned for the purpose of discouraging its cultivation, but rather to suggest a course by which it may be prevented from falling into disrepute. The course I would suggest is the propagation of a fresh stock annually, and growing the plants on until they have flowered in the second year. The cuttings should be struck as soon as the new growth has become moderately firm, and when rooted be potted off into small sixties. In these they ought to remain until the following spring, when they will require shifting into five or six inch pots. With much the same attention as winter-flowering heaths, such as Erica hyemalis and E. gracilis, they will form elegant little bushes by the spring of the second year, and will bloom most satisfactorily. By an annual renewal of the stock a supply of thrifty plants may be maintained, and the striking two potfuls of cuttings and potting on from one to two dozen plants will not impose a heavy tax upon cultivators who are conversant with the culture of hard-wooded plants. PRACTICAL CULTIVATOR.

ALONSOA INCISA.

In this fine old plant, which is not well known, we have a most valuable subject for winter flowering. It is elegant in growth, blooms freely, and has flowers of the most brilliant scarlet. When grown without any special attention it soon becomes leggy and blooms indifferently, and I should not advise those who are unable to give it good cultivation to take it in hand. The most satisfactory way of dealing with it is to strike a batch of cuttings every spring, and then grow the plants in a pit or frame in which they can have a little artificial heat until they are well established. The tops of the young shoots strike freely, and it is not too late in the season to propagate a stock for flowering during next autumn and winter. It is an excellent practice to put the cuttings when struck into large sixties, three in each, and to shift without separating them into six-inch pots as soon as they are well established. It will be an advantage to stand the pots upon a bed of tan or spent hops that will afford a mild bottom heat, and they ought to be kept near the glass, and at first rather close and moist. A good fuchsia compost suits the alonsoa, and the drainage should be liberal without being excessive. The growth will require stopping two or three times in the course of the season, and during the summer the ventilation must be abundant. Throughout the winter a warm greenhouse will be the most suitable place for it, although it is hardy enough to be wintered safely in an ordinary greenhouse. When occupying a position in the last-mentioned structure it will not bloom so freely in winter as when it receives the assistance of more warmth, but it will bloom most profusely early in the spring. W. K.

SALWAY PEACH.

I am very anxious to learn whether the Salway peach would succeed in a house in which the fruit is usually ripe about the middle of June. My employer is very fond of the Salway because of its showy appearance, and wishes me to introduce a tree to the early house. I have had no experience with the variety excepting in the late house. We have a tree in a house in which the fruit ripens about the end of September. Possibly some of your readers will be able to afford me the desired information. W. M.

Cheshire.

Exhibitions and Meetings.

NATIONAL AURICULA SOCIETY.—EXHIBITION OF NORTHERN SECTION AT MANCHESTER, MAY 2.

THE exhibition of the Northern Section of the National Auricula Society was held at Manchester on Tuesday, and if not equal in extent to the splendid show at South Kensington in the previous week, it was highly satisfactory. The whole of the classes were well filled, and owing in some degree to the dull and cold weather which prevailed for some time previously, the five or six hundred plants staged were remarkably fresh. The competition was necessarily limited to the northern growers, for the flowers of the southern cultivators were practically over on the date of the exhibition.

There was a spirited competition in the leading class for six distinct show auriculas, and the first prize was awarded to Mr. W. Bolton, Wilderspool Road, Warrington, for an excellent collection, in which Lancashire's Lancashire Hero, Traill's Prince of Green Edges, Simonite's Mrs. Douglas, and Kay's Alexander Meiklejohn were admirably represented. Mr. J. Booth, Failsworth, and Mr. H. Wilson, Halifax, were second and third respectively. For four Mr. Wilson was a good first, Mr. A. Shaw a close second, and Mr. E. Pohlman third. In competition for the open prizes for pairs Mr. R. Lord, Todmorden, occupied the first place, closely followed by Mr. John Beswick, Middleton, and Mr. W. Bolton. In the corresponding class for exhibitors who had not previously obtained prizes at the exhibition of the society equal to the value of their subscription, Mr. R. Bealey, Bury, Mr. H. Shipley, Middleton, and Mr. F. Prescott, Manchester, were the prizetakers in the order of their names. Alpine auriculas, which are not perhaps held in such high esteem in the north as in the south, were admirably shown by Mr. J. Booth, Mr. E. Adams, Gateshead, and Mr. F. Prescott in the class for four.

The competition was very spirited in the division for single specimens, and a goodly number of very excellent flowers were staged in the several classes provided for them. For green edges Mr. E. Pohlman obtained the premium, and Mr. R. Lord, Mr. W. Bolton, and Mr. C. Royds, Rochdale, were first, second, and third respectively. For grey edges Mr. E. Pohlman obtained the premium; Mr. H. Wilson was first and second and Mr. E. Pohlman third. For white edges Mr. R. Lord was awarded the premium, and Mr. J. Booth was first, Mr. R. Gorton, Eccles, second, and Mr. E. Pohlman third. For selfs Mr. B. Simonite, Sheffield, premium, Mr. J. Booth first and second, and Mr. W. Bolton third. For alpinus with yellow centres Mr. J. Booth obtained the premium, and the first, second, and third prizes were awarded to Mr. E. Shaw, Newton Heath, Mr. E. Pohlman, and Mr. E. Adams. In the corresponding class for white-centred flowers the premium was awarded to Mr. E. Pohlman; the first and third prizes were taken by Mr. R. Gorton, and the second was awarded to Mr. E. Pohlman.

Polyanthuses were staged in excellent condition for so late in the season. For three distinct varieties with black grounds Mr. J. Beswick was first, Mr. W. Bolton second, and Mr. S. Barlow, Stakehill House, Castleton, third. In the corresponding class for red-ground flowers Mr. S. Barlow was first, Mr. J. Beswick second, and Mr. W. Bolton third. In competition for the prizes for single specimen red ground flowers, Mr. J. Beswick was awarded the premium and the first prize, and Mr. S. Barlow and Mr. W. Brockbank were second and third respectively. For black-ground flowers Mr. J. Beswick was successful in taking the premium, and the first, second, and third prizes.

The fancy auriculas were as usual staged in capital order by S. Barlow, Esq., and in the class for twelve fancy polyanthuses Mr. W. Brockbank was first. The last-named exhibitor also received the premier award for twelve primroses.

The miscellaneous contributions from private growers and trade cultivators were comparatively few in number, but they were by no means wanting in interest or attractiveness. Mr. W. Brockbank had a very beautiful collection of hardy flowers; Mr. T. Agnew staged a fine group of *Deutzia gracilis*; Mr. Rylands contributed an excellent specimen of the beautiful *Adiantum palmatum*; Mr. F. Perkins (Leamington) sent attractive stands of cut pelargoniums; Mr. E. Rogerson (Didsbury) staged good *calceolarias*; Mr. S. Schloss (Bowdon) had a fine specimen of *Rudaea macrophylla*; and Messrs. Standish and Co. (Ascot) presented an attractive group of decorative plants and boxes of good blooms of gardenias and *Niphetos* roses.

WESTERHAM GARDENERS' SOCIETY, APRIL 27.

THE meeting of the Westerham Gardeners' Society, held on the above date, was remarkably successful, for there was a large and interesting display of ornamental plants, cut flowers, and vegetables, and a good attendance. The chair was occupied by Mr. Hubbard, and an excellent paper on the cultivation of the strawberry was read by Mr. Archer. The paper gave rise to a very interesting discussion, in which Messrs. Bashford, Bolton, Fernley, Hubbard, and Nelson took part.

The productions staged, which were all of a high-class character, included a fine collection from Mr. Bolton, in which were *gesneras*, *Rivina humilis*, *Astilbe japonica*, and boxes of white honesty, and polyanthuses. Mr. Archer staged six strawberry plants in pots, which were heavily laden with fruit, and fully exemplified the soundness of the exhibitor's views on strawberry culture as expressed in the paper read. Strawberries in pots were also shown by Mr. Cattell, who had in addition pots of the American Wonder pea. Mr. Malyn contributed an excellent bundle of rhubarb, the stalks large and well coloured. Mr. J. H. Jewell staged a splendid bundle of asparagus. Mr. Leggetter sent a standard specimen in pot of Madame Lartay rose bearing half a dozen well-developed blooms. Cut roses were admirably shown by Mr. Hubbard, who contributed also a fine specimen of the beautiful *Adiantum farleyense*, and six heads of Cattell's Reliance cabbage, one of the best of the varieties for spring use. Mr. Southwell presented cut trusses of some of the leading zonal pelargoniums, and seedling gloxinias, and from Mr. Bashford came a beautiful box of cut flowers, comprising azaleas, roses, hibiscus, and other seasonable subjects; and from Mr. Yeomans a beautiful stand of seedling primroses and polyanthuses.

WESTERHAM INDUSTRIAL EXHIBITION.

Last year a very attractive and instructive industrial exhibition was held in connexion with the summer show of the Westerham Horticultural Society, but as it was found impracticable to display under canvas some of the subjects entrusted to the committee it was determined to hold the second exhibition in the Public Hall. This determination has been carried out, and a few days since the exhibition was held, and proved a most gratifying success. The Public Hall, which is admirably adapted for an exhibition of this description, was well filled with the objects staged in competition for the prizes, and the numerous contributions from ladies and gentlemen who sympathize with the movement. The honorary secretary, Mr. J. H. Jewell, deserves much praise for his share of the work, and at the distribution of the prizes a very hearty vote of thanks was accorded him.

BEDDING OUT.

By J. C. CLARKE.

MANY will shortly be engaged in the arrangement of the summer bedders, and we may with advantage offer a few remarks on some of the most important points in connexion therewith.

PREPARING THE BEDS.

Flower beds, it should be understood, need as careful preparation as the quarters in the kitchen garden. The majority of bedding plants grown for their flowers do not require so rich a soil as a crop of cauliflowers or onions, but the beds should be dug up deeply, and all the hard crude lumps be broken to pieces. Beds or borders that have not been enriched for two or three years should either have a light dressing of well-rotted manure or fresh soil. In using manure for flower beds, it is necessary to study the character of the plants with which each bed is to be filled. The soil of the beds to be occupied with zonal pelargoniums must not be made too rich, or the plants will produce more leaves than flowers. The tricolour and variegated pelargoniums require a rather rich soil. *Heliotropiums*, *ageratums*, *coleus*, *asters*, *stocks*, and *zinnias* must also have a fairly rich soil. For carpet bedders the surface soil must be rich and friable, and if lumpy it should be sifted.

We frequently hear complaints of the kitchen garden being so large in proportion to the available supply of manure that it is impracticable to apply any portion of it as a dressing to the flower beds. In cases where the supply of manure is limited the impoverishment of the flower beds can be effectually prevented by removing the soil to a depth of six inches and replacing it with other soil from a quarter of the kitchen garden. The idea of exchanging the soil in this way I obtained from a gardener in Wiltshire some years since, and have found it so good that I have no hesitation in recommending the practice as worthy of general adoption.

HARDENING THE PLANTS.

In commencing to harden off the plants the *calceolarias* should be the first to go out of doors, and in nearly all the districts of England they are after May 1 not liable to be injured by frost if they have the shelter of a wall or fence. *Petunias* stand next in hardness; then the *verbenas*, *königas*, and *gazanias* follow. Zonal pelargoniums will be safe out of doors after the 10th of May if they can have some kind of shelter on frosty nights. The bronze zonal, variegated, and tricolour pelargoniums are more tender, and should have the protection of pits or frames until the 15th of May, to be sheltered from cold rains and cutting winds during the day and frost at night. On warm days they should be fully exposed by drawing off the lights. Tender plants, such as *alternantheras* and *coleus* must have the protection of frames at night and on cold days until the end of May. If there is a scarcity of either of these subjects there is still time to obtain fair-sized plants, provided there is plenty of heat at command. The cuttings of both *alternantheras* and *coleus* require a moist close heat. In a temperature of 80 deg. or 90 deg. they will strike in a few days, and the time of year being favourable to a quick growth, they will soon make plants. The Golden Feather is usually sown much too early; the middle of April is soon enough for ordinary bedding, and when the seed is sown in March the plants begin to flower in August. In the management of annuals, such as *stocks* and *asters*, it is much the best plan to prick them off into a bed of soil and give them the shelter of a pit or frame. If this is done at once the plants will be much improved, as in many cases the seed is sown too thickly, and when they have to stand in the pans or boxes where they are sown they become crowded and weakly.

The seed of *zinnias* is often sown too early: the third week in April is quite early enough for the sowing, and even then the seedlings must be dealt with tenderly until the beginning of June. It is the best plan to sow the seed thinly in deep boxes, and begin to harden off the seedlings about the end of May. *Iresines* and *heliotropiums* are both tender, and ought not to be exposed at night when the weather is cold until the end of May. Bedding plants should previous to their being put out be kept rather dry, for if the soil is maintained in a constantly moist state they make a soft growth, and suffer much when they are transplanted. At the same time extreme dryness at the roots must be avoided. When they are brought out in the open those requiring support should have it to prevent the winds injuring them.

PUTTING OUT THE PLANTS.

In all the southern and western districts of England it is safe to commence bedding out all the most hardy subjects in the last week in May; but tender plants, such as *coleus*, *alternantheras*, *iresines*, *ageratums*, and *heliotropiums* had better not be put out until the first week of June. *Dahlias*, *begonias*, *zinnias*, and *portulacas* are not safe in the open ground before the 1st of June, except it be in favoured and sheltered places. *Calceolarias* are better put out at the end of

April or beginning of May, where the beds are not occupied with spring flowers.

It is not always practicable to do all the bedding out when the soil is in one particular condition, that is, when the surface soil is moist without being wet; but as much as possible it is desirable to plant at such times, and when there is a prospect of a few dull days. It is much better to plant when the soil is dry than when it is very wet. When putting out any plants that have been some time in their pots the ball of roots should be loosened somewhat by running the fingers through the outside roots. By doing this the roots will strike more readily into the fresh soil. I am a great advocate for shading all seedling and other tender plants that have been grown on quickly, as shading them a few hours from very bright sunlight will help them immensely. In the case of small flower beds and narrow borders a few strong stakes about three feet long and a few mats suitably placed will afford an efficient shade, or a few green branches may be advantageously stuck in between the plants. All that are turned out of pans or boxes or lifted from a bed of soil suffer more when exposed to strong sunshine than those planted out of pots. If the weather is dry it is impossible to induce the plants to take quickly to the soil without a liberal supply of water. In the case of pelargoniums and other large plants we only partially fill in the soil round the roots at first; we then give sufficient water to thoroughly moisten all the roots and the soil immediately surrounding them, and let them alone for two or three hours for the surplus water to soak away. The remainder of the soil is then placed firmly about the roots. By doing this the plants do not require any more water for several days. In the case of seedling and other small plants we water the beds or borders three or four hours before we want to plant; after planting we do not give much water, but depend on shading to help the plants to become established quickly.

The Household.

THE SALAD MAKER.

IN consequence of papers that have appeared in this department on the preparation of salads, inquiries have been made on certain points, and it seems that many readers would be advantaged by some further treatment of the subject. Having for some time past prepared salads almost daily, the matter is on my mind, and it may be prudent to endeavour to record a few experiences and impressions.

As regards salads in general, it is to be regretted that in this country they are not fully understood or appreciated. The reader may, indeed, when he comes to the end of my story, say that I know no more of the matter than the rest, and much less than some who make no particular pretence to salad making. The reader will be free to arrive at any conclusion, but it may be well at starting to say that there are quite as many kinds of salads known as there are days in the year, and therefore, at the first start, it will be well to deal with a few generalities. For the general purpose, therefore, I shall take into my consideration the materials that are generally available, and the appetites that are to be ordinarily consulted.

I have this day "assisted" at a dress luncheon, at which salad was served. It consisted of flavourless lettuce-leaves split into long shreds, with small radishes, a shadow of boiled beet-root, and lumps of cream. As everybody partook of it, I concluded every one liked it, but I watched in vain for any one taking a second supply, although there was a brisk demand for more ham, chicken, tongue, and other savoury morsels. The preparation of this kind of salad needs no skill at all, and it has no value except as a slight adornment of the table, and to bring the word "salad" into the bill of fare. A kind of salad served on such occasions usually consists of coarse lettuce, slices of beet, hard-boiled egg, and a mixture of oil and vinegar and water. On a hot day this kind of salad is generally acceptable, even if wanting in artistic touches, and if set before a picnic party, with the usual cold comestibles, is likely to disappear at a quick pace. With a little care in the preparation this may be called a good every-day salad, but it admits of improvement.

There is one fact always to be confronted. We must have our salad with what we can get, and not with what we cannot get. This appears so commonplace and evident a fact that I am afraid I shall appear frivolous in adding that it brings a vital consideration into the very midst of this question. A skilful salad maker can make an acceptable salad of almost anything, and he may even do without the usually inevitable lettuce, which as a rule, is the basis of every salad. The "fact" with which this paragraph commences underlies the whole subject of salad making, and it suggests that when any or all of the ordinary materials are unattainable there still remain many extraordinary materials that may be turned to account for the delight of omnivorous humanity. Thus there are salads, and salads, for every day and every clime; for every palate, every purse, every occasion, and every emergency; and if they all differ—as, more or less, they certainly do—it will be more easy in the end to make a salad of some sort than to criticise one already made, or make any general declaration of what a salad should be.

But to come to practical matters, I will endeavour to describe the salad which in the course of many years I have found to give the most perfect satisfaction. It is of a very substantial nature; it adorns my table on an average four times a week the whole year round, but varied slightly as the seasons bring certain materials and take away others. I call it A COMPLETE FAMILY SALAD. We require one large or two or three smallish cabbage lettuces: a bulk of fresh water-cress equal to the bulk of lettuce; about six young onions: half a dozen tender tops of green mint: about a handful of corn salad:

one boiled beet-root: one cold floury potato: one hard-boiled egg. My rule of action is to have all these things prepared for me and laid upon a tray. The preparation consists in picking and washing the vegetables, which are then put into a clean dry cloth and "swung" to drive all the water out. This must be done with a little vigour, but with care. The cooking of the beet, egg, &c., needs no remark: the beets that are sold ready cooked are generally of good quality and the cooking is perfect.

I limit myself to twenty minutes for my part of the business. I cut up the lettuce first, removing the stump and any hard or coarse portions of the outer leaves. By gripping it firmly in the left hand and shredding with the right, it will be cut fine enough in a few seconds. The water-cress and corn salad are shred in like manner, care being taken to exclude all hard stalks and faded leaves. The tender parts of the onions are added. All parts of a salad should be cut rather fine, but should not be minced; that is to say, inch and half-inch pieces are small enough of lettuce and the like; but any pungent materials should be cut rather finer than the rest. The potato and egg should be about equal in bulk, and two eggs may be used to the proportion of vegetables now before us if extra softness is required. The beet-root must be sliced thin and again cut into half-inch pieces, and should amount in bulk to about as much as the egg and potato together. Finally, add the mint, cut small, and if possible add a very small sprig of tarragon and two or three leaves of sorrel, taking care not to flavour too high.

Having stirred the mixture with a wooden spoon, proceed to prepare the dressing. Take one teaspoonful of raw mustard, as much red pepper as will cover a sixpence, half a teaspoonful of Worcester sauce, and four table-spoonfuls of the finest Lucca oil. Beat these into a smooth mixture and pour over the salad, and give it another stir up. Now add two table-spoonfuls of the best tarragon vinegar, and stir up again, and your work is completed.

It is necessary now to make a few remarks, and the business will pay for it.—Because this salad appears to suit all palates, and it is thoroughly wholesome, and substantial enough to make a good meal without the accompaniment of fish, flesh, or fowl; a slice of bread and butter being enough to render it a capital supper. And it appears equally to suit any kind of meats, more especially ham, tongue, and other salted meats; and it may of course be garnished with a few flowers of tropæolum or other gay decoration.

There is no necessity for salt in this salad; it is better without it. But salt can be added, in which case the less the better, for salt tends to diminish the exquisite softness and refreshing pungency, for it combines the two extremes in the most grateful manner.

It may be advisable at times to exclude onions, as they are under some circumstances "extremely improper." In this case a shadow of salt and a very little extra vinegar may be added. The true salad maker must never forget the Spanish rule on the subject, that we need a miser to apportion the vinegar and a counsellor to apportion the salt. And the same rule prescribes that the oil should be measured by a spendthrift, and to him we will trust for its quality, which should be very, very A 1.

When special saladings are in season they may be added at discretion, and thus our "Complete Family Salad" will change its flavour and complexion, and be ever fresh and ever new as the year goes round. Change No. 1, to omit the onions and add instead a few half-slices of very tender cucumber. Change No. 2, to omit the cold potato and add instead a little cold cabbage, spinach, or cauliflower, or even boiled vegetable marrow. Change No. 3, to add at any time a small quantity of the tenderest celery. Change No. 4, in the event of not securing sufficient lettuce or water-cress to make up with extra corn salad, and any kind of tender cress obtainable. Corn salad is a very curiously-flavoured vegetable, but in a well-made salad it is grand. Change No. 5, to add a few leaves of blanched chicory, or "whitloof," or "barbe de capuchin." Change No. 6, to use endive instead of lettuce or with it. Care must be taken in shredding endive to throw out all tough or coarse parts, for endive at the best is indigestible, and may be very well dispensed with so long as lettuce is within reach. Change No. 7, to add a few radishes cut rather small. They are not wanted as a rule, except to lay on the top for garnishing, for they are indigestible; but young radishes are tender and agreeably flavoured, therefore there can be no great objection to a moderate use of them. Change No. 8, to use mustard in the seed-leaf in place of water-cress. But the cress is the best, and the "small salads," as they are called, are of but little use when you have free choice of your materials.

Common vinegar may be used without fear of spoiling the salad. But care must be taken to use it moderately, for, like salt, it is apt to give the salad a coarse character. The best French tarragon vinegar is the proper thing, and as a very little goes a long way it costs no more in the end than the common rank vinegar the grocer will supply.

A SPECIAL SPRING SALAD.—Take the heart of a tender cabbage lettuce and an equal bulk of the tops of fresh water-cresses and shred them into the bowl. Add twenty to forty tops of cooked asparagus and a very little cooked cauliflower, both cold and minced rather small, and two hard-boiled eggs. Mix for the dressing half a teaspoonful of mustard, enough white pepper to cover a sixpence, two table-spoonfuls of oil and one of garlic vinegar. Mix, and garnish with sprigs of parsley.

POTATO SALAD.—For this dish we need a well-flavoured smallish potato in the way of the Ashleaf, or the French "Vitelot," which is of excellent flavour. Slice the potatoes, and add about a fourth part of their bulk of tops of tender water-cresses and a sprinkling of fresh parsley minced fine. Dress with oil, vinegar, white pepper, and salt.

TOMATO SALAD.—Slice a few ripe tomatoes, and about a third of their bulk of young white onions, both tomatoes and onions to be raw. Dress with oil, vinegar, pepper, and a very slight dash of sugar, which dissolve in the vinegar. Take care to add very little pepper, or you may exclude it with advantage.

WATER-CRESS SALAD.—This consists almost wholly of the tender tops of fresh cresses, of which there should be plenty, all nicely picked, and washed, and "swung." They must not be minced or even shred, but complete tops, very short, and all hard stalks removed. Add a few minced leaves of sorrel, tarragon, fennel, and summer savory—very little of each. Dress with equal parts of oil and vinegar and a very little salt.

To water-cress salad you may at discretion add a few half-slices of cucumber or tender celery cut rather large.

MAKESHIFT SALADS may be made of anything that is plentiful and of a suitable character, such as cold vegetables of any kind, with lettuce, onions, and cresses. Cutting and mixing and dressing will harmonize many things that would be objectionable separately, but care must always be taken not to use any strong-flavoured materials in excess. The flowers of primulas, tropæolums, dahlias, begonias, geraniums, marguerites of all kinds, potentillas, spiræas, and roses may be used at discretion for garnishing salads, as they are all wholesome, and no one need eat them, any more than they eat the parsley served as garnishing to a cold turkey or a tongue. But, as at the end of the story, the words used at the beginning must be repeated, that the lettuce is the proper basis of a salad; and to this may be added that the cabbage lettuces are the best of all when a first-class salad is required.

X. Y. Z.

CULTIVATION OF CALANTHES.

By JOHN MARSDEN, Gardener to J. E. Culler, Esq., Sheffield.

Read at a meeting of the Sheffield and Hallamshire Gardeners' Mutual Improvement Society.

AMONGST the many winter-flowering plants, few are more worthy of the attention of the gardener than these terrestrial orchids, the calanthes. They bloom from November to January, their flowers afford a pleasing diversity of colour, and well-grown specimens are so effective that it would be difficult to set too high a value upon them. Fortunately they are not difficult to cultivate, and it may with truth be said that they will amply repay any labour and attention that may be bestowed upon them. For table decoration small and medium examples are most acceptable, and large specimens with strong spikes from three to five feet in height present a striking appearance, when judiciously arranged with plants remarkable for the beauty of their foliage. In a cut state the flowers are of much value for hand bouquets, for wreaths for the hair, and for buttonholes.

The majority of the calanthes are natives of India, and those to which I shall direct attention are *Calanthe vestita*, of which there are two forms, and *C. Veitchi*, a beautiful hybrid. *C. vestita rubro-oculata* has large white flowers with a crimson blotch in the centre. This was introduced from Moulmein. The Java form, *C. vestita luteo-oculata*, differs from the preceding in having a yellow blotch in the centre of the flowers; *C. Veitchi* is a fine hybrid, raised by Mr. Dominy in the nurseries of Messrs. J. Veitch and Sons, from a cross effected between *Calanthe vestita* and the charming *Limatodes rosea*. This hybrid is unquestionably one of the finest of the calanthes; the bulbs are very large, ranging from twelve to eighteen inches in length, and the flower spikes attain a height of from four to six feet; the flowers are of a rich rose colour. When well grown it is truly beautiful and is invariably much admired.

The three kinds mentioned are all deciduous and require a good season of rest. They ought to be in a resting state for a period of about three months, and during that time they should be in a structure in which the temperature does not fall below 55 deg., and be kept quite dry. Some growers stow them under stages and in other equally unsuitable positions, but this practice is objectionable, and should not be adopted. Indeed, I consider it a dangerous practice, for if the plants remain in a dark position for a few weeks after they have started the new growth becomes more or less drawn, and they seldom fully recover. I leave the calanthes in the full light when resting, and as the result obtain strong breaks, fine pseudo-bulbs, and splendidly-developed spikes.

The best time to repot the calanthes is when the new growths are about half an inch in length, as the roots are then becoming active and quickly push into the new soil. The most suitable compost is one prepared in the following manner: Take equal parts of fibrous peat and turfy loam, well break them up with the hand and pass them through a sieve with a half-inch mesh to separate the fine soil. To the rougher portion of the loam and peat add thoroughly-decayed and dry cow manure in the proportion of one part to every three parts of the mixture. When this has been incorporated add a liberal quantity of charcoal broken small and a good proportion of sand. Fill the pots to one third of their depth with drainage and cover the crocks with a good thickness of sphagnum moss to prevent the soil filtering down between them and impeding the escape of the superfluous water. When the pots have been crocked in accordance with the directions here given fill to within an inch of the rim and put the bulbs in them. Three bulbs of the two forms of *C. vestita* should be put in each five-inch pot and four or five in each of those seven inches in diameter. Arrange them round the sides of the pots with the new growth outwards, and work in about half an inch of soil and make the bulbs very firm. In potting *C. Veitchi* put one pseudo-bulb in the smaller of the two and three in the larger. The whole of my stock was potted at the end of February, and the plants do not receive any water until the roots become active.

When the plants commence to grow freely they will require water, and after watering has been commenced they must not be allowed to suffer from dryness at the root. They require after they are started a rather high temperature, a light position, and a liberal degree of atmospheric humidity. It is essential to prevent any water dropping on the young growths, for in the earlier stages they are very liable to decay. As the sun acquires power it is essential to shade them lightly in bright weather to prevent the tips of the leaves being injured. As they advance in growth and fill their pots with roots supply them with liquid manure two or three times a week.

This may be obtained from the farmyard or be prepared with guano, but care must be taken that it is not too strong. Liquid manure they must have, as they cannot produce fine spikes of flowers without its assistance.

That troublesome pest, the scale, is very partial to the calanthes, and steps must be taken for its eradication immediately it makes its appearance. The leaves should at once be sponged carefully with water to which a little soft soap has been added. If green fly attacks the plants fumigate with tobacco paper. The calanthes should not be syringed at any time.

About September they will produce their flower spikes and many of the leaves will begin to decay, but the latter must not be removed until quite dead. At this stage the most successfully-cultivated examples will have a rather unsightly appearance. The cultivator must have patience, as the beauty of the flowers will make ample amends later on. The action of the roots will in a great measure cease with the shedding of the leaves, and the water supply must be materially lessened. Indeed, a little water once a week will suffice until about the middle of December. After that period the nourishment stored up in the pseudo-bulbs will suffice for the support of the flower spikes and the plants will really be resting during the time they are in bloom. A temperature ranging from 55 deg. to 60 deg. will be the most suitable during winter, and when they are in flower the atmosphere must be dry or the blooms will become spotted.

Calanthes are increased by means of the new growths produced by the pseudo-bulbs, and by the cutting up of the latter. The pseudo-bulbs produce from two to four growths, which in the course of the season form pseudo-bulbs, and these help to swell the stock. The pseudo-bulbs of the two forms of *C. vestita* may be divided by cutting them in two, crossways, and those of *C. Veitchi* may be cut into three or four pieces according to the number of rings or joints. Place the cuttings on a dry shelf in a stove for a day or two for the wounds to dry, and then insert in pots or pans filled with sand. A shelf in the stove will afford them the most suitable quarters, as they require plenty of light and exposure to the sun. Keep them dry or decay may set in. In about six weeks they will be ready for potting off, when they should be dealt with as advised for the other examples.

Markets.

COVENT GARDEN.

FRUIT.

Apples.....	per ½ seive	5s. 0d. to 7s. 0d.
Figs.....	per doz.	7s. 0d. „ 10s. 0d.
Gooseberries, Green, quart	0s. 8d. „ 1s. 0d.	
Grapes.....	per lb.	4s. 0d. „ 8s. 0d.
Lemons.....	per 100	5s. 0d. „ 7s. 0d.
Oranges.....	per 100	4s. 0d. „ 8s. 0d.
Pine-apples, Eng.	per lb.	1s. 6d. „ 2s. 6d.
Strawberries.....	per lb.	4s. 0d. „ 6s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Asparagus, French, bun.	2s. 0d. „ 5s. 0d.
Asparagus, English, bun.	3s. 0d. „ 5s. 0d.
Asparagus, Sprue, per bun.	0s. 0d. „ 1s. 0d.
Beans, French.....	per 100 0s. 8d. „ 1s. 0d.
Beet.....	per dozen 1s. 0d. „ 1s. 6d.
Cabbages.....	per doz. 1s. 0d. „ 2s. 0d.
Carrots.....	per bunch 0s. 4d. „ 0s. 6d.
Carrots, New, per bunch.	1s. 0d. „ 3s. 0d.
Cauliflowers, Eng., per dz.	2s. 0d. „ 4s. 0d.
Cucumbers.....	each 1s. 0d. „ 1s. 6d.
Endive.....	per doz. 0s. 1d. „ 2s. 6d.
Garlic.....	per lb. 0s. 10d. „ 1s. 0d.
Herbs.....	per bunch 0s. 2d. „ 0s. 4d.
Horse-radish, per bundle	3s. 0d. „ 4s. 0d.
Leeks.....	per bunch 0s. 3d. „ 0s. 6d.
Lettuces, Cabbage, per dz.	0s. 6d. „ 1s. 0d.
Lettuces, Cos.....	0s. 6d. „ 2s. 0d.
Mint, Green.....	per bunch 0s. 3d. „ 0s. 4d.
Mushrooms.....	per basket 1s. 6d. „ 2s. 0d.
Onions.....	per bushel 6s. 0d. „ 8s. 0d.
Onion Spring, per bunch	0s. 4d. „ 0s. 6d.
Parsley.....	0s. 4d. „ 0s. 6d.
Peas.....	per lb. 0s. 9d. „ 1s. 0d.
Potatoes, New.....	per lb. 0s. 3d. „ 0s. 6d.
Radishes.....	per bunch 0s. 1d. „ 0s. 2d.
Rhubarb.....	per bunch 0s. 6d. „ 0s. 8d.
Salsify.....	per bundle 1s. 0d. „ 1s. 6d.
Small Salading.....	per bun. 0s. 3d. „ 0s. 4d.
Spinach.....	per bun. 2s. 0d. „ 2s. 6d.
Tomatoes.....	per lb. 1s. 0d. „ 1s. 3d.
Turnips.....	per bunch 0s. 4d. „ 0s. 6d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Anemones, per doz. bun.	2s. 0d. „ 3s. 0d.
Azaleas.....	per doz. sprays 0s. 6d. „ 1s. 0d.
Azaleas, Ghent, per doz.	4s. 0d. „ 7s. 6d.
Bouvardias.....	per bunch 1s. 0d. „ 1s. 6d.
Callas.....	per doz. 3s. 0d. „ 5s. 0d.
Carnations.....	per doz. blms. 1s. 0d. „ 2s. 0d.
Cinerarias.....	per doz. blms. 7s. 6d. „ 10s. 6d.
Cyclamens.....	per doz. blms. 0s. 3d. „ 0s. 6d.
Deutzia.....	per doz. bun. 3s. 0d. „ 5s. 0d.
Eucharis.....	per doz. 4s. 0d. „ 6s. 0d.
Gardenias, per doz. blooms	2s. 0d. „ 6s. 0d.
Heliotropiums.....	sprays 0s. 6d. „ 1s. 0d.
Lapagerias, per doz. blooms	1s. 0d. „ 5s. 0d.
Lilium longiflorum, per	doz. blooms..... 4s. 0d. „ 6s. 0d.
Lilium candidum, per	doz. blooms..... 1s. 6d. „ 2s. 6d.
Lily of the Valley, per doz.	spikes..... 1s. 0d. „ 1s. 6d.
Marguerites, per doz. bun.	4s. 0d. „ 6s. 0d.
Mignonette.....	4s. 0d. „ 7s. 0d.
Pelargoniums, Zonal, per	doz. trusses..... 0s. 9d. „ 1s. 6d.
Pelargoniums.....	1s. 0d. „ 1s. 6d.
Primulas, Dble, doz. bun.	1s. 0d. „ 1s. 6d.
Roses.....	per doz. 2s. 6d. „ 3s. 6d.
Roses, Tea.....	1s. 0d. „ 2s. 0d.
Tropæolum, per doz. bun.	1s. 0d. „ 2s. 0d.
Tulips, per doz. blooms.	1s. 0d. „ 1s. 6d.
Violets.....	per doz. bun. 1s. 0d. „ 1s. 6d.
Wallflowers, per doz. bun.	2s. 0d. „ 3s. 0d.

METROPOLITAN MEAT MARKET.

Beef, Prime.....	per 8 lbs. 4s. 6d. to 5s. 0d.
Beef, middling.....	„ 3s. 10d. „ 4s. 6d.
Beef, inferior.....	„ 3s. 0d. „ 3s. 8d.
Beef, prime small.....	„ 5s. 0d. „ 5s. 2d.
Veal.....	„ 5s. 0d. „ 5s. 8d.
Mutton, prime.....	„ 5s. 4d. „ 5s. 4d.
Mutton, middling.....	„ 4s. 4d. „ 4s. 4d.
Mutton, inferior.....	„ 3s. 8d. „ 4s. 0d.
Lamb.....	„ 7s. 4d. „ 8s. 0d.
Pork, large.....	„ 4s. 0d. „ 4s. 4d.
Pork, small.....	„ 4s. 8d. „ 5s. 0d.

GAME AND POULTRY.

LEADENHALL.

Turkeys.....	6s. 0d. „ 12s. 0d.
Hens.....	5s. 0d. „ 8s. 0d.
Goosings.....	6s. 0d. „ 10s. 0d.
Duckings.....	3s. 6d. „ 5s. 0d.
Fowls (Surrey).....	4s. 0d. „ 8s. 0d.
Fowls (Sussex).....	4s. 0d. „ 6s. 0d.
Fowls (Boston).....	2s. 6d. „ 5s. 0d.
Fowls (Irish).....	1s. 9d. „ 3s. 6d.
Guinea-fowl.....	4s. 0d. „ 4s. 6d.
Rabbits (Fame).....	1s. 3d. „ 2s. 6d.
Rabbits (Wild).....	1s. 0d. „ 1s. 6d.
Pigeons.....	0s. 9d. „ 1s. 3d.
Eggs.....	per 12 8s. 0d. „ 8s. 6d.
Eggs (Seconds).....	7s. 0d. „ 7s. 6d.
Plovers' Eggs.....	per doz. 3s. 0d. „ 3s. 6d.

CORN.—MARK LANE.

Wheat, Red, new.....	per qr. 35s. to 50s.
Wheat, White, new.....	„ 35s. „ 58s.
Flour, London, nom. top price..	—s. „ 47s.
Flour, town-made whites, per	sack of 280 lbs. 40s. „ 43s.
Flour, households.....	37s. „ 39s.
Flour, country households, best	makes..... 35s. „ 41s.
Flour, Norfolk and other seconds	32s. „ 34s.
Barley, Maltling.....	per qr. 30s. „ 50s.
Barley, Grinding.....	20s. „ 30s.
Malt, English.....	35s. „ 50s.
Malt, Scotch.....	33s. „ 43s.
Malt, old.....	25s. „ 35s.
Malt, brown.....	30s. „ 32s.
Oats, English.....	22s. „ 30s.
Oats, Irish.....	22s. „ 26s.
Oats, Scotch.....	22s. „ 30s.
Rye.....	42s. „ 45s.
Tares.....	—s. „ 60s.
Beans, English, Mazagan.....	36s. „ 40s.
Beans, Tick.....	38s. „ 44s.
Beans, Winter.....	39s. „ 44s.
Peas, Grey.....	30s. „ 36s.
Peas, Maple.....	40s. „ 45s.
Peas, White.....	36s. „ 44s.

HAY MARKET.

WHITECHAPEL.

Prime Clover.....	per load 120s. to 135s.
Inferior do.....	75s. „ 95s.
Prime Meadow Hay.....	109s. „ 121s.
Inferior do.....	55s. „ 90s.
Straw.....	39s. „ 56s.

COAL MARKET.

Wallsend—Hetton.....	16s. 6d.
Hetton Lyons.....	15s. 0d.
Lambton.....	16s. 0d.
Wear.....	15s. 0d.
Tunstall.....	15s. 0d.
Chilton Tees.....	15s. 6d.
Tees.....	16s. 6d.

MONEY MARKET.

Consols, 3 per cent.....	101½ to 101½
Reduced 3 per cent.....	101½ „ 100½

Replies to Queries.

Vines.—S. O.—The vines appear to be in a rather plethoric condition; and it would perhaps be beneficial to slightly reduce the atmospheric moisture and increase the ventilation.

Names of Plants.—Rex.—No. 1, *Farfugium grande*; 2, *Trichomanes radicans*; 3, *Selaginella caulescens*; 4, *Habrothamnus fascicularis*; 5, *Pteris longifolia*; 6, *Saxifraga sarmentosa*. H. H., Suffolk.—1, *Cydonia japonica*; 2, *Spiraea prunifolia* fl. pl.; 4, *Veltheimia viridifolia*; 7, *Tradescantia discolor*; 8, *Asplenium foniculaceum*. The other specimens are not sufficient for identification. A Subscriber, Lytham.—*Davallia canariensis*; 2, *Asplenium rhizophorum*; 4, *Asplenium flabellifolium*.

TRADE CATALOGUES.

B. S. WILLIAMS, VICTORIA NURSERIES, UPPER HOLLOWAY.—*New and General Plant Catalogue*.

JAMES VEITCH AND SONS, 544, KING'S ROAD, CHELSEA.—*Catalogue of Plants, including Novelties for 1882*.

No Toilet Soap ever introduced to the public has met with such deserved success as WRIGHT'S COAL TAR SOAP. It cleanses the skin, frees it from impurities, promotes its healthy action, and immunity from infectious disease, and last, and not least, washing with it is a luxury. Purchasers, to avoid disappointment, should refuse all imitations, which are not only useless but are positively dangerous.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

WHAT AMOUNT OF SUFFERING COULD BE AVOIDED IF WE ONLY KNEW HOW.

IT is often remarked how many more people that formerly complain of feeling unwell. It is not that there is a greater amount of contagious disease afloat, for there is proof that the extent and strength of such are far less than of yore, because of better sanitary arrangements and greater attention to cleanliness and other matters. The enormous prevalence cannot be doubted of pains in the back, side, and chest, enervated and languid feelings, with loss of energy; distress and fulness of the stomach, with often a sense of deadly faintness at its pit, which eating does not stay; sick headache; so called biliousness, unpleasant breath; a sense of weariness when rising in the morning, with an unpleasant taste in the mouth; and the loss of appetite or non-enjoyment of food. These are but the mildest effects of "feeling unwell," and yet how great is the distress and suffering, with hindrance to business and pleasure, they give rise to! The cause is not far to seek: it lies in the stomach and digestive organs, which have become impaired to the distress of nearly all the other functions of the body. Assuredly could the stomach always be kept in well-regulated condition through life, it would tend to far greater longevity than is now the case. The stomach is a wheel within wheels, and just as an erratic tendency on the part of a small but still important wheel of a clock leads to the disarrangement of its whole function as a timekeeper, so does the failure of so important a wheel as the

digestive organs in the mechanism of the human frame, throw, by their impaired vigour or inaction, all the parts depending on them—and they are Legion—out of gear. Just as the wheel of the clock will require to be adjusted that accurate time may be kept, so must the impaired organs of the stomach be restored to their original vigour. Digestion must be promoted by increasing the flow and strength of the gastric juice, and this "Seigel's Curative Syrup" will effectually do. It will impart strength to the stomach, invigorate the liver, and impart tone to the bowels, to the greater enjoyment of life and health of all who use it, and that it is so may be tested by a perusal of the testimonials in an Almanack, which will be furnished free of charge to any applicant by the proprietors, A. J. White, Limited, 21, Farringdon Road, London, E.C. The Syrup can be obtained from any chemist or medicine vendor. Read the following:

Waterloo House, London Stile, Chiswick,
February 17, 1882.

Messrs. White and Co., London.

Gentlemen,—It is with great pleasure that I add my testimony to the wonderful effects of Seigel's Syrup. For years I had been suffering from bilious attacks, which began with giddiness, then a mist would come before my eyes, so that I should not be able to recognize any one or anything at the distance of a yard or two from my face. This would be followed by excessive trembling of my knees, so that I could not stand without sup-

port, after which a severe headache would occur, lasting often two or three days. I have tried various remedies for these distressing symptoms, but until I tried Seigel's Syrup I had no relief—since then I have had excellent health in every respect, and if ever I feel a headache coming on I take one dose of the Syrup, which arrests it.

Hoping that this testimonial may be the means of inducing others (who suffer as I used) to try the Syrup, as I feel sure they will receive speedy benefit and ultimately be cured, I beg to remain, yours faithfully,

A. H. HORTON.

St. Mary's Street, Peterborough,
November 29, 1881.

Sir,—It gives me great pleasure to inform you of the benefit I have received from Seigel's Syrup. I have been troubled for years with Dyspepsia, but after a few doses of the Syrup I found relief, and after taking two bottles of it I feel quite cured.—I am, Sir, yours truly,

Mr. A. J. White.

WILLIAM BENT.

Woodside, Aberdeen, September 9, 1881.

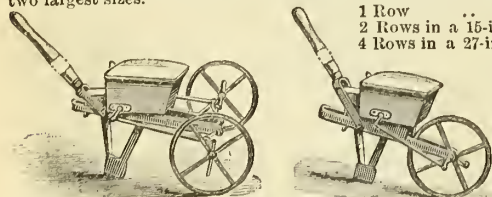
Respected Sir,—The sale of your Syrup continues with me most satisfactory, and just the other day I heard of a woman long ailing giving it all the credit of her recovery to health. Trusting a fresh circulation of your valued Almanacks will result in mutual benefit, believe me, Sirs, yours most sincerely,

Mr. A. J. White.

ROBERT HALL.

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These Drills are similar, in most respects, to the Suffolk Lever Drills, but much lighter. They will sow Wheat, Barley, Mangolds, Swedes, Turnips, Onions, Parsnips, Carrots, Cabbage, Cauliflower, Vetches, Flax, Tares, or any other Farm or Garden Seeds. For Market Gardeners, Seedsmen, Small Occupiers, or Colonial Farmers, they will be found most useful Drills. They can be worked by a man and lad, or a pony or donkey could be attached to the two largest sizes.

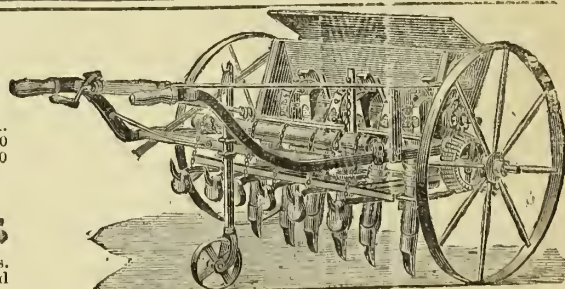


1 Row	2 15 0	6 Rows in a 39-inch width	9 10 0
2 Rows in a 15-inch width	5 0 0	8 Rows in a 54-inch width	12 10 0
4 Rows in a 27-inch width	6 10 0		

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DRILLS

Will sow all descriptions of Farm and Garden Seeds. There is no spring and slide to get out of order and damage the seed, being worked by a Brush. The rows can also be put in at equal distances without a line, by using the Drill with 2 Wheels.



Price, with Two Wheels, 20s. each; with One Wheel, 16s. each; to Drill Two Rows at once, 35s. each. Illustrated Catalogue of Seed Drills, Expanding Forse Hoes, &c., of
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, 10 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.	Liverpool Dock.	Morn.	After.	Morn.	After.	
1882														
14	S	Rogation Sunday.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882
15	M	Daniel O'Connell died, 1847.	4 12	3 53	7 41	2 30	4 29	11 11	11 42	8 3	8 34	51.9	Cattleya Mossiae, s.	134
16	Tu	Vendôme Column destroyed, 1871.	4 11	3 53	7 42	2 57	5 48	—	10 10	9 7	9 35	51.3	Cypripedium barbatum superbum, s. Purple & White	135
17	W	New Moon, 7h. 33m. morn.	4 10	3 52	7 44	3 23	7 4	0 35	1 2	10 4	10 27	51.6	Dendrobium Devonianum, s. Carmine & Black	136
18	Th	Ascension Day, Holy Thursday.	4 8	3 50	7 45	4 7	8 13	1 24	1 51	10 53	11 15	51.8	Gentiana acutis, h.	137
19	F	Dunstan, Archbishop.	4 6	3 48	7 47	4 52	9 13	2 10	2 33	11 35	11 54	55.1	Iris germanica, h.	138
20	S	Columbus died, 1506.	4 5	3 46	7 48	5 47	10 3	2 55	3 17	—	0 20	55.4	Passiflora Mauri, g.	139
			4 4	3 43	7 49	6 47	10 15	3 33	4 0	0 42	1 3	55.7	Pineola spectabilis, g.	140

The Gardeners' Magazine.

SATURDAY, MAY 13, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 3s.; 6 Months, 6s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (25 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s. EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

MONDAY, MAY 15.—WESTERN HORTICULTURAL SOCIETY.—Summer Exhibition at Plymouth.
WEDNESDAY, MAY 17.—ROYAL BOTANIC SOCIETY.—Summer Exhibition.
THURSDAY, MAY 18.—READING HORTICULTURAL SOCIETY.—First Summer Exhibition.
THURSDAY, MAY 18.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—First Summer Exhibition.
FRIDAY, MAY 19.—ROYAL BOTANIC SOCIETY.—Botanical Lecture, at 4 p.m.
SATURDAY, MAY 20.—CRYSTAL PALACE.—Great Flower Show.

Auction Sales for the Ensuing Week.

WEDNESDAY, MAY 17, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported and Established Orchids.
WEDNESDAY, MAY 17, at 2.0 p.m.—Messrs. Farebrother and Co., at the Mart, E.C.; Freehold Market Gardens at West Drayton.
THURSDAY, MAY 18, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported and Established Orchids.

THE HYBRID AMARYLLIS that have attracted special attention of late in the nurseries of Messrs. James Veitch and Sons, represent much patient labour and a very creditable triumph over many difficulties. The raising of varieties of amaryllis is not a difficult task in itself, as was shown in a paper on the subject which appeared in our issue for October 9, 1875. But to raise a sufficient number to ensure a collection like that the Messrs. Veitch now possess is within the means of very few, for when we see those that have been named because of their distinctness and merit, we have a hint of the much greater number that have been rejected because below the mark, and these we shall never see or even hear of. The magnitude of Messrs. Veitch's collection is therefore a matter for surprise, no less than of admiration. The work has been carried on according to system, and with definite ends in view, and from time to time we have been permitted to see some of the results. But the collective result has now been submitted to the test of public criticism, and the verdict is that a very distinct and valuable advance has been accomplished in a very important department of floriculture.

The amaryllis (as a genus) is older than is commonly reported. In modern books *A. formosissimum* is recorded as introduced to this country in the year 1658, but we find it figured in Parkinson's "Paradysus," 1629, as the Indian Daffodil, with red flowers (p. 71, fig. 3), and according to the "Hortus Kewensis," *A. equestris* dates from 1710, but in Martyn's "Miller" the introduction of this species is ascribed to Dr. Pitcairn in the year 1778. This important plant was poorly figured in the *Botanical Magazine*, t. 305, and Mr. Curtis reported the flowering of it, previous to 1795, in the nurseries of the celebrated Mr. Colvill. To pursue the histories of the several species would be inconvenient in this place, but a note on the figures of a few in *B. M.* may be useful. *A. vittata*, the superb amaryllis, dates from 1769, and is figured in *B. M.*, 129. *A. reginae*, the Mexican Lily, was cultivated before 1725, and is figured in *B. M.*, 453. This is a grand species, with crimson or scarlet flowers of good form, and full of promise for the hybridist. In Martyn's "Miller" it is described as flowering in Mr. Fairchild's garden at Hoxton in 1728, "when the late James Douglas caused a figure of it to be drawn, and wrote a folio pamphlet upon it. He gave it the

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title of *Lilium Reginae*, because it was in full beauty on the 1st of March, which was the late queen's birthday." *A. solandriiflorum* has the honour of two figures in *B. M.*, viz., 2,573 and 3,771; the first being a green flowered variety, the second a pale yellow with green stripes; both the varieties long tubed, funnel shaped, and cernuous. The richly coloured *A. aulica*, which is distinct in habit, more especially in holding its leaves during the winter, is figured in the *Botanical Register*, 1,038, and *B. M.*, 3,311. Here we have a short tubed flower with narrowish segments, much green in the centre, but with a splendid breadth of crimson shading downwards to purple. To throw this out in hybridising would be to sacrifice an opportunity. In the year 1816 was introduced *A. psittacina*, which is figured in *B. R.*, 199. In this we have a resplendent scarlet petal with a large proportion of green, a peculiarity very persistent in these flowers. The year 1867 brought in *A. pardina*, which is admirably figured in *B. M.*, 5,645, and the figure is copied in *Flore de Serres*, 1,725. Of this richly spotted species a hybrid has been raised that may be likened to *Lilium Parkmanni*. It is a majestic novelty, and bears the honourable name of the Rev. H. H. D'Ombraïn. It is figured in *F. d. S.*, 1,727. Lastly, as we are not now attempting a catalogue, we must mention *A. Leopoldi*, the coming in of which prepared the way for the creation of the splendid group that has suggested these remarks. This magnificent species was introduced by Messrs. Veitch from Peru through the late Mr. Pearce, and it was first shown at the Royal Horticultural Gardens on the occasion of the visit of the King of the Belgians to an exhibition held there in the spring of the year 1869. Thus it acquired its name, and its splendid qualities secured for it suitable certificates and a leading place in the class of plants it represents. *A. procera*, a trec-like species, with lavender-tinted flowers, appears to have no close affinities with any of the foregoing, though a fine thing in itself.

The species named appear capable, in every instance save one, of contributing desirable features to a race of hybrids. The exception is *A. solandriiflorum*, the form and colouring of which suggest that it can be of little use, except to the desperate hybridist, who might hope by its aid to raise a yellow flowered variety. However, what the desperate man might hope or attempt need not concern us now. We repeat that all the more prominent species save one are calculated to render service to the raiser, but it is proper to add that in *A. Leopoldi* we have qualities that forcibly suggest its value to the breeder. It has a broad petal, great substance, a short tube, and opens to an almost flat face. Its colours are equally acceptable, being compounded of crimson and white, the "star" well defined, but with a dash of green in the throat that the florist will desire to get rid of.

The raising of seedling amaryllis appears to have made but little progress until about 1815, when Mr. Joseph Knight, of the Exotic Nursery, in the King's Road, Chelsea, obtained some handsome hybrids from Mr. Edward Bearpark, gardener at High Legh in Cheshire, one of which is figured in the *Botanical Magazine* of 1822 (t. 2,315). About 1820 Mr. Robert Sweet took up the work, and carried it on with such earnestness that he soon produced a large and fine collection of hybrids. These were for the most part founded on *A. reginae*, *A. equestris*, and *A. vittata*. Dean Herbert subsequently indulged in experiments in the same field, but with scientific rather than floral objects in view, he being a careful student of the fabric and life of the plant much more than a hybridist anxious for the production of handsome flowers. A work of this sort however, once fairly entered upon, soon attracts a number of enthusiasts, and the consequence has been that hybrid amaryllis have been very freely produced and exhibited during the past forty years. In 1840 there was a fine lot in the nurseries of Messrs. Lockhart, of Fulham, one of which, named *Victoria superba*, was figured in the *Florist's Journal* of that year. About 1860 a considerable number was raised in Holland and Belgium, and no fewer than sixteen of these were figured in Van Houtte's *Flore des Serres*, 1865 (t. 1,610, 1,617). In one of the spring exhibitions of Messrs. Cutbush, of Highgate, many of these Netherlands hybrids were brought forward and attracted considerable attention. It is often said that some varieties have the characters of species, and it has been with some confidence declared of late that "man is a species maker." However that may be, certain it is that one amongst many varieties has played the part of a species in this particular field.

We allude now to a variety named *A. Acramanni*, raised by Mr. E. Acraman, of Bristol, in the year 1835, the parents being *A. aulica* and *A. psittacina*. This hybrid has impressed its characters on many of the varieties to be found in Messrs. Veitch and Son's present collection, and thus it may be regarded as the equivalent of a species. Strange to say another and distinct hybrid, named *Acramanni pulcherrima*, raised from *A. aulica* and *A. Johnsoni*, exhibited at Chiswick in the year 1849, has also played the part of a species, and must be regarded as the finer of the two for any purpose. The history of these two hybrids is briefly recorded by Messrs. Garaway and Co. in the *Gardeners' Chronicle*, 1850, p. 357.

When thrown into groups the varieties suggest by their distinguishing characters their several relationships. We find amongst them the rich stippling of *Pardina*, the grand petal and colour of *Leopoldi*, the stripes of *Vittata*, and the lesser but not less desirable characters of *Acramanni* and *Aulica*. Variety is charming, but critical cultivators assign boundary lines to the range of variety, and it is beginning to be necessary to formulate these for the advantage of the public in general and the judges at exhibitions in particular. Nature has been pleased to incorporate with the resplendant colours of those flowers a considerable proportion of green, and that, to the critical eyes of the English school is a defect. The continental florists do not so much object to a dash of green in a flower, and hence continental amaryllis, in common with other continental flowers, show at times more green than meets with approbation here. As when growing wild, the flowers rise in advance of the leaves, and having much work to do in fertilizing the ovules and producing perfect seeds, they need the vitalizing assistance of a certain amount of chlorophyll. But our cultivators succeed pretty well now in bring up the leaves with the flowers, and this fact will, no doubt, favour the elimination of the green tinge from the flowers, and the substitution for it of white, or perhaps yellow. It is likely, we think, that the production of fine varieties has been in some degree impeded by breeding from *A. solandriflora*, which might, indeed, take lead in a special section, but should not be allowed to influence the strains in which the high coloured species are represented.

The list we publish in the present issue contains the names and descriptions of all the more striking varieties on view at Messrs. Veitch's establishment in the past spring. We have selected them for their combination of all the more desirable qualities of form and colour, hoping thereby to render a service to the many amateurs who are now entering upon the cultivation of these magnificent flowers. Having discussed at sufficient length upon the subject, it will be prudent, perhaps, to say no more at present, but there remains yet very much more to be said.

FARNINGHAM ROSE SHOW will be held on Thursday, June 29.

BANBURY FLOWER AND POULTRY SHOW will be held on Tuesday, August 29.

WOODSTOCK HORTICULTURAL AND POULTRY ASSOCIATION.—The annual exhibition will be held on Tuesday, September 19.

HEADINGTON HORTICULTURAL AND POULTRY SOCIETY.—The second annual exhibition will be held on Monday, August 7, in conjunction with the first exhibition of the Oxfordshire Bee Keepers' Association.

ENGLISH BIRDS IN AUSTRALIA.—The *Sydney Mail* of March 18 reports the New South Wales Zoological Society had received a consignment of 80 skylarks and 12 goldfinches, but only 58 skylarks and 11 goldfinches reached Sydney alive. The birds were shipped to the society by the Nelson Acclimatisation Society, under the care of Captain Wheeler, of the steamship *Wakatipu*. This shipment enabled the society to supply the Glen Innes district with 26 skylarks and 5 goldfinches.

PRESENTATION TO MR. THOMAS MOORE.—Some of our friends appear to have made a mistake as to the date of the dinner; therefore we repeat that it will take place at the Cannon-street Hotel, London, on Tuesday, May 23. Dinner will be served at half-past six. Dr. Masters, F.R.S., will preside. Evening dress is not requisite. Seats will be reserved for all who desire them, but notice must be given to Mr. Hibberd on or before the 19th instant. The charge to each guest will be 21s.

AMARYLLIS V. HIPPEASTRUM.—Herbert's generic distinction has never been accepted in a practical manner, and has really occasioned some inconvenience. We remarked in our issue for March 27, 1880, "The people who have to use a language should have some part in making and keeping it," and in respect of *Hippeastrum*, the "Equestrian Star," it is time we gave it up as obsolete. In so doing we shall have the countenance of at least one authority, for Sir Joseph Hooker repudiates it, as see in *B. M.*, under t. 5,645, in connection with the figure of *Amaryllis pardina*. He says: "The genus *Hippeastrum*, of Herbert, which includes many American species of *Amaryllis*, differs from this latter by such very slight and variable characters that it cannot be regarded as of any practical value." This will comfort amateurs who are disposed to oscillate between the two, for it will enable them to follow the current books without any question of their propriety.

ROYAL HORTICULTURAL SOCIETY.—The following provincial floral and horticultural societies have been admitted into union with the Royal Horticultural Society this year, and have received the usual medals to be competed for at their shows, viz.:—Atherstone Horticultural Society, Bristol Chrysanthemum and Spring Show Society, Cirencester Horticultural Society, Dalton in Furness Horticultural Society, Durham, Northumberland, and Newcastle-on-Tyne Horticultural Society, East London Floricultural Society, Maidstone Horticultural Society, Norwood Amateur Floral Society, Royal Agricultural and Horticultural Society of Jersey.

MESSRS. F. AND A. SMITH, OF WEST DULWICH, continue the patient selection and improvement of the cineraria, by which they have established their well-known strain. They have favoured us with samples of about a hundred seedlings of the most various colours, but characterised by fine forms, broad florets, and great substance. While such varieties may be obtained from seedling plants, there is but small temptation to grow named sorts for decorative purposes; in fact, well-saved seed serves every interest, save that of the scientific florist, who perforce must retain a certain number of models to sustain his standard of properties.

THE SCARLET EMBOTHRUM, in a splendid condition of bloom, has been forwarded, through Mr. Clark, from Mr. Randall, of Exe Bridge. This plant, *Embothrium coccineum*, of Brown, affords the rare example of a South American proteaceous plant hardy enough to endure all weathers in our southern and western counties, but not hardy enough, as we know to our cost, for the near neighbourhood of London. It is a distinct and splendid plant, with oblong coriaceous dark green leaves, and many-flowered racemes of scarlet flowers borne on scarlet pedicels. It is one of the many valuable plants obtained from the Straits of Magellan, by Mr. Lobb, when collecting for Messrs. Veitch, who, we believe, first flowered it in the year 1853.

RHODODENDRON FORTUNEI was presented to the Floral and the Scientific Committees of R. H. S. on Tuesday last from two separate sources. This fine species is rare, the consequence probably of its being not sufficiently hardy to weather our winters. It is a grand species for style and colour. The flowers have seven to eight lobes, none of which are spotted, and the stamens usually number fourteen. The colour is a pale rose or pinky flesh, delicate, and singularly fresh and pleasing. In general complexion it comes near to *R. Griffithianum* v. *Aucklandi*, which however is some degrees grander in its boldly expanded white corolla. *R. Fortunei* was obtained from China, but it differs greatly from the usual type of Chinese species. It is figured in *B. M.*, 5,596.

THE QUEEN'S VISIT TO EPPING FOREST on Saturday last gives a fine finishing touch to the whole work of the Corporation of London in securing this grand recreation ground for the people. Amongst the many memorials of the event that will challenge time to efface them the most interesting perhaps will be the memorial tree planted expressly for commemorative purposes. This is a promising plant of the scarlet oak (*Quercus coccinea*) supplied by Messrs. W. Paul and Son, of Waltham Cross. At the present time the tree is jealously guarded against the depredations of a devoted public bent on pulling it to pieces out of sheer enthusiasm or, say, a morbid hunger for relics. It will have to be protected with a palisade that only a bird can surmount, and even then, we fear, it will not be safe. However, at this moment it is our privilege to report that the tree is unhurt.

FRUIT PROSPECTS.

A LEISURELY look round the fruit garden this evening reveals the fact that the terrific gale of April 29 has left its marks upon the trees. The young growths and leaves are terribly disfigured by the action of the wind and the cold rain which accompanied it. The edges of the young and tender leaves are already black, and much of the foliage presents a black and shattered appearance. Many of the apple-trees were in full bloom, and in some cases the flowers were literally blown off the trees, as also were some of the buds. The result must be an indifferent crop, but fortunately all the varieties of apples do not bloom at one time. The earliest, in many cases, were already set, and therefore they are not injured so far, and many have yet to open. We may therefore hope that if we have no spring frosts, and do not experience another gale of equal force, we may secure a fair crop of apples. Plums with us, so far, are very promising. Greengage, Magnum Bonum, and Golden Drop are set very thickly. Everywhere the apricots are set well and the trees healthy. The pear crop will, I think, be partial; at present our prospect is an average one. The fruit of the early kinds, such as Williams's Bon Chretien and Buerre d'Amanlis, have fallen very fast after they have been set, but I think there will be enough left of the first-mentioned to form a crop. Beurre d'Amanlis, as a general rule, succeeds the other so quickly in ripening that it is not much wanted. Althorpe Crassane is always with us a sure bearer, and delicious in flavour. It promises well this year, as also do Marie Louise and Autumn Bergamot. Of the later kinds, Winter Nelis, Buerre Diet, and Buerre Rance, there is plenty of fruit set, and if we can keep it on the trees we shall have an abundance. But if we should have wet and cold weather during the month, the crop will probably be light. One tree of No Plus Meuris promises a few fruit this year—the first since it was planted in 1869. I think I cannot be accused of a want of patience so far as that tree is concerned. Gooseberries are a full crop, as are also red and black currants, and if the Morella cherries are a full crop, as are also red and black currants, and if the Morella cherries only bring to maturity one-third of the fruit set there will be a good crop. Growers of peach and nectarine trees on the open walls report that the promise is exceedingly good, but during the past week blistering of the leaves has developed to an alarming extent, the result, it is supposed, of the cold rains and frosty mornings which have characterised the weather here in Somerset for the past ten days.

J. C. C.

THE TEACHING OF FORESTRY.

By COLONEL G. F. PEARSON.

Read at a meeting of the Society of Arts, under the presidency of Sir J. Lubbock, Bart., M.P., F.R.S., March 1, 1882.

(Continued from page 225.)

DISCUSSION.

SIR RICHARD TEMPLE, G.C.S.I., said he had great pleasure in standing by the side of his old friend and comrade, Colonel Pearson, who began his forest career under him some twenty years ago. They had together threaded the dense thickets of India, and admired the broad trunks, spreading branches, and magnificent heads of the forest trees, and though Colonel Pearson suffered a great deal from the malarious climate he braved all dangers and hardships manfully for the sake of the forests he loved so well; and to-day there was no one more competent to speak on this important subject. There was not the same inducement to preserve the forests in England as in some Eastern countries, because here it was to a great extent a question of wealth, but in Eastern countries it was a question of climate also. Here trees were preserved to a great extent for the sake of ornament and as a shelter for game. As had been mentioned, England

scope for the employment of the students in the eastern and other portions of the British Empire, and he was sorry (Sir Bartle Frere was not present, for he was sure he would have borne testimony to the necessity of forest conservancy in South Africa. Sir Samuel Baker could have given equally strong testimony with regard to Cyprus, which, in classical times was one of the most lovely and fertile of islands, but was now in a wretched condition, and could hardly find means to pay its way. The main cause of its utter denudation in modern times was the destruction of its forests. He rejoiced at this subject being brought before that influential society, for there were few matters of more importance to the future of India. The destruction of her forests in former times had been one of the blot on the administrative and statesmanlike escutcheon of England, and it had arisen simply from the ignorance of her governors, individually and collectively. When he went to India, he was supposed to have had a liberal education, but he had never heard a word about forestry, and he feared that many of those who came after him were not much better in this respect, though there might be some little improvement. There were great interests in India, all arrayed against the forests—all wanting to live upon them. Colonel Pearson had pointed out the difference between drawing an interest from the forest, and using up the capital, or *corpus*, as lawyers called it, which all selfish and shortsighted people were inclined



AMARYLLIS LEOPOLDI.

was naturally well endowed with trees, and to this he, as a small West country landowner, could bear testimony; but unfortunately, since the gales of last October, the timber which had strewed the ground had been rather a drug in the market. He could vouch for the excellent forestry which was carried out in Scotland, and all who had travelled on the Continent were aware of the excellent schools of forestry which existed both in France and Germany. He could not say much about Spain and Italy, but he had lately been through Denmark, which was as bare of trees as the palm of one's hand; on crossing over to Sweden, however, you came to a region where the trees were really preserved as a source of national wealth in the most perfect manner possible. In America, no doubt forestry was somewhat behindhand, and before long the eastern part would get into great difficulties unless more care was exercised. With regard to establishing a school of forestry in England, he did not see how it could be done unless there were State forests. He had examined the subject when in Scotland, where he delivered a lecture on the subject, and though there were magnificent forests there, the proprietors of which would no doubt allow facilities for their inspection by students, and for instruction being given by the foresters in whose charge they were, so far as possible consistently with their more immediate duties, these advantages would not be sufficient, unless the forests were absolutely under State control. If such a school were formed, there would no doubt be ample

to do; but it was the duty of the Government to come forward and protect forests, in the interests of the people themselves. If it had been neglected, it was simply because the Government had been uninformed, and for that reason alone he should hail with great satisfaction the establishment of a forest school in this country, as it would afford a means of diffusing a knowledge of forestry among the civil servants of India. We had before our eyes the most frequent examples of the consequences of disforestation. What was the cause of Palestine, Syria, Asia Minor, and parts of Mesopotamia being so utterly barren and destitute, compared to what they were in ancient times? People attributed it to invasions and revolutions, but it was owing far more to disforestation. Many of the beautiful hills, which long before the Christian era were well clad, were now utterly bare, and thus the climate became affected, the rivers and harbours silted up, as was shown at Ephesus and the mouth of the river near Tarsus. Again the same thing was the cause of the fearful famines in China; the Chinese were excellent agriculturists; as regards manuring they were ahead of every nation in the world, but the art of forestry had been long extinct among them. He would not stay to speak in detail of the Indian famines, but having served through them, he could say that one of the causes, probably the main cause of the droughts, was the destruction of forests in past times. What England thought to-day India would think to-morrow, and, therefore, he hoped this subject would be heartily taken

up. A great deal had been said of the French forest schools, and it should not be forgotten that they were due to the Emperor Napoleon III.

Mr. J. C. Rogers said the Surveyors' Institution, of which he was secretary, had for a long time taken a great interest in this subject, and when Dr. Brandis first established the Indian Forest Department in 1867, the council of that society made strenuous efforts, but without avail, to combat the notion that it was necessary to send all the students to France or Germany. They held that there were magnificent and well-managed forests in Great Britain, and that means might be found at home for educating the candidates for the Indian Forest Department; but a deputation which waited on the Duke of Argyll, then Secretary of State for India, met with a signal rebuff, and was informed that an inflexible rule had been laid down that all such candidates must attend the French or German schools. About 1875 the institution drew up a number of questions, which were sent to the Colonial and Foreign Offices, asking for information as to the management of forests in the various European countries and in our dependencies, and about two years later a most alarming budget of information was received in reply, containing such a vast quantity of details, that it was impossible for any individual to deal with it. At length, in the summer of 1878, feeling ashamed that nothing was done with this very valuable information, he undertook to deal with that part of it which related to the British dependencies, and after six months' hard work, managed to compile a considerable book, containing all that was valuable in the returns supplemented from other sources, and this book was published as a Parliamentary paper; but coming out at an unfortunate time, he feared that it had almost escaped public notice. He believed, however, that it was this publication which first called attention to the alarming evils with which they were threatened by the mismanagement of forests. He did not deal with India, as there was already a scheme in full operation there, but he dealt with all the colonies, and pointed out that South Australia was the only place in which any care was being bestowed on this question. In some places the periodicity of the rainfall had been greatly affected, and the ruthless destruction of the timber in the neighbourhood of settlements frequently caused great economic difficulties. In many cases colonies would be almost deprived of fuel altogether in case of a war, in which Great Britain temporarily lost her naval supremacy. This return had anticipated many of the statements of Colonel Pearson, and it had been freely quoted in several cases without the customary acknowledgment, though not on the present occasion.

Mr. John Robinson, as a forester of forty years' experience, felt much obliged to Colonel Pearson for the capital paper he had brought forward; and he was particularly pleased to find he advocated the establishment of a school of forestry in England. Sir Richard Temple had spoken of the wealth of England in this department; but no man ought to be allowed to throw away his wealth, as was done here, merely by the neglect of plantations which had been started. In many parts of England, and in some parts of Scotland, it would be found that plantations which had been made at the Government expense had failed from the incompetency of those who managed them. He remembered, some years ago, reading a paper on this subject, the pith of which was contained in these few words, "Plant thickly, thin quickly." The nurseryman took care that the first injunction should be obeyed, but the other part was generally neglected. Like the last speaker, he had been endeavouring for some years past to induce the Government to take up this question, and he hoped he had attained a certain amount of success with the late administration; but just then a change came, and nothing was done. He did not think it was altogether hopeless to establish a school of forestry in Edinburgh, where there were already facilities for affording the young forester information in the cognate branches of his education, such as geology, botany, &c., and an arboretum had recently been purchased by the municipality, and his contention was, that if the Government would endow a professor of forestry the thing might be accomplished. Something was being done by Sir Joseph Hooker at Kew, and he hoped that one result of this paper would be the formation of a committee which should make renewed efforts to induce the Government to take the matter up, and establish a school of forestry in Great Britain, not only for the sake of India, but also for the instruction of land agents and others who had to manage estates at home, so that the largest amount of profit might be obtained from the numberless forests in our own country.

Mr. Thistelton Dyer, F.R.S., thought it was desirable to keep as much as possible to the point raised by the paper, and though Mr. Robinson's remarks were very suggestive, he feared they had a tendency to raise a cross issue. The British Empire covered a large part of the surface of the globe, and the real problem was how to arrange that the forest resources of the different countries under our charge did not suffer such a deterioration as would, on the one hand, injuriously affect the climate of those countries, and on the other deprive our fellow-subjects in the future of the material resources obtainable from those forests. No one who had studied the information which had been gradually acquired on this subject could doubt that there was grave cause for anxiety. You could not go on felling forests indefinitely without producing an artificial state of things which, if not watched with care, would ultimately produce complications of the gravest kind. He had listened with great interest to the remarks of Mr. Rogers, and he could assure him that his work was by no means thrown away. A copy of his book was amongst the papers at Kew, and he felt that it was a document of the greatest importance with reference to the statistics of this subject; and when the question gradually ripened into a shape in which it would attract the attention of political persons, it would be referred to as the starting-point from which any action should be taken. The alteration of the surface of occupied countries, and the removal of forests, required to be approached with some caution. For instance, in England it was not a very pressing question; and though he had seen a paper drawn up for the India office by one of the professors of the school at Nancy, in which it was stated that Scotland had once 20 million acres of forests, whereas now there were but three-quarters of a million, he did not know that the material prosperity of Scotland had suffered by the change. You could not lay down a broad principle that the removal of woods in temperate climates must be regarded as a disaster. On the other hand, in the south of France the removal of the forests from some of the Alpine slopes, in the interest of agriculture, had led to disastrous floods; one of which, in 1875, caused damage to the extent of 3,000,000*l.*, and the Government was now going to great expense

to replant those slopes. This was a question which most affected our fellow-citizens in the hotter portions of our possessions. Cyprus had already been mentioned, and it was in many respects a typical instance. He did not know how far it could be taken as true that the island was once covered with forests; but, at present, such as were left, were in the last stage of dilapidation. A report had been made upon them by an Indian forest officer, who was of opinion that, within the present generation, what remained of the forest would probably perish. The rainfall was only thirteen inches, and it immediately flowed off the surface, so that, in the language of the report, instead of a forest you had a desert. A French forester, who was selected by Colonel Pearson to go there, estimated that with a quarter of a million outlay something might be done in half a century; but where was the money to come from? When the forests of such a country as Cyprus were destroyed, it was like a burnt cinder. Many of the West Indian islands were in much the same condition, and the rate with which the destruction took place when once commenced was almost incredible. In the Island of Mauritius, in 1835, about three-fourths of the soil was in the condition of primeval forest, viz., 300,000 acres; in 1879 the acreage was reduced to 70,000; and in the next year, when an exact survey was made by an Indian forest officer, he stated that the only forest worth speaking of was about 35,000 acres. Of that, the portion in the possession of the Crown had had every stick of available timber cut, and those parts in the possession of private owners were still worse. Although there had been no apparent diminution in the rainfall, the humidity of the air had diminished, and the springs were drying up. Again, taking Ceylon, in 1873, Sir William Gregory, ascending a mountain in the centre of the island, 8,000 feet in height, said the eye ranged in every direction over an unbroken range of forest; but six years later, when the present governor made the same ascent, the whole forest had disappeared, and the ground had been parted with so rapidly by the Government that it had not even retained sites for police-stations, and had to re-purchase them. In Jamaica, again, it appeared that nearly all the timber required for building purposes had to be imported. In Ceylon, the denudation of the forests was accompanied by a deterioration in the soil; and the Rev. R. Abbey, who went there on the eclipse expedition, calculated, from the percentage of solid matter in a stream, that one-third of an inch per annum was being washed away from the cultivated surface of the island. In some colonies the timber was being destroyed at such a rate as would soon lead to economic difficulties. In New Brunswick, for instance, it appeared that the hemlock spruce, the bark of which was used for tanning, was rapidly disappearing, one manufacturer in Boiestown using 100,000 trees every year for this purpose. In Demerara, one of the most important and valuable trees, the green heart, was in a fair way of being exterminated. They actually cut down small saplings, to make rollers on which to roll the large trunks. In New Zealand, again, Captain Walker said he feared the present generation would see the extermination of the kauri pine, one of the most important trees. All these facts showed that this was a most urgent question which at no distant date would have to be vigorously dealt with. Mauritius, Cyprus, and Ceylon had obtained the assistance of the Indian Forest Department, but it must be remembered that the gentlemen of that Department had duties of their own to perform, and there would be an increasing difficulty in getting the requisite assistance from that quarter. Then there were those who were educated at the French school, but there were certain disadvantages in employing the services of foreigners in English dependencies. Lastly, a certain number of men from Kew had been utilised, and he was glad to say that their efforts were highly spoken of, but it must be remembered that they had not had such advantages as were desirable in forest officers, so that none of these sources seem likely to be able to give a permanent supply of the men that were required, and hence it was manifest that some new establishment was urgently needed.

Mr. Hyde Clarke said he believed this subject had been taken up by the Society a century ago; and he was convinced that if a representation were made to the Council, a committee would be appointed, which would probably lead to some practical result. His memory did not quite bear out what Colonel Pearson had said with regard to their past deficiencies in this respect; he had alluded to the history of the subject in the time of Queen Elizabeth, and he believed it would be found that continuous attention had been given to the production of timber in this country for various purposes. He might remark, also, that some of their friends from India were sometimes inclined to press the matter too far. Sir Richard Temple had referred to Ephesus, but he (Mr. Hyde Clarke) could by no means trace the silting up there to the destruction of the forests. He did not believe the forests were ever greater in that district than they were now; and with regard to the southern parts, he had had a great deal of timber from those very forests.

Mr. Boulger remarked that there was the same encouragement in England for the establishment of a school of forestry as had been operative in America, viz., the willingness of private individuals to avail themselves of its advantages, of which he could speak from personal experience. In 1876, when he was at the Agricultural College at Cirencester, he was requested to deliver a course of lectures on sylviculture, preparatory to the examination of the Highland Agricultural Society of Edinburgh, and he then gave what he thought must have been the first course of lectures on the subject ever delivered in England. In Oxford there had been for 200 years a Professor of Botany and Rural Economy, but he feared the latter subject had been swallowed up by the former. At the present time the students of forestry in England laboured under great disadvantages, for even at Cirencester, though he was in the same county as the Forest of Dean, he was too far off to take his pupils for any practical work to that admirably managed forest. As Colonel Pearson had said, for a forest school you require a State forest; such did not exist in Scotland, and he hardly thought a newly-established arboretum could take its place. A wood was one thing, and a forest another; the Forest of Dean was a State forest, and possibly arrangements might be made for teaching forestry in connection with Cirencester College. At the present time forest officers went to India from this country at the rate of six per annum, which was not a large number. They were educated at first mainly in London, and a great many had passed under his hands during the last three years, to be promoted in scientific subjects, but such work was eminently unsatisfactory, seeing that the plane trees in the London squares were the principal illustrations at command. Then they went to Nancy, where they had to hear lectures in a foreign language, and though no doubt the proficiency they were compelled to attain in French was an advantage, the system had many drawbacks. He learned

from some of his pupils that they had to begin all their science over again in French. This difficulty would be removed by the establishment of a forest school in England, and he believed that some of the French forest officers had testified to the admirable way in which the Forest of Dean and other State forests in England were managed. After all, the principles of forest cultivation were the same all the world over, though there might be differences of climate and species to take into account.

Mr. Liggins said he remembered in his early days, in the West Indies, there was a great controversy as to the proper way of dealing with the forests one side maintaining that all the trees should be cut down to prevent the roots interfering with the canes; whilst others contended that if the trees were destroyed, there would be no rain, and they would get no crops at all. He had naturally taken a great interest in the subject ever since, but was never able to learn anything about it in this country; whereas, in visiting the last Paris Exhibition, he found there was abundant information attainable. He might state that timber for buildings was not imported into Jamaica because there was none in the island, but because the native timber was so valuable, hard, and expensive to work, that it was cheaper to import pitch-pine and other soft wood. He could not altogether agree with Mr. Boulger that Loudon was such an unsuitable place for teaching science; a great deal might be learned here where men of every science met together, and the student would have his mind fertilised generally. An immense deal of mischief had been done in Demerara, Barbadoes, and other West Indian Islands, from the destruction of trees, and it was most desirable, in the interest of all the colonies, that a central school should be founded where young men might be trained in this most important branch of knowledge.

Mr. William Botly said he had the authority of one of the largest agriculturists of this country for the statement that there were thousands of acres on the sides of hills and slopes which might be advantageously planted with trees at a cost of 10*l.* to 12*l.* an acre, which would yield a handsome profit. He had known two instances in which the timber on an estate had been sold for nearly as much as the whole purchase money, and having had some experience in planting, he was very well satisfied with the results.

General Strachey, C.S.I., F.R.S., said he might almost consider himself the dry nurse of the Indian Forest Department, having assisted at its birth, and watched its development into one of the most successful branches of the administration. The Indian Government, under the pressure of necessity, had developed this department; it had required its officers to study at Nancy, acting under the advice of Dr. Brandis, and the system had so far proved very successful. But, as had been remarked, there were obvious disadvantages connected with the system, and for some time it had been the desire of the Indian Government to obtain for its forest officers the necessary education in England. That idea was about to be acted upon, and no doubt before long a school would be established here, whether the Home Government joined in it or not.

Mr. Rowland Hamilton hoped the suggestion of Mr. Hyde Clarke would not be lost sight of. The subject would attract the attention of many other societies, such as the Colonial Institute, the Statistical, and Agricultural Societies, and the Social Science Association, who would all aid in bringing the matter under the notice of the Government, if the Society of Arts appointed a committee to deal with it.

The Chairman, in proposing a vote of thanks to Colonel Pearson, referred to the statement that the net revenue from the forests of India had been increased during the last ten years by £200,000, in great measure by the effects of the Indian Forest Department; and as that Department had been so greatly aided by Colonel Pearson, they owed him a double debt of gratitude. Some advantage might perhaps be derived from the present depression in agriculture, if it forced those who were dependent on the land for their income to consider whether they might not do much to improve its value by the establishment of schools and colleges for instruction in agriculture and also in forestry. Even in Scotland, although the forests were generally well managed, there seemed a general consensus of opinion that there were large tracts of country which might be planted with advantage. It certainly was an anomaly that a country like England, which owned some of the largest forests in the world, was the only great country which had no forest school; and it would no doubt be a great satisfaction to Colonel Pearson if the discussion that evening should prove the first step towards the establishment of a forest school worthy of the British Empire.

The vote of thanks having been carried,

Colonel Pearson, in reply, said he was much gratified by the cordial reception which had been accorded to his paper. He must tell Mr. Rogers that his paper had been very much appreciated in France, for it had been tabulated and re-tabulated by the professors at Nancy, and used in their lectures, and questions were set upon it; and there was no doubt that if a forest school were established in England that return would form one of the principal documents referred to. He would point out that such a school would have to do a double work, though it might be connected, partially, at any rate. A certain amount of instruction was needed by surveyors and land agents who were to practice in this country; but those who were to go to India and the Colonies must be provided with a wider scientific training than would suffice in the former case, where any information on special points connected with mineralogy, geology, &c., could be obtained without difficulty when required.

MR. TURNER'S NEW TREE CARNATIONS.

AMONGST the miscellaneous contributions to the exhibition of the southern section of the National Auricula Society at South Kensington on April 25 was a very beautiful group of tree carnations from Mr. Charles Turner. The varieties forming the group were selected from the large collection of seedlings now in bloom in the Slough nurseries, and are remarkable for their robust growth, freedom of blooming, the large size and high quality of the flowers, and beautiful colouring. The flowers also stand well, and are quite free from the spotting which is such a serious defect in even the best of the older varieties. The high-class character of the varieties staged was so evident that the committee of the southern section of the National Carnation Society conferred first-class certificates upon the undermentioned varieties:—

Conqueror.—A splendidly-formed flower of full size, colour rich rosy pink, striped with purple, very distinct in colour.

Enchantress.—A large, full, and remarkably smooth flower, of a bright rose pink, shading to delicate pink at the edges of the petals, and with occasional streaks of deep purple.

Flambeau.—A full-sized flower, remarkable for its smoothness and fine form, and beautifully edged and feathered with deep red on a soft lemon ground.

Hector.—A large, full, and very effective flower, of a bright red colour, valuable for contrasting with the light varieties.

Nimrod.—A brightly-coloured flower of large size and splendid form, the colour rich rosy red.

Premier.—A telling flower of large size, good shape, and of a rich crimson colour, a great advance upon previously-introduced varieties, of the same colour and of much value.

Rufus.—A full-sized flower, remarkably full and smooth, and of a rich scarlet colour, especially valuable for supplying cut flowers.

Whipper-in.—A striking flower of large size and splendid quality, and lightly flaked with dark crimson on a scarlet ground.

V.

STARVING THE ROSES.

ALTHOUGH I have of late devoted some attention to the matter, I have up to the present time been unable to ascertain why so many growers of pot roses are strong believers in a starving policy. In private gardens and nurseries it is an every day experience to meet with roses in pots that present so pinched and starved an appearance that they give those who are acquainted with the development of flowers and foliage under liberal management a very uncomfortable feeling. They also occasionally make their appearance at the exhibitions, and even at York, where roses are shown chiefly in pots that are so deep as to have the appearance of chimney pots, examples with stunted foliage and indifferent flowers are not wanting. Thin and undersized flowers have, all will admit, but little to recommend them, and I am not singular in the opinion that ample foliage is as desirable as large, well-developed blooms. We see too much of the sticks and of the old wood in pot roses in consequence of the insufficiency of the foliage, and sometimes when placed on stages on a level with the eye, they appear to consist of but little else than a mass of wood of previous seasons and a forest of sticks.

As stated in your report, pot roses formed a very important feature of the April exhibition of the Royal Botanic Society, and I should have been glad if you had spoken of the several collections more in detail. But I suppose you were unable to do so because of the space occupied by the valuable list of auriculas and the full report of the National Auricula Society's show. I had a good look at the roses, and according to the jottings in my pocket-book there were five exhibitors, four of whom were nurserymen. The collection shown by the private grower does not call for any remark beyond the statement that the plants were thrifty, but very small. Two of the trade collections were so good as to deserve special notice; for the plants were in the most luxuriant condition, and furnished with large stout leaves of the deepest green and flowers of grand proportions. One of the collections was staged by Messrs. J. Veitch and Sons, of Chelsea, and the other by Messrs. William Paul and Son, of Waltham, that from the first-mentioned consisting of standards and the other of dwarfs.

Messrs. Veitch's collection, apart from its splendid condition, was remarkable, for it was considered quite impossible to grow standards successfully in pots until the firm proved to demonstration that it was not only possible but practicable. These roses are remarkable in another way. It is generally considered by cultivators to be of the highest importance to give pot roses an extension of root space annually, and in directions for their culture, an annual repotting is invariably recommended. The examples staged by Messrs. Veitch proved that to prevent starvation, it is not necessary to repot so often as once a year, for they had occupied the same pots from two to four years. The majority had been in the pots four, and were furnished with magnificent heads, the foliage being all that could be desired and the large number of flowers of splendid quality. There were no signs of starvation, and to maintain the plants in the robust state of health in which they were exhibited Messrs. Veitch's rose grower, who is unquestionably a man of great skill, adopts a very simple plan. In the course of the winter he lays bare the roots by carefully removing two or three inches of the surface soil. When this has been done a good layer of Clay's Fertilizer is spread over the soil, and the pot filled to the proper level with rich turfy loam. Between the time of their starting into growth they have received each year two or three top dressings of Clay's Fertilizer. It is hardly necessary to say that they receive the most skilful attention in the matter of watering and air-giving. But if it is possible to sustain a vigorous growth so simply and inexpensively as in the case of Messrs. Veitch's specimens there is very little justification for starvation.

Messrs. William Paul and Sons's collection comprised examples of various sizes grown in bush form, and the leaves were so large and abundant that hardly a stick or a portion of the old wood was visible, and the flowers were of so good a size and high a quality that they would have told well in a stand of twenty-four. I am unable to say how long they had been in the pots in which they were shown, or what stimulants they had received. Their appearance showed that they had been fed liberally, and as a very excellent rose manure is manufactured by the firm, it may be inferred that it had been employed. I wish I could give further information upon this point, so anxious am I to protect roses grown in pots from starvation.

O. P. Q.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasants, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent post.—[ADVT.]

JARRATT'S TROPÆOLUM.

(Tropæolum Jarratti.)

It is not often we meet with the more delicate kinds of tropæolum, but the robust-habited kinds that are adapted for bedding out are amongst the most popular of all decorative plants. There are at least half-a-dozen of the greenhouse species that a genuine amateur might take delight in, and the one before us is entitled to the very first consideration. It comes near to *T. tricolorum*, but has larger flowers, which are more brilliantly coloured, and the plant, moreover, is the more hardy of the two. The growth is more robust than that of either *T. azureum* or *T. tricolorum*, and it flowers more profusely than either, forming a brilliant specimen plant. The leaves are digitate, of a quiet green colour. The flowers are long pear-shaped,

NOTES ON FUCHSIAS.—No. XI.

(Fuchsia nigricans.)

THIS is a particularly interesting plant, both because of its dark leafage and the near approach to black in the colour of the petals, as also in the fact that it is quite hardy, being a native of the mountains of Merida, Venezuela, where it reaches an altitude of 6,000 to 8,000 feet. Its requirements may be judged by its free growth in humid and much shaded ravines, where it flowers from May to November. It was introduced by M. Linden through Messrs. Funeke and Schlim in the year 1847, and was figured in *Flore de Serres*, t. 481.

This species comes near to *F. triphylla*, but differs notably in colouring. The stems are purplish, the leaves, which are produced in threes, are of a deep green colour; the flowers have purple red tube



TROPÆOLUM JARRATTI.

the colour from the end of the spur to the summit bright scarlet with small patches of yellow, the limb pure gold yellow.

This beauty was introduced from Santiago in the year 1836 by Messrs. Youell, of Yarmouth, and was by them named in honour of John Jarratt, Esq., of Camerton House, Bath, an enthusiastic horticulturist of that day.

The specimen figured was grown in a ten-inch pot in a mixture of peat and loam, with about a fifth part sand added. We have trained it to a trellis to a height of fifteen feet, and have also employed it advantageously as a basket plant. If planted out where it can fall over and form natural festoons it is extremely effective, and for such a purpose is a first class rock or terrace plant. Being nearly hardy, it may be grown to perfection in a cool conservatory, but it requires above all things a sunny situation.

and sepals, and black-tinted maroon petals. It is interesting every way, and the more so because it may be planted out as a permanent feature of the garden.

THE DISMAL APPEARANCE OF THE TREES in the districts visited by the gale of April 29 is accounted for by many on the supposition that the wind brought with it very much salt from the sea. The supposition is both unreasonable and unnecessary. We described it last week as the result of mechanical action, and we are quite satisfied now that such was the case. The leaves were too tender to endure the shock; they were frayed and battered and have died in consequence wherever the action of the wind was violent. The weather has been favourable for their recovery, and another ten days will obliterate much of the dinginess.

BEDDING PLANTS IN LONDON GARDENS.

OBSERVING that my neighbours are making ready to plant bedders, I am reminded of a remarkable display I saw some years ago in the garden of a friend then residing in Tufnell Park, Holloway. This friend, while shut within doors by a serious illness, made a very curious plan for his garden, scooping it into hollows and piling it in ridges in a fantastic design, remotely resembling a model of hills and valleys to illustrate some problem in physical geography. Although an eccentric extravagance, the thing, being well done, and having a certain softness of expression, was, in its way, a very complete success. In the centre was a grass plot of quite respectable dimensions, not on the flat as a proper grass plot, but rising to the boundaries in rounded banks or "ramps," and sinking into hollows or dimples in the centre. To walk on it was possible, because the slopes were gentle, but to play any game thereon was impossible, and to criticise the thing from an "artistic" point of view would have been sheer folly. On the ridges that formed the boundary of this strange centre-piece were fantastically-cut flower-beds, and the borders were raised in slopes, amphitheatre-fashion, all around. When bedding-out time returned, an extravagant display of tricolour and other pelargoniums, with some isolated beds near the house filled with *Gladiolus brecheleyensis*, and a few subtropicals completed the arrangements. It was the time when Mrs. Pollock was enthroned in every garden, and my friend indulged in a lavish outlay both in the comical ground-work and the brilliant superficial colouring of this garden. It was the best trial in London of zonal pelargoniums that I had seen. Although myself then possessed of a large collection, and engaged in raising new varieties, my friend's trial was of much more importance than my own, because, as compared with his position near London, my garden might be described as in the country, being further removed from the town, and in proximity to open meadows, a great park, and some hundreds of acres of wood and water. Therefore I took particular note of the behaviour of his bedding plants, and was the better enabled to do so, because at that time I was visiting gardens all over the land, and the tricolour fever was at its height, and beyond all doubt I was as much infected by it as any one. Fashions, like men, may "come and go," but floriculture goes on for ever. The tricolour passion has passed, but the pelargonium remains, and we have at this moment no more generally useful bedding plant. But why mention the strange display that was made for one season only at Tufnell Park? For this reason, that it put the most delicate varieties to a severe test, and they came through with flying colours. I remember with immense satisfaction the exceeding beauty of the display, as I remember also with a small sigh the wasteful expenditure by which it was secured. On that point, however, it is not needful to enlarge. It is enough to remember that not only the more robust kinds like Mrs. Pollock maintained their character and made a fine display, but the silver-leaved kinds, such as *Italia Unita* and others of that section, were not less perfect in growth and colour, and as able to brave the London smoke as any of them.

There is a certain sense in which it may be said that all kinds of bedding plants prosper in town gardens. They enjoy certain negative advantages that are denied to shrubs and trees and all other permanent occupants of the garden. At the time they are planted the "smoke nuisance" is in a great degree abated because only about one-tenth of the fires are burning as compared with the dull months of the year. The atmosphere of the town is in its best possible condition from June to the end of August, by which time it matters very little as regards the bedding plants what is the state of the atmosphere. For here, indeed, we encounter a peculiarity of the case. All kinds of bedding plants may be said to do pretty well, but all kinds come to grief pretty early and that is one considerable argument against their employment. The lime trees go out of leaf

about a month sooner in the town than in the country, and the bedding plants drop their heads about six weeks sooner in the town than in the country. In seasons when early fogs make a change in the aspects of the gardens, say perhaps in the later days of August, the bedding plants collapse completely and there is an end of them. And we may, two months afterwards, say in the latter days of October, see them still gay in the country gardens, even in districts not particularly well sheltered. It is surprising to those who travel but little, to note the difference between the town and the country from the middle of August until towards Christmas. Much of course depends upon the date of the first sharp frost, which makes a difference everywhere. But autumnal frosts of a few degrees only, with perhaps a little fog on the mornings of days that become sunny towards noon, make sad havoc of tender plants in town gardens and scarcely touch those in the country. Hence in a walk of only one mile out of the town in the month of September, it may appear that we have got into another country "where spices breathe and fragrant roses smile," so faded are the gardens of the town, and so bright the gardens of the country. In the town itself much of course will depend upon position, but the general case can only be dealt with now, and this truth must be borne in mind, that however beautiful may be the bedding display in the months of June and July, it will not last long, for the first chill, whether of heavy rain or dry frost, will make mere rags of all our finery.

There is however a slight compensation for

this in the fact that bedders may be put out earlier in the town than the country, and thus by skilful management we may secure an early display. Those May frosts that blacken the potato tops and thin the orchard trees of their tiny fruits, rarely prove destructive in the town, so that bedders well hardened and carefully planted are always likely to escape injury. And, as the extent of ground is so much less than in the country gardens, it is generally an easy matter to protect them when it is seen by the ways of the weather-cock that a frost is coming. Whoso intends, therefore, to have a grand display of bedding plants may be advised to complete all preparations early, and to have the plants well hardened and ready for planting early in May, or if the district is somewhat open and exposed, by the middle of May at latest, and



FUCHSIA NIGRICANS.

thus there will be some gain at the beginning to contrast with the inevitable loss at the end of the season. The plants should be stout and strong, and ready for flowering upon the instant of their obtaining a "hold" of the ground.

Now we must pass from bedders in general to bedders in particular. Two classes of bedders may be named at once as the best of all. They are the common single flowering zonal pelargoniums, and the dwarf blue flowering lobelias. These will make a gay show in almost any town garden if planted in an open spot, but they will come to little good if overshadowed by trees, or thrust into some dark corners. It is not unusual to see a tasty fore-court planted with zonals of a few distinct colours—scarlet, pink, white, crimson, salmon, with edgings of dwarf blue lobelias; and while these are at their best the display is refreshing, and if good of its kind, is in thorough good taste, because bedders are appropriate to an entrance-court of the modern type.

When we proceed to make a further selection, we have to consider the claims of the calceolaria because of its positive colour and general usefulness. It is not a good town bedder, for however gay for a season it does not hold for a sufficient length of time. So far as I am myself concerned, the unfitness of the calceolaria to battle with the dry town atmosphere is a matter for satisfaction, as it limits the vulgar displays of masses of garish yellow that are too often seen where the plant takes kindly to its location. But on other, and perhaps larger grounds, it is a misfortune that this splendid bedder is not easily reconciled to London life. When it is a matter of some importance to develop its full capabilities, I should advise the adoption of a plan that has answered admirably in my own case, and has been many times mentioned by me. The beds are deeply dug, and a very heavy dressing of half-rotten stable dung, with leaf mould, if at hand, mixed with it. I have also had all the moss and lichen received as packing with consignments of plants saved the whole year round, on purpose to mix with the loam in preparing the calceolaria beds. Another step towards success consists in wintering the young plants in beds in a brick pit, where they are kept as hardy as possible, and are transferred from these winter quarters to the beds direct without being put into pots at all.

If planted out during dull showery weather in the first week of May, and, in the event of frost, sheltered betimes with baskets and other impromptu methods, they soon root into the rich bed prepared for them; and when the dry heat of July kills the calceolarias that are planted in thin, poor soils with no particular preparation, ours are unhurt, and not only brave the heat, but thrive upon it, especially if helped with a shower from the engine as the day declines, for this refreshes them at once and promotes a copious deposition of night dew both upon the plants and the soil that supports them.

The verbenas are not a good town flower, the dry heat of the summer having much the same effect upon it as upon the calceolaria. But a rich bed and regular watering while drouthy weather holds will do wonders for it. The verbenas are too tender to be wintered as recommended for the calceolaria, and therefore we cannot put out such strong plants. But this is of less consequence than to put out plants that are quite young and perfectly healthy—even if made from spring cuttings they will do very well if liberally treated. A bed of mixed verbenas raised from seed sown on a hot bed in March is likely to prove a decided success, but if distinct bedding effects are required named varieties raised from cuttings must be employed.

Begonias thrive in town gardens in moist summers, but in hot, dry summers they shed their flower-buds, and look thin and poor. The garden-engine will do much to help them through, for they so gladly receive water overhead as almost to ask for it. The strong-growing kinds with large showy flowers are the most useful, and they should be planted early to enable them to make free roots before flowering. In preparing the beds for them, it is well not to use stable dung, unless very old and in a state of black powder; but rotted cow-dung is to be preferred, and better than either is sound, sweet leaf mould, a material the most difficult for the townsman to obtain. If there happens to be in the place any rotted turf or moss it should be appropriated for the begonias. In common with other flowering plants these require a sunny situation, but they will bear a certain amount of shade without injury.

Fuchsias are first-rate for the open ground, either in beds or baskets, or to dot about a lawn. If brought forward slowly in a cool house, so as to be hardy and short-jointed, and to show no flowers until turned out in June, they will last the season out well, and give perfect satisfaction, provided only that they have reasonable care. The soil should be rich and mellow, and there is nothing more suitable for its improvement than plenty of quite rotten manure, or the remains of an old hotbed. Old stumpy fuchsias will make fine border plants with a little patience, but nice young shapely plants are to be preferred. One neat stake should suffice for each plant to prevent wreckage when gales prevail, and regular watering will keep the plants in vigorous health and flowering freely. Even the soft-textured Fuchsia fulgens, which is somewhat delicate in habit, makes a free growth and flowers finely, and even bears some degree of shade without harm, although an open situation is best for it. In selecting varieties those with dark flowers should have the preference, as being both more hardy and more showy than the light kinds. In years gone by, when the summer bedding was a matter of some importance to me, our groups of Little Bo-Peep, Little Treasure, La Crinoline, Banks's Glory, and others then in high favour, were splendid; indeed, I have seen no bedded fuchsias to equal them at any time, and we did but little for them; they were, in fact, the least troublesome of all the bedders save the zonal pelargoniums, which must always stand first for usefulness in a town garden. A few double fuchsias may be

acceptable for variety, but to make a gay garden the single kinds with large flowers are alone worth growing in quantity.

Should the mind of the reader be roaming in the direction of alternantheras, iresines, coleus, and other materials for "carpet" bedding or "leaf embroidery," I must leave him to pursue the doubtful path alone. A second-rate bed of flowers may be enduring, but second-rate leaf embroidery is obnoxious and discreditable, and to have such work in first-rate order for any reasonable length of time in a town garden is impossible. There are those who like to cope with the impossible, and they must be left to their own devices. As this kind of bedding is not well adapted for small gardens, and is particularly ill-adapted for gardens that are bathed in smoke and enclosed by walls, and subjected to the exhausting influence of a dry atmosphere in the height of summer, it will be well for all who need the aid of an adviser to accept the advice now offered to abstain entirely from the adoption of carpet bedding. To this note of warning it may be proper to add that the succulent-leaved plants, such as sempervivums, sedums, kleinias, and the like, make a very satisfactory growth in the smallest and smokiest garden if planted in sunny positions; but the soft-textured plants that contribute positive colour to leaf embroidery require far better conditions than can be secured for them.

The petunia is a good town flower, as good in its way as the zonal pelargonium, but of less value because of the diffuse growth and soft texture of the plants. They require no particular management, and a poor soil, if sweet and properly prepared, is sufficient, for a moderate growth will prove the most satisfactory. Another advantage of the petunia is that, being as hardy as the calceolaria, it may be put out early so as to ensure a free bloom in the height of summer when flowers are most wanted.

Of heliotropes, ageratums, bouvardias, pansies, violas, and abutilons there is not much to be said. They will all thrive with good management in gardens that are open to the sun and somewhat removed from the more smoky parts of the town, but they cannot be described as amongst the most desirable of bedders. They require country air to display their beauties fully, and only in thoroughly well-managed gardens are they likely to give satisfaction.

It is my good fortune to be enabled to wind up with a thoroughly good town bedder, the full capabilities of which have not hitherto been fully determined. The dahlia is a grand bedder, and when generously treated is almost as good in the immediate suburbs of London as far away in the pure country air. The dwarf bedding varieties make magnificent groups, and it is much to be regretted that they are so rarely employed in the London parks and other places where there is ample room for the full development and artistic display of their noble qualities. In small gardens beds of dahlias are not often wanted, and yet many a place where bedders of questionable merit find favour might be advantageously planted with these queenly flowers, more especially as they do not break down with the first autumnal fog as most other bedders do, but continue to flower bravely until cut down by a decided frost. In the autumn of 1881 dahlias were to be seen still fresh and flowery until November. Very often the first real frost occurs in the second week in October, and then the dahlias collapse, but the slight frosts that occur in August and September do not harm them, and as a rule they outlast all other summer flowers, and keep for us a pleasant show of colour until the crysanthemums are ready to take their place.

MOSES.

MESSRS. J. VEITCH AND SONS' AMARYLLIS.

Ajax.—A remarkably distinct and handsome variety, colour deep brownish crimson spotted with white and yellow, and very pleasing and effective; flowers large with broad nicely rounded segments and of splendid form.

Alexandra.—An exceedingly beautiful flower of a style of colouring much wanted, ground colour bright red with broad pure white margin. Evidently a descendant from the ill-formed but attractively-coloured *Marginata* conspicua.

Alice Gair.—A telling flower of high-class quality; colour brilliant crimson, and solid to the base of the segments; flowers large and splendidly formed.

Amphion.—A pleasing light variety, the ground pure white, striped with deep crimson; the flowers of splendid form.

Autumn Beauty.—A very attractive variety, flowering, as its name indicates, during the autumn season, the flowers are rather large and of good shape, and the foliage is marked along the centre with a silvery line, indicating its affinity with *Reticulata*, which was one of its parents. As it blooms in September and October and is very effective it possesses great value for decorative purposes.

Baroness Rothschild.—A medium-sized flower of great beauty; colour glowing scarlet with pure white centre, the flowers symmetrical and highly finished.

Brilliant.—A very distinct and brilliant variety of the *Pardium* type; colour bright scarlet with a profusion of dark spots; the segments narrow, as in the case of *Pardium*, but the flowers are elegant in appearance and in brilliancy of colouring are unsurpassed.

Cecilia.—A striking variety; colour rich crimson, the broad segments tipped pure white; flowers large and of splendid shape.

Clio.—A variety specially remarkable for its brilliancy; colour deep orange red with very small green centre, flowers large and of superb form.

Coningsby.—A striking variety; the flowers of fairly good form and of a rich purple-crimson shaded with lake.

Dido.—A richly coloured variety of much value; colour deep yet bright crimson, the segments broad and rounded with creamy white tips, flowers of large size and superb form.

Duchess of Connaught.—A most valuable variety, and probably the best

white amaryllis that has yet been submitted to public notice; the flowers are rather large and of excellent shape; indispensable to the most select collection.

Duke of Albany.—A grand variety, bearing very large flowers, remarkable for their smoothness and symmetrical proportions; colour glowing scarlet, with very small green centre; the flowers are borne on tall scapes, and a well-bloomed specimen has a very stately appearance.

Emilia.—A distinct and desirable variety; colour orange red, the segments tipped with greenish white; flowers large, well formed, and effective in appearance.

Empress of India.—A large flower, of grand form, stout in substance, and of high finish; colour bright rich scarlet, with a white stripe along each segment, and white centre; one of the finest of the amaryllis that has yet been introduced.

Endymion.—A bold and effective variety, colour deep crimson, with light centre and tips, and much spotted; valuable for its distinct colouring.

Fabio.—A distinct variety worthy of a place in the front rank; colour rich magenta; flowers large and symmetrical.

Fire-fly.—A comparatively small variety; colour bright crimson scarlet, with greenish centre, desirable for its brilliancy.

Flametta.—A showy variety, the flowers of medium size and excellent form; colour brilliant scarlet; valuable for its effectiveness.

Grand Sultan.—An effective variety of excellent quality; colour rich crimson with white band along the middle of the segments, and white centre, the white occasionally breaking through the ground, thoroughly distinct and good.

Gipsy.—A beautiful and distinctly-coloured flower; the ground creamy white, and painted with rosy red, which forms a belt of colour midway between the base and the tips of the segments.

Hugo.—A bright and attractive variety; colour vermilion scarlet, with white margin; hardly smooth enough, but deserving of notice for its attractive colouring.

Indian Chief.—A distinct and attractive flower of medium size, and of a deep carmine colour, with white bar extending half way up the segments.

James Douglas.—A distinct and very beautiful variety; colour very deep sanguineous crimson and very solid, flowers very large, borne on tall stout scapes, and of splendid shape, one of the finest of the crimson forms.

Jumbo.—A large and showy flower of good quality; the colour deep crimson with green centre, forming a distinct five-rayed star.

John Heal.—A striking flower of the largest size, and quite unsurpassed in perfection of form and finish; the colour is of an exceedingly rich shade of scarlet, and the segments, which are very broad and well rounded at the points, are broadly tipped with white, the latter characteristic indicating its affinity with Leopoldi, from which it is a seedling. In its style of colouring it is unsurpassed.

Junius.—A high-class and most effective variety; colour brilliant scarlet crimson with very little green in the centre; flowers large with broad segments and symmetrical.

Lady Musgrave.—A bright and well-finished flower, of medium size; colour deep crimson with white centre.

Macbeth.—A striking dark flower possessing considerable merit, colour deep scarlet, the segments tipped white.

Madame Antoinette Sterling.—An exceedingly effective and beautiful variety; colour deep magenta crimson with large white centre, the broad rounded segments tipped with greenish white. A grand flower in its style of colouring, and as indicating its effectiveness it may be mentioned that one of the bulbs produced two stout scapes, each bearing two full-sized flowers.

Madlle. Titens.—A distinct and pleasing flower; colour crimson tinted with vermilion, the creamy white breaking through; large and symmetrical in proportions.

Magnifica.—Distinct and effective; colour deep red, the tips of the segments creamy white; flowers large and of good shape.

Malvolio.—A medium-sized and pleasing flower of a crimson hue shaded with rose.

Mars.—A very effective variety; colour deep crimson, the segments lightly tipped with white.

Milton.—A pleasing variety; the flowers large and richly veined with scarlet on a greenish white ground.

Mrs. T. Gilbert.—A charming variety; the flowers of medium size and beautifully feathered or striped with red on a white ground.

Novelty.—A distinct and pleasing flower, beautifully veined with rosy purple on a cream coloured ground; large and of good form; useful for its distinctness.

Orsini.—A distinct variety closely allied to Pardinum; the flowers of medium size and densely spotted with deep red.

Phæbe.—A bright and effective variety; colour scarlet crimson with but little green in the centre; flowers large, and the segments of great breadth.

President.—A distinct and attractive variety; colour bright claret with white stripe; flowers of medium size and good form.

Prince Leopold.—A rich and effectively-coloured flower; remarkable also for its large size and splendid form; colour deep sanguineous crimson and very solid; one of the best of the dark varieties.

Prospero.—An effective variety, remarkable more for high colouring than for perfection of form. Colour velvety crimson, which extends to the base of the segments; if not equal in shape to some of the others mentioned, it is not by any means of indifferent quality.

Purpurea.—A medium-sized flower, remarkable for distinctness of hue; colour deep purple with white margin; flowers of medium size and pleasing in appearance.

Pyrrha.—A bright and telling flower of medium size; colour deep crimson with darker spots; a descendent from Pardinum.

Rev. T. Staniforth.—A distinct and effective flower of large size; colour bright magenta crimson with greenish band along the centre of the segments which are of great breadth and nicely rounded at the tips.

Royal Standard.—A large effectively-coloured and highly-finished flower; the colour deep crimson; the segments tipped with pure white; one of the very best of the Leopoldi type.

Shakespeare.—A brilliant and striking variety of good quality; colour bright scarlet with white centre; flowers above medium size and of fine form.

Sir Garnet Wolseley.—A high-class variety; the colour deep rich crimson with bright scarlet glow; flowers of good size and symmetrically formed.

Storr's Beauty.—A showy and fine blooming variety; colour deep purple-crimson; flowers large and well-formed; useful for decorations.

Sybil.—A telling flower of excellent quality; colour crimson with large white tips to the segments. This belongs to the Leopoldi series, to which it is a valuable addition. The flowers average nine inches in diameter.

The Giant.—The most stately of all the amaryllis; colour white striped crimson; flowers are very large and produced on tall and very stout scapes. One bulb of this variety exhibited by the Messrs. Veitch produced three scapes, each about thirty inches in height, five inches in circumference a short distance from the base, and bearing six flowers.

The Siren.—A strong growing and attractive variety; ground colour bright vermilion with pure white margin. A valuable acquisition in the way of Marginata conspicua.

Thomas Speed.—Remarkable for its vigorous habit and profusion of flowering; the colour is a bright crimson scarlet, and as well matured bulbs can be depended upon to produce several scapes it is of much value for decorative purposes.

Vivian Grey.—A showy and beautiful variety; colour bright red with white centre, and tips to the segments and white breaking through the ground. One of the most distinct of those partaking of the character of Leopoldi.

Warrior.—A striking flower, of excellent form and a brilliant crimson colour.

ROYAL ACADEMY EXHIBITION.

THE one hundred and fourteenth exhibition of the Royal Academy is said by the sharp critics to be below the average of merit, but as they have said something similar every year for any number of years past, we cannot be bound to believe them. There are a few trashy pictures on the walls, and there are many of middling quality, but when all the discount is deducted there remains an exhibition comprising many meritorious works and a fair average of fine pictures. The picture of the year is the President's "Phryne at Eleusis," a majestic nude figure in a marvellous pose, a rich colour, the proportions perfect, the purity beyond question. It reminds one of a picture of "Phryne Before her Judges" that was included in the Leeds collection in the year 1868, although the conception of the person is altogether different, and Sir F. Leighton has selected a later episode in the history of the famous Athenian Hetaira. We are to suppose indeed that the president, out of his high moral consciousness, has reproduced the picture of Apelles known to fame as "Venus Anadyomene," which is said to have been a representation of Phryne, who, at a public festival at Eleusis, entered the sea with dishevelled hair. This picture is in the third gallery (307), very advantageously placed, and a short distance to the left is a reminiscence of Oriental history in Mr. Long's "Why Tarry the Wheels of his chariot?" (302). The mother of Sisera awaits his coming, and awaits in vain, for Jael "smote Sisera, when she had pierced and stricken through his temples" (*Judges* v. 26).

Taking the galleries in order, we note in No. 1 two fine pictures by Pettie. "He Talk'd with Him of Cain" (18) is a scene from the life of Eugene Aram, as translated by Robert Hood; the other is the interview of Monmouth with King James II., the repentant rebel on the floor, and the dastard king nursing his cynical frugidity, "an outrage on humanity and decency." In this Mr. Pettie develops his peculiar forte with much power, but the result, by reason of the subject, is an unpleasant picture. Andreotti's "Village Maestro" (36) is a charming bit of fastidiousness, with a fine dash of humour in it. A fantastic picture by Perugini, "Dolce far niente" (78), will obtain attention. Two beautiful damsels discuss the beauties of a group of clove carnations. Near this "The Inflowing Tide" (77), by Peter Graham, is a grand canvas with rocks, water, and sea birds.

In the second gallery Mr. Croft has a telling picture showing an incident in the Battle of Waterloo (102), where, at Hougoumont, there occurs a pause in that long and deadly encounter of the Coldstream Guards, holding the stout chateau against a succession of parties of French, who in all numbered at least 12,000. "Our River" (118), by W. L. Wyllie, we take to be a bit of the Thames, but it might at a pinch do for the Tyne, save perhaps that the black barges are too broad in the beam. As a bit of conscientious work, it has high merit, and will be remembered for its unpleasant truthfulness. "A Falling Barometer" (128) is the title of a picture in which Mr. J. Brett has endeavoured to depict the complexion of sea and sky on the eve of a storm. The water is turquoise colour, with shades of purple; a very striking and almost curious example of colouring. A characteristic picture is "A Funeral Service in the Highlands" (146), by James Guthrie. A serious group listen to the homilies of a serious preacher, who stands at the door of a shieling with the coffin before him to serve as a table on which to place his book. "Waifs and Strays" (151), by Joseph Clark, will be much admired, as it deserves. A group of ragged little boys are waited on by a couple of buxom girls, who are intent on giving them a good meal. The boys are a trifle too pretty, and show a larger proportion of gentle blood than we should expect, but these details are covered perhaps by the painter's license. Any way, this is a good picture, and stirs kindly sentiments. "At the Golden Gate" (163), by Mr. Val Prinsep, will please the few who doat on the exaltation of lay figures and Wardour Street furniture. It is a sumptuous work in its way, but arouses no interest.

In the third gallery we find a considerable number of very important works of art, and among them several portraits. "Prince Arthur and Hubert" (204), by W. F. Yeames, reproduces the famous scene of the fourth act of *King John*: it is full of weird suggestion, true humanity, and carefully-studied detail. "Memphis" (212), by Mr. Goodall, is characteristic of the painter, and we believe will be regarded as one of the best of his works. It presents a vast scene of desolation, the ruins of a great city being made the more mournful by the few traces of life that remain. In colour and tone the harmony is complete, and the work is one of the grandest of its class in the exhibition. "Ossian's Grave" (219), by Mr. J. MacWhirter, is a surprisingly fine work, by a painter who has haunted the fastnesses of the North to some purpose. The grave of Ossian is in the Glen of the Almond, near Logiealmond. The road runs through a rocky

defile—one of the gates of the Highlands—and at its upper end is the scene here depicted. For a study of rocks and heather it is unique—it will be no easy matter to find a finer landscape in the exhibition. "Spring on the South Downs" (227) is another glorious landscape, breezy, fresh—a picture one might look on from day to day and from year to year without weariness. "A Guard of the Royal Mare" (237) by Knighton Warren, is a remarkable work for technique, though devoid of interest. It seizes on one in entering the gallery, and again and again compels attention. Why should such splendid work be accomplished to so little purpose? "The Lord Say brought before Jack Cade" (242), by Mr. H. S. Marks, reminds us of the famous scene in *Henry VI.*, part 2, where the rebels flourish for an hour, and our great poet seizes the occasion to anatomise the mind of the mob. The picture is full of action, and the contrast of the gentlemanly dignity and self-possession of the victim with the bluster and fidget of his tormentors encourage a lasting and a healthy interest. "The Palmer" (252), by Mr. Pettie, is an ambitious composition. The mediæval household listen to the palmer's story, and we have the usual working up of armour, costume, and manners, not forgetting the scollop shell on the palmer's hat; but there is no staginess, for the tone of reality swallows up the mere furnishing, and a genial propriety suffuses the work with a healthy colour. "After Rain" (274), by Peter Graham, shows a herd of Highland cattle plodding through a swamp; a pleasing and ambitious picture, not without merit. "Abingdon" (289), by Vicat Cole, gives the best view of this picturesque dot on the Thames. "A Land of Flowers" (293), by G. E. Cook, is a very pleasing picture of cottages with flowers heaped about them as they are never heaped about palaces; a bright, sound, and satisfying piece of work. Once more we reach the President's "Phryne at Eleusis" (307), and observe above it "A Crown of Fire" (306), by W. G. Shrubsole. The picture represents Lake Ogwen, with the stupendous rocks that rise above it on the side next Glyder, or perhaps some of the outer spurs of Carnedd Davidd. On these rocks fall the last rays of the setting sun, forming the "crown of fire." Sir John Gilbert comes in troublesome here with a Watteau sort of thing, numbered 321, very taking for colour, but as destitute of humanity as any ordinary soap bubble.

After quitting the third gallery the interest always declines, but there are some good works beyond. Briton Riviere gives us "Cupboard Love" (330), a portrait of Miss Potter with a couple of pet dogs. There are two fine works by Mr. Boughton (342 and 363), in which scenes from the Netherlands are made to interest us. What a contrast is there between "Sweetness and Light" (384), by F. W. Barwell, a thing made of laudanum and sugar candy, and "A Highland Auction" (385), by Mr. MacWhirter, with its suggestions of Wilkie and still better suggestions of the actualities of Highland life. "The Arrival at the Well" (399) displays Mr. Goodall again in his element as the painter of the desert. Mr. J. T. Linnell has a charming bit of woodside scenery entitled "Wild Flowers" (419), and Mr. P. R. Morris a touching story of the "Sale of the Boat" (417).

In Gallery 5 Briton Riviere presents the king of beasts in a new character, and possibly only one in a thousand of the critics will prove competent to criticise the work. It represents a lion drinking. Further on we shall meet this master again with another lion. But for the present we note as undoubtedly a great work the "Death of Siward" (558), by Mr. Val Prinsep; "Maiwand" (567), by Mr. R. C. Woodville; and "The Geese of the Capitol" (582), by Henri Motte, as three of the more remarkable works in this gallery.

In Gallery 7 a grand landscape by Mr. Halswelle, "Three Counties" (722), the celebrated view from Whetham-hill, Petersfield; "A Window Garden" (706), by Arthur Stocks, we should be bound to look at a second time, but in truth it so glows with colour that we shall look at it a third time, and perhaps even a fourth. A cottage window-sill with green palisade and toy-lamp forms the garden. The happy gardener is a labourer, who, by the aid of his pipe, his flowers, and his wife and baby, is now enjoying an hour of rest and ease. His flowers are geraniums and moneywort, which are painted with careful detail, and the picture is in high tone throughout. It is very garish, but it is very true, very homely, and perhaps more useful to us than some more romantic and pretentious works. It would make a capital prize for some special subjects at an amateurs' flower show, if purchased for the purpose.

There are as usual many drawings of flowers in the exhibition, and as usual we have failed to find anything of special merit amongst them.

Literature.

Beeton's Dictionary of Science, Art, and Philosophy. Part 7 of this useful work, comprising 160 pages of close print (from "calls," to "concave") and a heap of illustrations, makes a good beginning in the parcel of serial works received from Messrs. Ward and Lock. This will be a valuable addition to the working man's library, and worthy of a place in any library, although it does not aim at a high place, and the price (9d. each part) is too low to command elaborate arrangements.

Amateur Work (Ward and Lock). This is a good book to keep the hands busy and the mind from wandering. Part 6 for May contains papers on amateur book-binding, turning, violin-making, electro-plating, construction of a summer-house, wood-carving, hints for bicyclists, gymnastic apparatus, and "new uses for old tin cans." It is quite time the tin cans were turned to account, for the waste that has long prevailed is really disgraceful to us all. This budget of "Amateur Work" is admirably done, and ought not only to make many people happy by finding them employment, but it ought to effect a great reduction in the number of madmen and hypochondriacs.

Messrs. Ward and Lock's parcel contains continuing parts of the following important works, all now publishing in monthly parts at a low rate:—D'Israeli's *Curiosities of Literature*; Rollin's *Ancient History*; Haydn's *Dictionary of Dates*; Hallam's *Literature of Europe*; Dr. Adam Clarke's *Commentary on the Holy Bible*; Beeton's *Book of Poetry*; *Epochs and Episodes of History*; *Thrifty Book*; *Universal Instructor, or Self-Culture for All*; *Illustrated History of the World*; Ward and Lock's *Household Medicine*; *Holy Thoughts on Holy Things*; *Land, Sea, and Sky*; Ward and Lock's *Popular Scientific Recreations*; *The Family Altar*; *Sylvia's Home Journal*.

The House, Garden, and Apiary.

NARCISSUS.

Like him who met his own eyes in the river,
The poet trembles at his own long gaze,
That meets him thro' the changing nights and days,
From our great Nature; all her waters quiver
With his fair image facing him for ever;
The music that he listens to, betrays
His own heart to his ears; by trackless ways
His wild thoughts tend to him in long endeavour.
His dreams are far among the silent hills;
His vague voice calls him from the darkened plain
With winds at night; strange recognition thrills
His lonely heart with piercing love and pain;
He knows his sweet mirth in the mountain rills,
His weary tears that touch him with the rain.

ALICE MAYNELL.

THE HOUSE.

SEVERAL of the hardest of the filmy ferns are admirably adapted for culture in rooms having a north aspect, and when grown with a fair amount of skill form charming ornaments. They can be grown in pans and covered with a glass shade, or in cases oblong in shape and eighteen inches or so in height, but the latter are in a general way preferable. The two best are *Todea superba* and the Killarney fern, and both should be grown in tough fibrous peat, to which a liberal quantity of coarse sand has been added. The chief points in their culture are to maintain the soil in a nice moist state, sprinkle them occasionally overhead, and place where they will not be exposed to sunlight. During the summer season they will require sprinkling overhead daily, but during the remainder of the year once or twice a week will suffice. Clear rain-water should be used when available, more especially when the water of the district is charged with lime, as the sediment will in a very short time disfigure the fronds.

THE GARDEN.

ASPARAGUS must throughout the season be cut in a systematic manner, and better if it is always done by the same person. It is better to cut all the shoots as fast as they acquire a proper size, and sort them for their use according to quality, than to pick and choose the fat shoots and throw the whole plantation into disorder. Young plants produced by seeds shed in the autumn should be weeded out as they make their appearance to prevent overcrowding.

BEDDING-OUT.—Dull weather is the best for this work, and if it can be done just before rain much labour of watering will be saved. But when the ground is absolutely wet bedding cannot be done properly, and ought to be deferred a few days.

BROCCOLIS AND CAULIFLOWERS to be sown for succession, choosing both early and late sorts, the first for use in the coming autumn, and the others for supply in the spring. At the first indications of rain hoe between the advanced crops, to give the roots the full benefit of showers.

BRUSSELS SPROUTS, which are simply invaluable for winter supplies, can only be grown to perfection in a good soil, and with the aid of a long season to complete the growth. As soon as the plants in the beds sown in March and April are large enough to handle, a first plantation should be made in well-manured soil two feet apart every way. As fast as ground can be made ready the planting out should continue, and, if needful, the plants should be watered and shaded for a week or ten days to give them a good start.

FORCED FRUITS, such as cherries, peaches, and nectarines, now ripening, should have an abundance of air to ensure a rich flavour.

GREENHOUSE.—Hard wooded plants will require plenty of air, and specimen plants in flower must have shade. Shift, stop, and tie out all soft-wooded plants that are advancing in growth; but if required to bloom shortly, they must not be disturbed, merely kept in shape, and have plenty of water and free ventilation. Fuchsias, zonal pelargoniums, and petunias make beautiful specimens for pot blooming in the autumn, if struck now and kept regularly stopped till July. Camellias and azaleas that have made their new growth should have more air to prepare them to go out of doors next month. Early-flowering pelargoniums out of bloom to be cut in and allowed to break before repotting them.

PEACH-TREES under glass are now well furnished with wood for next season, and the cultivator will have to select now the shoots that are to bear next year's crop, instead of waiting till the winter pruning.

PHLOXES.—Strong stools in the border will need thinning, to reduce the number of shoots to a few manageable leaders, which are to be staked neatly and separately.

PINES established to have very little shade and plenty of air as weather permits. Shift succession plants as required, and give very little water at the root until they have begun to take hold of the new soil. Put them on a good bottom heat, and shade from eleven till three.

ROSES which are beset with grub and green fly must have close attention, for if these pests are allowed to run riot the first bloom will be very inferior. There is no effectual process but hand-picking for the grub, and pure water used with force is the simplest agency against green fly, and will vastly benefit the roses.

THIN every kind of crop where there is anything like crowding. Spinach, beet, turnip, and parsley will be seriously injured if they remain overcrowded for any length of time.

VEGETABLE MARROWS to be planted out under hand-glasses on moderately warm beds. Dung three parts rotted will generally give heat enough, if not less than a foot deep, covered with a foot of good loam. If no convenience to cover the plants for a few days after planting wait another week, and meantime prepare the plants for the purpose.

THE APIARY.

As the stocks will now be throwing off their swarms, the beekeeper must for some weeks hence keep a sharp look out in the apiary, and have hives in readiness to prevent any delay. The hives ought to be prepared previous

to the swarming season, and of those now in use the Stewarton and the best types of the Woodbury are the best. The common straw skep is by no means to be despised. When stocks show signs of swarming they must be very closely watched throughout the day, because of the danger of their going off and being lost. As soon as it is seen that the bees are on the move take a hive, a pair of thick woollen gloves, and a large flat board. If nervous it will be prudent to wear a bee veil, as the sense of security it affords will enable the operator to proceed with the work of hiving the bees in a more collected manner than would otherwise be possible. The mode of procedure must be determined by the circumstances of the case, but the whole mass must be shaken by a sudden and firm movement into the hive. When the bees are in the hive turn it over on the flat board and at once wedge it up with a few twigs to make room for the bees to go in and out. Having allowed a quarter of an hour or so for the outlying parts of the swarm to collect, carry the hive on the board to the place it is to occupy permanently, and there leave it. In the evening at dusk, when all is quiet, lift the hive with a steady hand and draw the board away, and let the permanent floor-board take its place. Bees when swarming take a good supply of food with them, and if the weather is at all favourable they are quite able to take care of themselves; but should the weather be cold and wet for ten days or so after the swarm has been hived a liberal supply of artificial food will be of great assistance.

SHORT NOTES FOR SMALL GARDENS.

By THE VICAR'S GARDENER.

In a walk round the kitchen garden I find several matters that must at once have attention, and to those of special importance to owners of small gardens I shall now briefly refer.

VEGETABLE MARROWS.

I have no particular objection to vegetable marrow plants raised in heat, provided they are maintained in vigorous growth until they are put out. In fact, I raise a few myself every year, but they are not kept, as is so often the case, in sixties until they are so starved that they do not commence to grow freely until they have been in the beds some time. Those we raise in heat furnish our earliest supplies, and they are planted out in April or early in May, and protected with hand-lights and mats until there is no longer any risk of injury from frost. In small gardens, where it is not practicable to have more than one crop, it is quite unnecessary to sow in heat, or indeed, under glass at all. Where only one crop is attempted, the best practice is to sow the seed in the bed, as plants can be raised on the bed quite as early as it is safe to expose them, and there is no more suitable time for making the sowing than the middle of the current month. The preparation of the bed for vegetable marrows should commence at once, as there is now no time to be lost. In preparing it, mark out a space three feet in width and of a length proportionate to the size of the garden and the requirements of the family. One bed forty feet long, or two beds each of half that length, will yield a good supply until the autumn frosts destroy the plants. From the space marked out take out the soil to a depth of twelve inches and place the soil in equal quantities on each side. Then fill in the trench with manure, fresh or well rotted, vegetable refuse, or indeed any rubbish of a light character that may be available. If there is plenty of material at command the trench may with advantage be filled to twelve inches or so above the ground line. Over the manure place the soil removed in opening out the trench, and make it moderately fine and quite level on the surface. Then in a drill along the centre lay the seeds about twelve inches apart, and cover with the finest soil available. When the plants have made sufficient progress to be safe from snails and other enemies draw out, if the seeds germinate, every other plant; otherwise as many as will leave the plants in the row two feet apart. The best for those who prefer large vegetable marrows is the Long White, and for those who prefer them of moderate size Hibberd's Prolific and Moore's Vegetable Cream. The two last-mentioned are the most delicate in flavour, and are equal in productiveness to the large fruited kinds.

RUNNER BEANS.

There are no vegetables so profitable in gardens of small size as the runner beans, and they have the additional advantage of being decidedly ornamental. Provided they have a fair share of sunlight, they are not particular as to the position occupied. Neither are they particular about the soil, but the best results are obtained when it is enriched previous to the sowing of the seed with good stable manure, or some good artificial. A very safe time for sowing runner beans is from the 15th to the 20th of May for the general crop, and with the chance of securing a late supply in the autumn a second sowing may be made in the second week of June. The common scarlet is the earliest of the runners, but it does not produce such large pods as Carter's Champion, which in productiveness and high quality is quite unsurpassed. But the last-mentioned type is rather later, and in gardens in which there is room for two good rows, one should be of each variety, and both be sown at the same time. When only one row can be had, the two varieties may be advantageously sown in the same row. I generally draw a shallow trench quite six inches wide at the bottom, and plant the beans in two rows, as far apart as the width of the trench will permit, and nine inches apart in the rows. There is no better way of sowing them than this, and where two sorts are to be grown in the same trench one row of each should be sown. The Giant White is a very fine bean, resembling in habit, productiveness, and in the size of its pods Carter's Champion. It has also the desirable quality of withstanding the effects of the drought better than any of the other runners.

BEET.

It is quite time to sow beet for main crops, and if there is any great delay there will not be sufficient time for the roots to attain to a good size. The soil ought to be in good heart, but it must not be enriched with manure within six months of sowing the seed unless very poor, and then there should be a period of not less than three months between the application of manure and sowing the seed. The rows should be from twelve to fifteen inches apart, and the plants be thinned to about eight inches apart in the rows. I have grown many types in my time, but I have not met with one, taking all points into consideration, which equals that known as Cutbush's Superb. The roots attain a medium size, are of as perfect a form as could be wished, and have so few fibrous roots that there is no difficulty in pulling them out of the ground with the hand when they are full grown. The Egyptian turnip-rooted beet is very coarse on rich, strong land, but on thin light soils it is excellent in quality, and in some respects preferable to the ordinary kinds.

SAVOYS.

Savoy of large size are so strong in flavour and objectionable in appearance that it is surprising they should be tolerated in a private garden. Small savoy, on the other hand, are delicately flavoured and extremely elegant, and not wanting in profitableness. To obtain the latter sow the seed in May, and put out the plants, as soon as they are large enough, in the quarters at a distance of twelve inches apart each way.

ENDIVE.

Endive is of immense value in the autumn, when good lettuces are becoming scarce, but in many cases the sowing of the seed is deferred until too late in the summer. For autumn supplies sowings should be made at the end of May and about the middle of June, and if practicable the seed should be sown on rich ground where the plants are to remain. For use late in the autumn and early in the winter sow at the end of June or early in July. The green curled and the round leaved Batavian are two excellent varieties for general use. When the seed is sown where the plants are to remain the drills should be from fifteen to eighteen inches apart, and the needful thinning be done in good time.

ANNUAL FLOWERS FOR LARGE BEDS.

By J. C. CLARKE.

VERY frequently I see in gardens large spaces of bare soil, which might be made beautiful in the summer months with annual flowers, at an expenditure of a few shillings for seeds and a little labour in the preparation of the ground. Many also have large flower beds which they are unable to fill with the ordinary tender bedding plants. Those who have such beds may be advised to make a free use of annual flowers. The annuals will not flower so early, nor will all of them last so long as the calceolarias and geraniums, but with ordinary care they will be sufficiently attractive to recompense the owner for the trouble and expense incurred.

It is perhaps necessary to say that some preparation of the soil will be necessary. If the beds and borders were not dug up in the early spring the work must be done now, and all hard lumps of soil must be broken moderately fine as the staple is turned over. There should be at least three or four inches of fairly fine soil for the roots to run in when the seedlings begin to grow freely. I will now proceed to name a few annual flowers that are suitable for sowing in large masses.

TROPEOLUMS.—Any one having a large bed or border vacant where the soil is not particularly good, cannot do better than to sow it with tropeolums. They are highly effective when in flower, and fill up space at a rapid rate. They require very little attention after the seed is sown. The seeds of the varieties forming the Tom Thumb section of this plant require to be planted singly, six inches apart each way. If the bed is of large size, the centre may be sown with another kind of annual, so as to secure more variety in colour, and as a contrast nothing is better than the blue flowered trailing convolvulus, *Ipomea grandiflora*, which would rise just above the Tropæolums, and succeed under the same conditions except that the plants require to be rather closer together. Both of these annuals may be sown from the end of April to the middle of May.

ESCHSCHOLTZIAS are free-flowering, hardy, and not particular as to soil or situation. They are indeed as well adapted for filling large beds as they are for making masses in the front spaces of newly planted shrubberies. The seed may be sown from the middle of April to the middle of May. The best kinds are *E. californica*, yellow; *E. californica alba*, white; and *E. mandarin*, crimson: these three will make a charming display until frost cuts them down in the autumn. They may be sown so as to form distinct belts or bands of colour, or they can be mixed together.

LARKSPURS.—The tall branching larkspurs are admirably suited for large beds, and for clumps between the shrubs in the front line of a border. They grow freely in a good soil, and will continue in bloom through the month of September.

YELLOW HAWKWEED.—This showy annual is admirably suited for associating with the larkspurs, and when a distinct colour is required for contrasting with them it may be sown with advantage. It is free in growth, and continues a long time in bloom.

MALOPE TRIFIDA.—Of this handsome subject there are a white and a purplish variety. Both are admirable plants for filling a large space, as they grow from twelve to eighteen inches high. It is best to sow the seed in lines nine inches apart, and then thin out the

young plants to four inches apart. Like the preceding, the earlier the seed is sown after the middle of April the sooner will they commence flowering.

SCABIOUS.—The scabious must be sown in April to have it in bloom early in the summer. If the flowers are not bright in colour, many of them are quaint and rich, and they are produced so freely over so long a period that we have few autumn flowers that can compare with them. The seed should be sown at once, and scattered thinly over the ground, and even then if the seedlings come up too thick they must be thinned out to a distance of three inches apart. As they grow two feet high, it may be necessary to have some other plants in front of them. The dwarf German larkspurs in various colours would be very suitable for that purpose.

LUPINS.—These are well known, and grow from eighteen inches to three feet in height. They are capital subjects for filling up vacant spaces in shrubberies, and in the back rows of herbaceous borders. Sow thinly, and when the plants are three inches high thin them out to six inches apart.

THE SWEET SULTAN is a long-lasting annual, and not at all particular as to the character of the soil provided it can have a moderate amount of moisture at the roots. There are three varieties and colours of the flowers—purple, white, and yellow. They grow about the same height and flower well together. The seed must be sown at once, and if the plants come up too thickly they should be thinned to three inches apart. The three colours look very well intermixed, and as they only grow from twelve to fifteen inches high they are well adapted for front lines in large beds or borders.

CLARKIAS.—These are not quite so long-lasting as some annual flowers, but if the seed is sown now in some fairly good soil they will bloom well during August and September. The plants require to stand out well from each other to allow of the development of the side branches. They will have space enough if four inches apart each way.

MIXED BEDS OF ANNUALS.—Until last autumn I had no idea how beautiful are beds of mixed annuals. The beds I then saw were exceedingly attractive. The garden in which they occurred was rather old-fashioned, and the beds of annual flowers were as pleasing as anything I had previously seen. I can give as much honour to a man who strikes out a new path in the use of annual flowers as to one who is successful in the cultivation of orchids. The principle flowers used in the beds alluded to were, for the centres, *Sweet Peas*, *Sunflowers*, *Zinnias*, *Love-lies-bleeding*, *Prince's Feather*, tall-branched *Larkspurs*, *Poppies* in various colours, *Calliopsis*, and yellow *Helichrysums*. Between these and the grass were dwarfier growing annuals, amongst which I may mention *German asters*, *Ten week Stocks*, *Clarkias*, *Candytuft*, *Catchfly*, *Collinsias*, *Godetias*, *Hibiscus africanus*, *Dwarf Larkspurs*, *Mignonette*, and *Tom Thumb Nasturtiums*. The tall-growing subjects in the centre were sown in rings twelve inches in diameter, and the rings were eighteen inches from each other. The dwarf growers in front were sown in rings in the same way, but six inches nearer each other. Care was taken that the plants were not crowded, and a strong growth and plenty of flowers were the result.

Notes of Observation.

THE PROMISE OF THE STRAWBERRY CROP.

A FEW weeks from this time will decide whether the crop of strawberries will be a full one or not. According to the present condition of the plants the prospect is not very cheering. The plants are weak, and, what is quite remarkable, the young plantations are no better than the old ones. This points to a general weakness, but in what way we are to account for it is not quite clear, unless it be that there was no decisive season of rest owing to the mildness of the past winter. However, we will not complain of a mild winter if we obtain a good crop of strawberries; but I fear it is in this as in many other things, we would like mild winters and we would like good crops of strawberries also, and the fact that we cannot be sure of either ought to show us how insignificant is the position we occupy in the universe.

J. C. C.

CONSERVATORY CLIMBERS.

It occurs to me that horticultural writers do not pay sufficient attention to plants of scandent habit that are suitable for draping the pillars and roofs of conservatories. Probably it is thought that gardeners with but few exceptions are well acquainted with conservatory climbers, and are careful to plant the finest kinds. Those who think so labour, according to my experience, under a mistake. Representing a good firm, I visit not a few good gardens annually, and I am much surprised to see in my travels how little the best of the conservatory are appreciated. In conservatories that must have cost thousands of pounds we see the walls and pillars devoted to fuchsias, zonal pelargoniums, and heliotropiums, which do not present an attractive appearance for more than six months of every twelve, and over the roof is to be found *Cobæa scandens*, which has little to recommend it beyond its rapidity of growth. As opportunities offer, I enlarge upon the beauty of such things as *Tacsonia exoniensis*, *T. Van Volxemi*, *Passiflora Innesi*, *P. Munroi*, *Lapageria rosea*, and *L. alba*; but, as it is thought I do so as a matter of business, little heed is taken of my recommendations. Perhaps, if one of your well-known contributors were to deal with the matter some reform might be effected in the garniture of the roofs and pillars of many conservatories. In none of the large glass structures in the public gardens within the metropolis are climbers well done, and the glass corridor in the gardens of the Royal Botanic Society, which is specially adapted for the cultivation of a representative collection, almost entirely given up to the *cobæa* above mentioned. I am quite sure that where the requisite skill exists to flower *Petrea volubilis* with much success as in the gardens of this society it would be possible to produce a most beautiful display of such free-growing subjects as are mentioned above.

NURSERY TRAVELLER.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—PROMENADE SHOW AND MEETING OF THE FLORAL AND FRUIT COMMITTEES,

MAY 9.

ON this occasion the promenade show was held in the western arcade, and included several important and attractive collections. Chief amongst the contributions were the pot and cut roses, from Messrs. W. Paul and Son; Japanese maples, from Messrs. J. Veitch and Sons; cut roses from Mr. W. Rumsey; calceolarias, from Mr. F. Salter and the Society; the cut zonals from Messrs. H. Cannell and Sons, and the pelargoniums from Chiswick.

The pot roses staged by Messrs. Paul and Son, Waltham Cross, ranged from small examples to full-sized specimens, and were remarkable not less for an amplitude of foliage than for the splendid development of their flowers. In the collection, which formed a large and very attractive bank, were Duchess of Bedford, Edouard Morren, Lady Sheffield, Madame Victor Verdier, Crown Prince, Mabel Morrison, Duke of Edinburgh, Victor Verdier, Masterpiece, Perfection de Monplaisir, Madame de Montchateau, Etienne Levet, Marie Baumann, Star of Waltham, Little Gem, and other well known kinds of high-class merit. Messrs. W. Paul and Son also exhibited six plants of their new hybrid perpetual Queen of Queens, a light variety of great promise, both for the garden and exhibition stage. It has evidently a strong constitution, and the flowers are of large size, globular, full, and of excellent form, the colour bright carmine pink, shading at the edges of the petals to blush-pink. They also staged examples of Mdlle. Marie Garnier, a French hybrid perpetual of the current season, bearing large globular flowers of a deep pink colour, and vigorous in growth. Violette Bouyer, a beautiful new hybrid perpetual with blush coloured flowers of globular form, and of strong growth; and Camoens, a new hybrid tea, of Continental origin, with deep pink flowers. The bank of pot-roses was "faced" with a beautiful display of cut blooms, which comprised both hybrid perpetual and tea-scented varieties. The silver-gilt Flora medal was awarded.

Messrs. J. Veitch and Sons, King's Road, Chelsea, exhibited an extensive collection of Japanese maples, to which they have devoted much attention of late years. The collection comprised examples of all the finest forms at present in commerce, and it included a score or so of grafted specimens imported from Japan, each specimen being formed with several kinds grafted on the same stock. Particularly worthy of notice for their distinctness and great elegance were *Acer polymorphum dissectum*, the leaves finely divided and of a bright red colour; *Acer japonicum aureum*, an effective variety, in which the leaves are of a decided yellowish hue; *Acer polymorphum latifolium atropurpureum*, a pleasing form, with purplish crimson leaves; *Acer polymorphum palmatifidum*, a green-leaved form with elegantly-divided leaves, which may be described as one of the most valuable of the series; and *Acer polymorphum linearilobum atropurpureum*, a very elegant variety with much divided leaves of a bright purplish colour. Messrs. Veitch also exhibited a good specimen in bloom of the beautiful *Vanda teres*, several good erect *gloxinias*, a pan of *Pratia angulata*, a pretty little plant of dwarf growth, and useful for carpeting purposes; an example of *Coronilla emerus*, a slender growing species with orange-yellow flowers; a specimen of *Philadelphus coronarius tomentosus*; a pan of *Primula obconica*, a pretty Chinese species with blush-coloured flowers; a large basket of the showy *Azalea pontica altaclerensis*; and a basket of *Eurybia Gunni*, a pretty little evergreen from Tasmania bearing white daisy-like flowers. The silver Flora medal was awarded the firm.

Mr. B. S. Williams exhibited a small group of plants in which were several fine amaryllis, a good specimen of *Kentia costata*, one of the finest of this elegant group of palms, and a good specimen of the useful white flowered *Glonera jasminiflora*. A silver Banksian medal was awarded to Mr. W. Rumsey, Joyning's Nursery, Waltham Cross, for several beautiful boxes of cut roses, and a medal of like value was awarded to Messrs. Kelway and Son, Langport, Somerset, for several stands of splendid blooms of single and double pyrethrums. Mr. Green, Pendell Court, Bletchingley, and Mr. G. Duffield, Winchmore Hill, were accorded votes of thanks, the former for cut flowers of *Sobralia macrantha*, and spikes of *Dendrobium thyrsiflorum*; and the latter for a stand of blooms of perpetual flowering carnations. Mr. Spyers, orchid grower to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorset, exhibited good specimens of *Oncidium teretifolium*, *Masdevallia rosea* and *Dendrobium Bensoniæ xanthinum*. Messrs. H. Cannell and Sons, Swanley, contributed a magnificent stand of zonal pelargonium blooms, and a stand of mimulus, the flowers of large size, splendid shape, and richly coloured. Mr. J. Salter, Streatham, exhibited herbaceous calceolarias remarkable for the quality of the flowers. The calceolarias sent from Chiswick were also exceedingly good, and the tastefully arranged group of miscellaneous plants and the collection of pelargoniums from the same gardens contributed in no small degree to the attractions of the show.

The subjects submitted to the Fruit Committee were few in number but full of interest. Mr. Divers, Maidstone, sent half a dozen dishes of apples; Messrs. Hurst and Son exhibited a late broccoli with variegated leaves; Messrs. J. Veitch and Sons contributed excellent heads of their *Model*, a fine late variety; Mr. Draper, Seaham, Sunderland, sent good heads of *Draper's Selected*; and Mr. G. T. Miles sent a sample of a winter spinach, which does not run to seed so soon as the ordinary form, and is therefore likely to prove useful for supplying the table during the latter part of the spring.

The following first-class certificates were granted:—

To Mr. Ledsham, Tower Road, Chester, for

Broccoli Ledsham's Latest of All.—An excellent self-protecting variety, producing this late in the spring large and perfectly solid heads of a delicate creamy white colour.

To Mr. Spyers for

Pescatorea Lehmanni.—A charming species, the sepals and petals marked and washed with purple on a blush coloured ground, the lobellum maroon purple with white fringe.

To Messrs. J. Veitch and Sons for *Azalea rubiflora* fl. pl.—A beautiful double azalea with flowers about three inches in diameter, and of a bright rose colour, spotted with red in the centre.

To Mr. W. Howard, Southgate, for *Carnation Howard*.—A perpetual variety, producing a profusion of brilliant scarlet flowers.

Davallia Grifflithiana.—Strong growing and elegant species, in the way of the well-known *D. canariense*, but distinct from it.

Rhododendron Fortunei from Mr. G. Aslett, of Hatfield. The flowers are of a pale pink colour, and they have seven lobes, the usual number in other species being five.

A second class certificate was granted to Messrs. W. Paul and Son for *Rose Ulrich Brunner*.—A hybrid perpetual of Continental origin, with medium-sized and well formed flowers, of a bright red colour.

An extremely beautiful crispy scolopendrium came from Messrs. Kelway of Langport, and was much admired.

NATIONAL AURICULA SOCIETY.—EXHIBITION OF NORTHERN SECTION, MAY 2.

The report published last week was hastily written and necessarily imperfect, although embodying the main features of the event. The importance of the several details, however, is such as to justify a further and fuller report, making special reference to the winning varieties.

In this exhibition the Rev. F. D. Horner did not compete; but he showed beautiful examples of George Lightbody (Headly), and Sapphire, a seedling of his own. The Rev. F. Tymons, of Baskin Hill, Drumcondra, Ireland, again exhibited a plant of Richard Headly, which was of such excellence that the judges awarded a first-class cultural certificate. The seedlings did not show any advance on the old-established varieties, some of which, such as Alexander Meiklejohn (Kay) and Lancashire Hero (Lancashire), were exhibited in capital condition. Besides the auriculas the large hall was made gay with collections of plants from various exhibitors. *Deutzia gracilis* was exhibited by Thomas Agnew, Esq., of Eccles; a collection of calceolarias by Mr. Rogerson, of Didsbury, and miscellaneous collections of plants by John Rylands, Esq., of Longford Hall, and William Brockbank, Esq., of Didsbury. The arrangement of the plants was very good, cultural certificates and commendations being awarded. The following is a list of the prize winners in the various classes:

SHOW AURICULAS.—In the principal class for six auriculas, dissimilar, Mr. William Bolton, of Waderspool-road, Warrington, was first with some very fine flowers, viz., Lancashire's Lancashire Hero, Kay's Alexander Meiklejohn, Headly's George Lightbody, Traill's Prince of Greens, Simonite's Frank Simonite, and Simonite's Mrs. Douglas; Mr. Jonathan Booth, Failsworth, near Manchester, being second with the following varieties: Headly's George Lightbody, Read's Acme, Kay's Alexander Meiklejohn, Read's Dr. Horner, Lee's Colonel Taylor, and Campbell's Lord of Lorne; Mr. H. Wilson, of Halifax, being third with Lee's Colonel Taylor, Kay's Alexander Meiklejohn, Headly's George Lightbody, Home's Sapphire, Walker's John Simonite, and Traill's Prince of Greens; Samuel Barlow, Esq., of Stakehill House, Castleton, near Manchester, being fourth with Syke's Complete, Simonite's Frank Simonite, Lancashire's Lancashire Hero, Horner's Erebus, Oliver's Lovely Ann, and Horner's Ringdove; Mr. E. Pohlman, of Halifax, fifth with Pohlman's Mazzini, Traill's Beauty, Traill's Prince of Greens, Headly's George Lightbody, Kay's Alexander Meiklejohn, and Read's Acme; sixth, Mr. Benjamin Simonite, Sheffield, with Lancashire's Lancashire Hero, a white seedling, Simonite's Mrs. Douglas, Walker's John Simonite, Cunningham's John Waterston, and a green seedling; seventh, William Brockbank, Esq., Didsbury, with Pohlman's Garibaldi, Headly's George Lightbody, Oliver's Lovely Ann, Spalding's Metropolitan, Simonite's Frank Simonite, and Lightbody's Richard Headly.

The competition was very strong in class for four distinct varieties, the first prize being awarded to Mr. H. Wilson with Read's Acme, Horner's Ringdove, Traill's Prince of Greens, and Kay's Alexander Meiklejohn; second prize to Mr. A. Shaw, Bury, with Read's Dr. Horner, Pohlman's Ellen Lancaster, Kay's Alexander Meiklejohn, and Headly's George Lightbody; third prize to Mr. E. Pohlman, with Headly's George Lightbody, Read's Acme, Kay's Topsy, and Lee's Colonel Taylor; fourth, to Mr. William Bolton, with Lancashire's Lancashire Hero, Read's Acme, Headly's George Lightbody, and Kay's Topsy; fifth, to J. Booth, with Read's Acme, Lancashire's Lancashire Hero, Headly's George Lightbody, and Traill's Prince of Greens; sixth prize to G. Simonite; seventh to T. Barlow, Esq., with similar varieties.

In the class for pairs Mr. R. Lord, Todmorden, near Rochdale, was first with Lee's Colonel Taylor and Headly's George Lightbody; Mr. John Beswick, of Middleton, second, with Turner's Charles Perry and Oliver's Lovely Ann; Mr. Bolton third, with Kay's Alexander Meiklejohn and Horner's Ringdove; Mr. J. Booth fourth, with Pohlman's Ellen Lancaster and Read's Dr. Horner; Mr. William Taylor, Middleton, fifth, with Turner's C. J. Perry and Headly's George Lightbody; Mr. L. Mellor, Ashton-under-Lyne, sixth, with Lee's Colonel Taylor and John Waterston; Mr. A. Shaw seventh, with Read's Acme and Headly's George Lightbody. In the pairs for maiden growers, Mr. Richard Bealy, Bury, was first with Read's Acme and Kay's Alexander Meiklejohn; Mr. Shipley, Middleton, second, with Heap's Smiling Beauty, and Lightbody's Richard Headly; Mr. C. Prescott, Manchester, third, with Martin's Mrs. Sturrock and Read's Dr. Horner; Mr. E. Shaw, Stretford-road, Manchester, fourth, with Traill's Beauty and Lightbody's Meteor Flag.

The single specimen green edges were very good. Mr. C. Pohlman first with Lancashire's Lancashire Hero, Mr. Lord second with Lee's Colonel Taylor, Mr. Bolton third with Simonite's Talisman, Mr. Clements Royds, Rochdale, fourth with Traill's Mayflower, Mr. Pohlman fifth with Laurel, Mr. J. Booth sixth with George Lightbody, Mr. Pohlman seventh with Lancashire's Lancashire Hero, Mr. Simonite eighth with a Seedling, Mr. Bolton ninth with Traill's Anna. In the single grey edges, Mr. Pohlman was first, fourth, and ninth with Kay's Meiklejohn, Lancashire's Lancashire Hero, and Campbell's Confidence respectively; Mr. Wilson second and third with Kay's Alexander Meiklejohn and Headly's George Lightbody respectively; Mr. Simonite fifth with Samuel Barlow; Mr. Booth sixth with Read's Dr.

Horner; Mr. Brockbank seventh with Fletcher's No Plus Ultra; Mr. Simonite eighth with Headly's Garibaldi. In the class for single white edges, Mr. Lord was first and seventh with Read's Acme and Summerville's Catharina respectively; Mr. Booth second and eighth with Lightbody's Richard Headly, and Traill's Beauty; Mr. Pohlman fourth with Smiling Beauty; Mr. Wilson fifth and sixth with Read's Acme and Walker's John Simonite; Mr. Bolton ninth with a Seedling. In the single selfs Mr. Simonite was first with Simonite's Mrs. Douglas; Mr. Booth second and third with Turner's C. J. Perry and Martin's Mrs. Sturrock respectively; Mr. Bolton fourth with Ellen Lancaster; Mr. Pohlman fifth and seventh with Campbell's Lord of Lorne and Pohlman's Garibaldi; eight and ninth to Mr. Brockbank with Spalding's Metropolitan, and Kay's Topsy.

Alpine auriculas were shown very fairly considering the lateness of the season. The first prize was awarded to Mr. J. Booth for the following: George Lightbody, Queen Victoria, Elcho, and Brilliant; second to Mr. Adams, Gateshead, for Queen Victoria, Diadem, Mrs. Llewellyn, and Colonel Scott; third to Mr. Prescott, Manchester, for Queen Victoria, Diadem, Neatness, and a seedling; fourth to Mr. A. Shaw, Bury, with Conspicua, John Leech, Diadem, and Spangle; fifth to Mr. Richard Gorton, Eccles, for Diadem, Elcho, Mrs. Meiklejohn, and Miss Read; sixth, Mr. G. Geggie, Bury, for Sydney, King of Crimsons, Zenniel, and Diadem; seventh to Mr. Brockbank for King of Crimsons, Dazzle, John Leech, and another. In single plants, yellow centres, Mr. Booth first with Diadem, Mr. Shaw second and fifth with Diadem and Spangle; Mr. Pohlman third with a seedling; Mr. Adams fourth with Colonel Scott, and Mr. Gorton sixth with unknown. In the white centres, first to Mr. Pohlman with a seedling, second Mr. R. Gorton with Elcho, third Mr. Pohlman with a seedling, fourth and sixth to Mr. Gorton with Sunset and George Lightbody, fifth Mr. Booth with Zenniel.

Laced polyanthus were rather past their best and not up to usual form. In the class for three black grounds dissimilar, Mr. John Beswick was first with a good seedling, Lancashire Hero (Whittaker's), and Exile; second prize to Mr. William Bolton for Exile, Lord Lincoln, and Joe, a black seedling of very good promise; third, Mr. S. Barlow, with Harbinger, Exile, and Beauty of England; fourth, Mr. S. Mellor, with Favourite and two seedlings; Mr. Prescott fifth, with Lancashire Hero, Cheshire Favourite, and a seedling. In the class for three polyanthus, red grounds, first, Mr. Barlow, with Firefly, Cox's Regent, and Model; second prize to Mr. Beswick, with Lancer, George IV., and seedling; third to Mr. Bolton, with President, George IV., and seedling; fourth to Mr. Prescott, with George IV., President, and Prince Regent. In singles, red ground, first, second, and seventh went to Mr. Beswick for George IV., George IV., and Seedling respectively; third, fifth, sixth, and eighth to Mr. Barlow, with Model, Red Rover, Firefly and Seedling; Mr. Brockbank fifth with Cox's Regent. In single plants, black ground, first, second, third, and fourth to Mr. J. Beswick, for Lancashire Hero, Exile, Lancashire Hero, and Cheshire Favourite respectively; fifth and seventh to Mr. Barlow, for John Bright and Seedling; sixth and seventh to Mr. Brockbank, for Lincoln and President.

For fancy auriculas S. Barlow, Esq., was first with a pretty lot. For twelve fancy polyanthus W. Brockbank, Esq., first, being the only exhibitor, and first for twelve primroses, also no competition.

The honour of exhibiting the best auricula in the show was this year divided between the Lancashire Hero of S. Barlow, Esq., and Alexander Meiklejohn from Mr. H. Wilson of Halifax. Both flowers had taken the highest honours on previous occasions.

Replies to Queries.

Unhealthy Vine.—A. W.—The leaves of the vine appear to have been scorched by the sun through an insufficiency of ventilation early in the day.

Daisies.—H. W. P.—The daisies mentioned in your note may be obtained of any of the nurserymen who pay special attention to hardy flowering plants, and no difficulty will be experienced in obtaining a stock of them.

Botanist will do better, for a time at least, in a large public garden than in any of the other places mentioned. To prepare for the course of action contemplated a knowledge of plants is of the first importance, and this can only be obtained by one who is constantly amongst them.

White Zonal.—It is always a mistake to send trusses of zonals by post, for our opinion, because they shed their petals, and it is impossible to judge them. Yours had not a bloom left when taken out of the box, and so we can say nothing about it.

T. R.—To advise you generally would be too grave a responsibility, for the business you propose to embark in is full of difficulties. But many succeed in it, and you will have as good a chance as the rest. You may with advantage communicate with Mr. Buck, Central Avenue, Covent Garden, London, W.C.

Tomatoes.—T.—Tomatoes may be successfully cultivated in the lean-to pit. A trellis will be required, and it should be fixed about ten or twelve inches from the glass. The growth will require a moderate amount of stopping to prevent its becoming over-crowded, but the stopping need not be so severe as you suggest. Sutton's Conqueror, Hathaway's Excelsior, and Earley's Defiance are all excellent kinds.

Auricula Cheetham's Lancashire Hero.—W.—Cheetham is often credited with the raising of Lancashire Hero, but the honour of raising it belongs to Robin Lancashire, who died at a ripe age a few years since. It was first shown at Rochdale in 1846, and although presented in excellent condition it was placed second to Grimes's Privateer, a flower much inferior to it. Lancashire was so indignant at this that he, without consideration, sold his whole stock of eight or nine plants for a mere trifle. The purchaser re-sold the plants to Mr. James Cheetham, by whom the variety was eventually sent out. The edge is sometimes green and sometimes grey, and may be shown as a grey or green edged flower according to whether the edge is with or without meal. Oliver's Lovely Ann is also variable in the colouring of the edge. This variability is not considered a defect, nor is it so.

Constant Reader.—The shade of horse-chestnuts is so dense that few plants will grow under them. The likeliest things are green ivies, butcher's broom, dwarf elder, day-lily, privet, deciduous cunymus, and various species of brambles. Creepers for an oak paling where nails must not be used are not easily found. The most likely to succeed are small green-leaved ivies and Virginian creeper. Veitch's creeper would probably answer better than anything else in the world. Try Penny's beetle paste for the cockroaches.

Asparagus Beds.—H. W. P.—Asparagus beds formed and planted two years since ought now to be in full bearing, and the produce should be of first-class quality. The weakly growth of which you complain may be due either to the cutting having been continued last summer until too late a period for the crowns to properly recover from the strain imposed upon them, or to an impoverished state of the soil. Knowing nothing of the character of the soil, of the manner in which the beds were formed, or of the subsequent management, it is impossible to express a definite opinion upon the matter.

Names of Plants.—Constant Reader.—Your white-flowering tree is the snowy mespilus, *Amelanchier vulgaris*. M. N.—1, The Camellia was crushed, it may be *Imbricata*; 2, *Tradescantia multicolor*; 3, *Panicum plicatum*; 4, *Sparmannia africana*. J. Roberts.—1, *Erica gracilis*; 2, *Erica carnea*; 3, *Menziesia cœrulea*. F. Brown.—1, *Cyrtomium falcatum*; 2, *Polystichum umbrosum*; 3, *Polystichum angulare*. H. H. W.—1, *Salix fragilis*; 2, *Populus balsamifera*; 3, *P. grandidentata*. R. Cattle.—Your "blue bell" is *Scilla nutans*, the "other" blue bell is *Campanula rotundifolia*, also called the hair-bell. W. C.—*Æschynanthus fulgens*. A. J. W.—1, *Gardenia Stanleyana*, 2, *Pteris serrulata cristata*, 3, *Pteris cretica albo-lineata*, 4, *Pteris cretica* in the green state.

Strawberry Plants in Pots.—L. M. W.—The plants should be allowed to carry from six to eight full-sized fruits, and the thinning ought to be done as early as possible. To send the plants safely the distance mentioned the greatest possible care must be taken in the packing. The fruits must with the aid of sticks and wadding be made so secure that they cannot move about, even if the basket is roughly handled. The plants will probably travel most safely in a flat basket with a mat, supported by arched sticks over the top; the pots must be firmly embedded in hay or dry litter, and be securely fastened down with stout string. If the pots can move in the slightest degree the fruit will be more or less damaged by the time the end of the journey is reached.

TRADE CATALOGUES.

JAMES VEITCH AND SON, 544, KING'S ROAD, CHELSEA.—*List of Select Softwooded and Bedding Plants, &c.*

HENDER AND SON, BEDFORD NURSERIES, PLYMOUTH.—*Catalogue of Bedding Plants, Fuchsias, &c.*

WM. PAUL AND SON, WALTHAM CROSS, HERTS.—*New Roses, Geraniums, Phloxes, Dahlias, &c.*

Obituary.

THE ranks of Lancashire and Yorkshire florists have recently been thinned by the deaths of two notable men, who were well known in the North. One is honest TOM MELLOR, of Ashton-under-Lyne, a quiet, unassuming man, who was much respected by all who knew him for his sterling character. He had been in declining health for some time, and died on Monday, May 1st, at the age of 60 years. Originally a shoemaker by trade, he turned his attention to the cultivation of pinks, carnations, and picotees, and ranunculus, and latterly the tulip, polyanthus, and auricula. For some time past he had almost entirely abandoned his trade, and made a living by the cultivation of florist's flowers, which he grew in his garden at Ashton Moss, some distance from his place of residence, and where he spent much time and worked early and late. Mr. Samuel Barlow remembers Mellor showing pinks at Middleton thirty years ago. Of late years he gave his attention to the auricula, and at his death had a fine stock of the leading sorts and some promising seedlings. His death causes a vacancy in the committee of the National Auricula Society.

THOMAS WOODHEAD died at his residence, Shibden Head, Halifax, on Sunday, April 30th, at the age of 50 years, from Bright's disease. He held the post of manager of the Shibden Head Brewery Company. For twenty years he had been a cultivator of auriculas, and had obtained one of the very best collections in England. He had also raised some good seedlings, a few of which were previously at the auricula show recently held in London. Mr. Woodhead was widely known in auricula circles, and much respected by all who came into professional contact with him. The destination of his fine collection of auriculas is not known, but it is supposed it will pass into the hands of Mr. George Rudd, of Bradford, for disposal. Like Thomas Mellor, Mr. Woodhead was a member of the committee of the northern division of the National Auricula Society.

WHAT WE OWE TO THE TREES.—A writer in *Harper's Monthly* says:—"A country cannot continue to be populous nor highly civilized when its forests, or their equivalent in coal, are lost to it. But this loss has been experienced by many nations. The whole Eastern world, as well as the countries of which we have spoken, was once well wooded. The Roman and Greek writers assure us of this. But vast regions of Europe and Asia, by wars and wantonness and imprudence, have been stripped of their forests. A belt of woodland stretching from the Pyrenees to the Himalayas has been swept away, and that whole region, once fertile and populous, now barely sustains a people scanty in numbers. It is a significant fact that great deserts now occupy the original seat of the human race, and extend on every route of their migrations. Humboldt is reported as saying, 'Men in all climates seem to bring upon future generations two calamities at once—a want of fuel and a scarcity of water.' The two come alike from the destruction of the forests."

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7½d. and 1s. 1½d., labelled, "JAMES EPPS AND CO., Homœopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

Law.

TRADE MARKS.

IN the Chancery Division, before Vice-Chancellor Bacon, the case of *RANSOME v. GRAHAM*, was decided on the 29th April. This case raised a new and most important question on the law of trade-marks. The plaintiffs were Messrs. Ransome, Head, and Jefferies, the well-known implement makers and agricultural engineers at Ipswich; and the defendants were ironmongers and founders carrying on business at Hadleigh, in Suffolk. The plaintiffs and their predecessors in business had for many years made and sold large numbers of ploughs of various makes and patterns specially designed for use in particular soils, and in order, as they alleged, to distinguish the ploughs made by them as being of their make, and to show the particular make and pattern of each plough, they always marked or stamped the different parts of each plough with some letter or combinations of letters, the effect of which, as they alleged, was that a purchaser of one of their ploughs who might wish to buy a new breast or blade or other wearing part for his plough could, by buying the same marked or stamped with the same letter or combination of letters as his original plough, make sure of obtaining an article of the plaintiffs' make which would accurately fit his plough. One of these series of ploughs was stamped with the letters "R. N. D.," "R. N. D. H.," "R. N. E.," and "R. N. F.," the letter "R." standing for "Ransome" and the letter "N." standing for "Newcastle," where this series of ploughs had won four first prizes at the Royal Agricultural Show in 1864, and these combinations of letters had, with other combinations, been registered by the plaintiffs in 1877 as trade-marks under the Trade-marks Registration Act, 1875. The plaintiffs by their present action sought to restrain the defendants from making ploughs, or parts of ploughs marked with this combination, and so, as they alleged, representing that such ploughs or parts of ploughs were of the plaintiffs' manufacture. They also contended that their reputation was damaged by inferior articles being made by the defendants and stamped with their trade-marks. The defendants contended that such combinations of letters when marked on a plough signified and were known and understood by the trade and by farmers generally to signify only that the plough was of a particular pattern and shape, and not that it was manufactured by any particular maker, and that when marked on the wearing parts only did not represent that such parts had been made by the introducer of the plough in question, or any particular maker, but simply that they were of a certain size and shape and would fit a particular pattern of plough; that wearing parts stamped with similar combinations of letters had for years been openly and with full knowledge of the plaintiffs manufactured and sold in large quantities by the defendants and other firms in various parts of the country. The defendants also moved to rectify the register of trade-marks by striking out those trade-marks which they were said to have infringed as being *publici juris* and improperly registered. The action and the motion were heard together, Mr. Howard and many other well-known manufacturers of ploughs were examined, and at the conclusion of the trial, which occupied ten days, the Vice-Chancellor reserved judgment.

Mr. Aston, Q.C., Mr. Horace Davey, Q.C., and Mr. W. Barber, Q.C., appeared for the plaintiffs; Mr. Day, Q.C., Mr. Cozens Hardy, Q.C., and Mr. Carmichael appeared for the defendants.

The Vice-Chancellor, in giving judgment this morning, said the single question he had to determine was whether or not Messrs. Ransome were entitled to the exclusive use of these combinations of letters, which they claimed as their trade-marks; and although this at first sight appeared a question of extreme simplicity, still it was surrounded with such a complication of circumstances and mass of evidence that it required to be considered most carefully. His lordship considered that the plaintiffs' witnesses had made out that a farmer ordering these wearing parts simply by reference to these combinations of letters upon them would do so with the understanding that they would get a wearing part of Ransome's make, and that the plaintiffs had established their right to these combinations as their trade-marks. The plaintiffs seemed to have been at all times active in asserting their rights, both by their catalogues and since the registration of these marks by placards, which they had sent to all their agents, stating that these combinations were their registered trade-marks. It had been said on the part of the defendants that if the plaintiffs established this exclusive right to these marks the defendants and other manufacturers would be deprived of a very considerable portion of their business, and the trade would be crippled, and had this been true it would have been an argument entitled to grave consideration, but this was not the real effect of the plaintiffs' claim. All manufacturers were entitled to make these wearing parts; but all that the plaintiffs sought to do, and all his lordship intended they should do, was to restrain these manufacturers from stamping these goods with the plaintiffs trade-marks, and so wrongfully representing to the public that these parts were of the plaintiffs' make. Under these circumstances the plaintiffs were entitled to the relief they asked, with costs as against the defendants, and as to the motion, that, too, must be dismissed with costs.

PRESERVING THE COLOUR OF DRIED FLOWERS.—M. Boulade recommends the following plan for preserving the colours of flowers of the herbarium: Lay out the flowers between several sheets of unsized paper—filtering paper; place these sheets between two fire-bricks, and put the whole in a stove or oven heated to 60 degs. to 70 degs. cent. Change the papers after an hour. After two or three hours the flowers will be sufficiently dried, and their colours preserved.

No Toilet Soap ever introduced to the public has met with such deserved success as WRIGHT'S COAL TAR SOAP. It cleanses the skin, frees it from impurities, promotes its healthy action, and immunity from infectious disease, and last, and not least, washing with it is a luxury. Purchasers, to avoid disappointment, should refuse all imitations, which are not only useless but are positively dangerous.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	South before Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882		
21	S	Sunday after Ascension.	4 3	3 39	7 50	7 49	11 18	4 20	4 40	1 25	1 45	55.9	Acrophyllum venosum, G.	Blush.	111
22	M	Length of light, 8h. 10m.	4 2	3 35	7 52	8 55	11 44	5 0	5 18	2 5	2 25	56.1	Aphelexis macrantha rosea, G.	Rose.	112
23	Tu	Battle of Ramillies, 1706.	4 0	3 30	7 53	10 1	Morn.	5 49	6 2	2 43	3 5	56.3	Cattleya citrina, S.	Yellow.	113
24	W	Queen Victoria born, 1819.	3 59	3 25	7 55	11 6	0 8	6 25	6 50	3 27	3 50	56.4	Cypripedium flaccidum, S.	Purple.	114
25	Th	First Quarter, Oh. 41m. morn. [Term ends.	3 58	3 20	7 55	After.	0 29	7 15	7 40	4 15	4 40	56.6	Dendrobium infundibulatum, S. White & Yellow.		145
26	F	Exeter Law Sittings end. Oxford Easter	3 57	3 14	7 58	1 15	0 49	8 10	8 40	5 5	5 35	56.7	Dielytra spectabilis, H.	Rose.	146
27	S	Oxford Trinity Term begins.	3 56	3 7	7 59	2 20	1 7	9 15	9 50	6 5	6 40	56.9	Narcissus poeticus in var., H.	Various.	147

The Gardeners' Magazine.

SATURDAY, MAY 20, 1882.

SUBSCRIBERS' COPIES OF THE GARDENERS' MAGAZINE will be forwarded Post Free from the Office, 4, Ave Maria Lane, London, E.C., to any part of the United Kingdom, upon PAYMENT IN ADVANCE: One Copy, 2d.; 3 Months, 8s.; 6 Months, 16s.; One Year, 11s. 6d. (including the Christmas Number). To America, Australia, Belgium, Canada, China, Ceylon, Denmark, France, Germany, Holland, India, Italy, Japan, New Zealand, Portugal, Russia, Spain, Sweden, Switzerland, Turkey, Tasmania, West Indies, and Zanzibar, 14s. per annum.

ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, 0/10 Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.).

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, MAY 23, TO THURSDAY, MAY 25.—ROYAL HORTICULTURAL SOCIETY.—Great Summer Exhibition. On first day, Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

WEDNESDAY, MAY 24.—LINNEAN SOCIETY.—Anniversary Meeting, at 3 p.m.

FRIDAY, MAY 26.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—First Day of the Great Whitsun Exhibition, at Old Trafford.

SATURDAY, MAY 27.—ROYAL NATIONAL TULIP SOCIETY.—Exhibition in the Manchester Botanical Gardens.

Auction Sales for the Ensuing Week.

TUESDAY, MAY 23, at 12.0 noon.—Messrs. Protheroe and Morris, at The Grove Nursery, Teddington; Bedding Plants.

THURSDAY, MAY 25, at 12.30 p.m.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

EUROPEAN CITIES are, at the present time, richly adorned with spring flowers and fresh green herbage, and in the very midst of the houses the songs of many wild birds may be heard. The lime trees of Berlin, the elms of Brussels, the chestnuts of Paris, and the planes of Genoa have their representatives in London, which, in its way, is as cheerful as any great city in the northern hemisphere at this particular season of the year. We cannot match the Nevsky Prospect, or the Unter den Linden; and as for the Champs Elysées or the Place Concorde, we must, as Londoners, feel as it were swallowed up and lost for ever on the mere mention of those urban paradises that lie so near to our hearts and homes. Nevertheless, at this season, London is not only bearable but beautiful, and it assorts with our patriotic, or as some may prefer to say "cockaigno," notions to cherish the belief that London has of late years very much improved, and is improving at such a rapid rate that it promises to establish a peculiar claim on rich Americans, who, it has been said, "when they die, go to Paris." The time is at hand, we fondly imagine, when they will prefer to locate their liberated spirits in London, and for the present we will mildly invite them to consider our enormous claims on their regard during the months of April, May, and June. The delicate minded and appreciative beings who invented the London season were like the Lord Mayor's fool in knowing what was good for them, and we can give them no higher praise. The most smoke-dried and ancient Londoners, who can remember when great illuminations were accomplished with oil lamps and common candles, and there were no complaints about the obstructiveness of Temple Bar, experience an annual surprise at the beauty of the British metropolis when newly dressed with spring verdure and enlivened with the songs of blackbirds and thrushes, which abound in the parks and all the wooded suburbs. Moreover, those Londoners who can tell us where stood the "Standard in Cornhill," and who remember the "Tabard" and the "Green Dragon," with their busy yards and open galleries, and have not forgotten that the Thames Embankment beautifies a region that was once upon a time a hideous waste of offensive tide-washed mud—these Londoners of the old school can also remember that in their early days a cockney had to travel westward to see something of the better ruralities of his native city. The "parks" were fewer than now, and the very height of cockney bliss was to see the trees in their new leafage in the Mall and to hear the band

play in Palace Yard. But now the oriental regions are comforted with greenness; Victoria Park is one of the noblest "lungs of London," which, we hope, will soon be balanced on the other side by a Paddington Park of not less merit as regards beauty and usefulness, though necessarily smaller from the circumstances of the case. Compare these rural scenes as we now see them with what we have seen at other times, amidst fog and drizzle. The trees in their affluence of life are throwing out millions of golden banners to the liberal air; the grass is newly green and delicious in its purity of colour, and the gardens are as flowery as fancy would have them, were it possible to transport them from their proper world, which happily bears the proper name of the Common-place. A glittering, spicy-odorous bed of wallflowers in a London garden reminds one of a remark of Emerson, who thought there was a heavenly surprise revealed to one who heard music out of a work-house. And really it is hard to believe, even with the experience of many years to help one, that all this flowery freshness, all this lush and joyous leafiness, all this proof of present life and promise of life to come, can have burst from the ground that was so dark and damp and dreary from the time the leaves fell in November until they began to reappear four months afterwards. But it is so. It has been so before; it will be so again. And were it not so, life in great cities would be insupportable; as to many, God knows, it must, even as the case now stands, be insupportable, or supportable only by the aid of an agency promotive of oblivion.

If the reader will spread out the map of London and note the green spaces, or mark in green such spaces as may be properly regarded as recreation grounds, it will be seen that the metropolis of the British Empire is in a deplorable plight. London is now beautiful, we say. Yes; but how much of it? From Victoria Park to Regent's Park there is an almost solid block of buildings, the distance between the two parks being four miles! There may be a few churchyards in the interval, but there is absolutely nothing in the way of proper park or garden. This same crowded space, measuring four miles from east to west, is of the same measure from north to south, for from Finsbury Park to the River Thames the distance is four miles as the crow flies. It curiously happens that we have in this portion of the metropolis an area of nearly rectangular form, comprising sixteen square miles at the least (but more properly twenty miles, for the block extends to Bow Creek in the east and to Kensal Green in the west), without a single break in the form of any public park or garden of any special value to the crowded population. There are parks and gardens indeed, and as we write we hear the throstles singing gaily in one of the most spacious and beautiful of the number; but the builder is near at hand, the throstles will be evicted, and ten thousand houses with chimnies will arise where at this moment there are about ten thousand trees. On the south side of the river the case is not so bad, but it is bad enough. Blackfriars Bridge may be regarded as the apex of a triangle, the sides of which are Rotherhithe and Battersea, and the base a line drawn through Camberwell. Here is a block of at least twelve square miles without a break, as if to match the sixteen or twenty miles on the other side. When we say "without a break" we do not forget the "minor parks," as Mr. McKenzie calls them. There are many sweet bits of greenery in the way of "squares" and "gardens" to vary the monotony, but there are too few of these for the leavening of the great mass, and we may travel far in regions where narrow streets prevail without seeing a tree or a patch of turf. Nor can we expect any great parks to be laid out in the densely populated districts, because of the magnitude of local rating and the impossibility of obtaining imperial aid. But we may, without alarming the ratepayer, urge the importance of making the very best of all the open spaces that exist, guarding them with constant vigilance against intrusion by the builder, and we may perhaps promote the healthfulness and beauty of the metropolis by proposing a system of improvements in strict accordance with the financial system that prevails.

The denser parts of the metropolis may all be pierced with advantage for the formation of roads connecting important points, and in the process swallowing up unwholesome properties that tend to augment the death rate beyond a reasonable average. It will be said that this is the very work the Metropolitan Board is devoting its best energies to, but with that reply it is perhaps possible to be dissatisfied. With the sole exception of the Thames Embankment,

which is a truly noble work, and already possesses an historical and monumental value of which this age may be proud—with this exception the new roads constructed by the Board fall short of all high aims and all moderately artistic notions. We want a few great roads lined with trees and dotted with bits of garden, and to form such roads would cost no more than those of plainer pattern and of the coldest shopkeeping character. A broad road costs more than a narrow one, and trees cost money, and bits of garden cannot be stolen ready-made. But when noble roads are formed in a wealthy and ever growing city, noble properties rise upon them, and the money comes back, at least in sufficient proportion to justify the outlay. Great parks in the heart of London we cannot have, and therefore it is vain to dream about them. But a few bold avenues of trees, and many sweet bits of gardening to make streaks and dots of leafage everywhere, is within possibility, and are very much needed for the comfort of Londoners and to increase the attractions of the metropolis as the house of call for men of all nations. The municipal mind takes hold of trees timidly, but there has been so much healthy and honest advance in this respect in the past half century that we are full of hope as to the future. But it is of the utmost importance that the subject should be kept constantly in view, for the builder strides in seven-leagued boots, and when ground is covered the making of a public park or garden may be considered as postponed *sine die*. The difficulty experienced in the case of the much-needed Paddington Park illustrates the subject only too forcibly. When Londoners learn to take an interest in London, as they perhaps already take an interest in their ward, or parish, or street; public opinion will keep municipal councils under a healthy stimulus in respect of these matters, and the sooner that is accomplished the better for the people as regards health and length of days, and the better for the metropolis as regards its relative rank amongst the cities of the world.

HITCHIN ROSE SHOW will be held on Wednesday, June 23.

STANDLAKE VILLAGE FLOWER SHOW, Tuesday, July 25.

WESTON-SUPER-MARE HORTICULTURAL SOCIETY.—The annual exhibition of this society will be held on Wednesday, August 2.

THE ROCKERY AT CHISWICK is very attractive now, and the herbaceous borders are gay with seasonable flowers.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—The annual exhibition is fixed for November 13 and 14.

THE EVENING FETE OF THE R.H.S. will be held in the gardens at South Kensington, on Tuesday, June 13, from eight to twelve p.m.

THE ELECTRIC EXHIBITION AT THE CRYSTAL PALACE will be closed on Saturday, June 3.

CHIPPENHAM HORTICULTURAL EXHIBITION will be held Wednesday, August 30.

GARSINGTON (OXON) VILLAGE FLOWER SHOW, Thursday, July 27.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY.—The first annual show will be held on Northampton race course, Thursday and Friday, September 21 and 22.

LIVERPOOL HORTICULTURAL ASSOCIATION.—The summer show will be held in Sefton Park, August 5 and 7. The chrysanthemum show will be held November 21 and 22.

WORCESTERSHIRE AGRICULTURAL SOCIETY.—An exhibition of Plants, Flowers, Fruit, &c., will be held in the show ground at Dudley, June 27, 28, and 29.

WANSTEAD HORTICULTURAL SOCIETY will hold its annual exhibition on Thursday, July 6, in the grounds of Forest House, the residence of W. Fowler, Esq., M.P.

THE CITY ROSE SHOW will, to suit the convenience of the leading cultivators, be held on Friday, June 30, instead of on the date previously announced.

ROYAL NATIONAL TULIP SOCIETY.—The exhibition for the present season will be held in the Manchester Botanical Gardens, in connexion with the great Whitsun Show, on Saturday, May 27.

COFFEE TREE FUNGUS.—It is stated that coffee enterprise in Ceylon is depressed to a degree never before experienced in that island, owing to many of the older plantations being largely affected by leaf-fungus.

INVENTIONS WANTED.—The *Scientific American* states that good machines are wanted for harvesting cranberries, and for separating rotten and frozen from the sound fruit, objects which transatlantic ingenuity has as yet failed to accomplish.

MR. JEWELL, who has long taken a very active part in all horticultural movements in Westerham and district, was a few days since presented by the Freemasons of Riverhead with a valuable American organ in recognition of the services he has rendered to the Amhurst Lodge, of which he is honorary secretary.

AN EXHIBITION OF DRAWINGS by Messrs. Birket Foster, P. H. Calderon, E. Crofts, F. Dicksee, R. W. Macbeth, and other artists who have been employed by Messrs. Cassell and Co. to illustrate their publications will be held in Belle Sauvage Yard, during the month of June.

DINNER TO MR. THOMAS MOORE.—Friends who have not secured seats for the dinner may do so on Tuesday next by mentioning the matter to Mr. Hibberd at the R.H.S. exhibition. The dinner will take place at Cannon Street Hotel, May 23, at half-past six.

NEW SINGLE DAHLIAS, raised by Mr. Moore, in the Chelsea Botanic Gardens, are the subjects of an attractive plate in the May number of the *Florist and Pomologist*. In the same number is a good coloured figure of Werder's Golden Reinette apple, an excellent dessert fruit of great beauty.

MECHI FUND.—The final meeting of the members of the Committee of the Mechi Fund has been held under the presidency of Mr. Samuel Morley, M.P. The money, amounting to nearly 5,000*l.*, has been invested for the benefit of Mrs. Mechi and family, in the names of the following gentlemen as trustees: Mr. R. K. Causton, M.P., Mr. A. Garrett, and Mr. W. H. Collingridge.

THE EXHIBITION ON TUESDAY AT SOUTH KENSINGTON and two days following (Tuesday, Wednesday, and Thursday) is likely to be in every way satisfactory. The charges to non-fellows are 5*s.* first day, 2*s.* 6*d.* second day, 1*s.* third day. Fellows who purchase tickets for their friends in advance will have 5*s.* tickets at 3*s.* 6*d.*, and 2*s.* 6*d.* tickets at 2*s.* The display of horticultural implements and appliances will be a special and very useful feature.

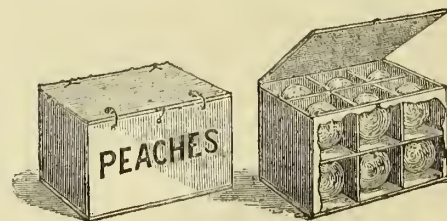
AN EXHIBITION OF ORCHIDS in the nurseries of Mr. B.S. Williams, Upper Holloway, is attracting many visitors daily. It is peculiarly interesting because of the many fine specimen plants included in it. Mr. Williams has determined not to send any of his plants away this season, but to concentrate his forces on the home exhibition. The result will be that for a couple of months or so from this time the nurseries at Upper Holloway will be visited by many pilgrims.

AN EXHIBITION OF GARDEN IMPLEMENTS WILL BE HELD IN THE AGRICULTURAL HALL, Islington, July 24 to August 5. It will be of the most comprehensive nature, and will include all inventions and manufactures that are, or can be, in any way associated with the garden. As a matter of course, heating apparatus, plant houses, fern cases, fountains, garden houses and seats, and water engines will be shown in great force. Particulars may be obtained on application to the Managing Director, J. H. Rafferty, Esq., or the Honorary Secretary, Mr. Shirley Hibberd, addressed Agricultural Hall, London, N.

PRIZES FOR ROOTS, VEGETABLES, AND CEREALS are offered by the Native Guano Company, Aylesbury, Bucks. These prizes are to be competed for at Aylesbury on Thursday, October 19th, and the produce exhibited in competition must be "grown with native guano." The classes comprise Mangels, Swedes, Turnips, Cabbage, Wheat, Barley, Oats, and Potatoes. In addition to the prizes offered by the company, Messrs. Sutton and Sons, of Reading; Messrs. James Carter and Co., of High Holborn; and Messrs. C. L. Perry, of Banbury, offer prizes for mangels and swedes. There are 59 classes in all, and the total of prizes amounts to £151.

"THE EXHIBITION AT REGENT'S PARK" on Wednesday was favoured with brilliant weather and a large company, the Princess of Wales and her children, with the Duke and Duchess of Teck leading the way, and giving a truly festive tone to the grand assemblage. Such a day and such a fête were needed as a kind of reopening of the season after the shock of recent horrible events, and a sense of most welcome relief was felt and expressed by many. These are dark times; there are abundant reasons for depression and disquietude; and the greater the need therefore that we should make the best of our opportunities in the interest of social progress.

BOXES FOR SENDING FRUIT BY RAIL are made by Messrs. Thomas Christy and Co., of 155, Fenchurch-street, London, in a simple but effective manner, and at a very cheap rate. These boxes are stout enough to withstand all the ordinary risks of travel, and



they may be packed with peaches or eggs, or other fragile goods, with a reasonable prospect of safe carriage. The interior is occupied with two trays divided into spaces, in which the peaches may be packed with paper, and rendered immovable. Other goods, such as eggs, may be packed in bran or dry moss, &c. The external arrangements comprise a simple mode of sealing to prevent pilfering.

FLOWERING TREES should be at their very best now, but we fear this will prove a disappointing season. The so-called scarlet chestnut is in flower in advance of the usual time, and in most places has a washed-out appearance. Laburnums are in many instances of a dirty white instead of a golden yellow, and the thorns often present a ludicrous appearance owing to the destruction of the leafage by the gale of April 29. In the late districts the apple bloom should now be very attractive, but the late orchards that we have seen are both bloomless and leafless, for what the gale spared vermin have devoured, both of the foliage of apples and of oaks. During the past week the night frosts have wrought considerable havoc, and the country is far less beautiful than is usual at this time of year.

Calls at Nurseries.

MR. B. S. WILLIAMS'S, VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY.

THE orchids which from the first have formed a distinguishing and most important feature of these nurseries, are now contributing in no small degree to their attractions, for in hot and cool houses alike is there a splendid display of bloom. The kinds requiring a strong heat for their successful cultivation and those thriving in the cool house are flowering so freely and produce such striking effects that it would be difficult to say which of the two classes are the most attractive. Happily there is no occasion for instituting comparisons, as in each class we have forms of great beauty and equally deserving of cultivation. There are so many odontoglossums and masdevallias in bloom that the structures devoted to the respective subjects present an exceedingly beautiful appearance. But many cultivators, particularly those who belong to the old school, will perhaps find most to interest them in the vanda house. Here we have a display of vandas that has probably not been surpassed. How many specimens there are in bloom we cannot say, but the number is large, and the most remarkable point in connexion with them is the profuse manner in which they are flowering and the unusual development of the flower spikes. *Vanda suavis* and *V. tricolor*, in variety, are particularly noteworthy, and of the spikes produced a very considerable number are quite two feet in length. The aerides and saccolabiums give promise of flowering equally well, and the increased production of bloom in the case of these subjects is attributed by Mr. B. S. Williams to the employment of a lighter shading material during the past two or three seasons than in previous years. At no time has so heavy a shading been used by Mr. B. S. Williams as by many growers, and in consequence, so it is believed, the flowering of these heat-loving subjects has been unusually satisfactory. This year they show a decided advance in this respect, and to fully appreciate the difference it is necessary to state that the comparison is made, not with plants in other collections, but with the flowering in previous years of those forming the collection at Upper Holloway. The canvas and tiffany, so much used for shading orchid houses and other plant structures, has been replaced by a very closely woven cotton netting with square mesh which effectually protects the plants from powerful sunlight without materially obstructing the light. In other structures we made note of a fine specimen of the distinct and attractive *Cypripedium caudatum* bearing five or six spikes, the flowers well developed and the sepals between two and three feet in length; *Cymbidium Lowianum* was represented by a good specimen, and in connexion with this striking orchid it may be mentioned that the spikes stand well in water and the flowers retain their freshness two or three weeks after they are cut. The recently-introduced *Cypripedium Lawrenceanum* was flowering in grand style, and for the information of those who are not acquainted with the species it may be mentioned that the foliage is so beautifully variegated as to render a good example extremely attractive even when not in bloom; *Cypripedium chloroneurum* and *C. politum*, two hybrids raised by R. Warner, Esq., which Mr. Williams is now distributing, must not be overlooked, for they are welcome additions to the list of Lady's Slippers, and bid fair to become popular amongst orchidists; *Vanda lamellata* Boxall, a very distinct form bearing white and brown flowers, was flowering finely, and if somewhat less attractive than *V. suavis* and other well-known kinds well deserves attention for the freedom with which it blooms and its quiet beauty. *Dendrobium Devonianum* and *D. Falconeri*, two of the most exquisitely coloured of the dendrobes, were in superb condition, and placed beyond doubt the fact that under good management they are by no means shy in blooming.

In the cool houses the well-known *Odontoglossum Alexandræ*, *O. Pescatorei* and *O. cirrhosum* were represented by scores of flowering specimens, and very beautiful was the effect produced. The examples of the first-mentioned species were remarkable for the large size and fine form of their flowers, and as they all formed part of the same importation they served to show how much finer are the varieties obtained in some districts than others. The richly-coloured *Masdevallia Lindeni*, *M. Veitchiana*, and *M. Harryana*, were in grand condition, in a structure adjoining that in which the odontoglossums had a place. Among the examples of the last-mentioned were several of a variety which might aptly be designated *Multiflora*, so freely does it bloom as compared with the species and its several other varieties. This freedom of flowering is not obtained at the expense of the size of the flowers, for these are in every way equal to those of the finest of known types.

The houses devoted to novelties contain plenty to interest, for in addition to the finest of the subjects introduced during the past two or three years, there are the novelties of the current season, all of which possess more or less merit. One of the most valuable of the novelties is the elegant *Aralia Chabrieri*, a very slender growing species with pinnate leaves about twelve inches in length, the leaflets very narrow, and from six to eight inches in length, and of a dark green colour, with rich crimson mid-rib. For the decoration of the dinner-table and the drawing-room it is of the highest value. Of a quite distinct character are *A. cochleata*, which has light green round leaves, and *A. nobilis*, a bold-growing species with large marbled foliage, resembling an artocarpus in appearance, and valuable for decorative purposes, and likely to prove useful for exhibition specimens. Notwithstanding the number of crotons in cultivation, the new forms introduced by Mr. B. S. Williams must have a word of welcome. *C. Dodgsonæ*, *Mrs. Dorman*, and *C. linearis* are three charming kinds with narrow leaves, the latter valuable for the dinner-table; and *C. Barton West*, *C. mirabilis*, and *C. Pilgrimi* are three bold-growing forms, useful alike for home decoration and exhibition. It may be added that all the kinds have richly-coloured leafage. The East Indian pitcher-plants are this season enriched by three new hybrids, which possess the distinguishing characteristic of producing in great profusion, and at an early stage, pitchers, large in size and rich in colour. The names of these are *Nepenthes atrosanguinea*, *N. coccinea*, and *N. Dormanniana*. A stove plant of special merit will be found in the Elvaston variety of *Stephanotis floribunda*. This differs from the ordinary form in its growth being shorter jointed, and in its much greater freedom of flowering. Short jointed as is the growth, a large cluster of flowers is produced in the axil of almost every leaf, and, as showing how profusely it blooms, it may be mentioned that the

plants forming the large stock at Upper Holloway were furnished with one or more trusses, although some of them were in sixties, and all were being grown on as rapidly as possible. To all classes of cultivators it will be found of service, but to none more so than to the grower for market, and the amateur with but little space for the cultivation of stove plants. Several new poinsettias have been secured, which are spoken highly of by those who have seen them in perfection. One has rich lake bracts, the second soft rose-coloured bracts, and of the third the bracts are scarlet and green, attractively mixed.

In the cool houses one of the most noteworthy subjects is *Imatophyllum minutum* *Marie Reimers*, which is perhaps the finest of all the varieties of this well-known amaryllid. The growth is robust, and the umbels of brilliant orange scarlet flowers range from twelve to eighteen inches in diameter, and a specimen bearing half a-dozen or so produces a striking effect in a competitive group. Owing to the great substance of the flowers, they are not readily injured in travelling, a fact which considerably enhances the value of the variety for exhibition purposes.

CATTLEYAS.

IF we hear less about the cattleyas than we do of the odontoglossums, the masdevallias, and other occupants of the cool house, it must not for a moment be supposed that they are less appreciated at the present day than they were in the past. It may be that the introduction of a new species or of a very distinct varietal form does not cause such a stir amongst orchidists as was the case some twenty years since. Nevertheless, a novelty of high-class merit is by no means overlooked when it makes its appearance. It may also be said that as a rule, when the collection of orchids is large enough to include the cool, the temperate, and heat-loving kinds, the cattleyas occupy a prominent position. It is also equally safe to aver that when a really well-flowered specimen forms part of a competitive group at an exhibition it invariably receives due recognition from the judges, and a full share of attention from the general body of visitors. There are perhaps some cultivators so bound up with the odontoglossums as to be unable to appreciate the merits of other genera, but they are comparatively few in number, and can be safely left to enjoy the beauty of the flowers of their special favourites. To dwell upon the manifold attractions of the cattleyas would be to take up valuable space unnecessarily, and instead of indulging in platitudes I would suggest to those who are commencing the cultivation of orchids the advisability of including a few of the best cattleyas in their collections. They are not only unsurpassed in attractiveness, but their massive habit and large, richly-coloured flowers form a pleasing contrast to the more elegant growth of the majority of the other kinds. By judiciously selecting, some portion of the stock may be had in bloom during the greater part of the year, the finest display being from November to the end of June.

To cultivate the cattleyas with a full measure of success a light structure of medium size is necessary, for to enable the plants to flower satisfactorily they must not only have a light position but be near the glass; especially is it necessary for them to be near the glass from the end of August until the following March, and at no time is it possible to do them full justice when they are packed close together on a flat stage in the centre of a lofty house. Span roof houses about twelve feet wide with side lights and a rather sharp pitch to the roof are well suited for cattleyas, as for many other orchids. The side stages should be about three feet above the level of the path and the side lights be about two feet in depth to afford head room for the plants. In houses of greater width a stage will be necessary in the centre, and this ought to have broad steps rising from ten to fifteen feet inches at each step to admit of the whole of the plants enjoying a fuller share of light than is possible when they are placed on a flat stage four or five feet in breadth. To give them still further advantages in the matter of light without the loss of a square inch of available space in the house, the plants may be placed from eighteen to thirty inches apart and the space between them filled with oncidiums and other kinds of a similar habit which do not require such full exposure. Cattleyas of small size can be raised above the other subjects by standing them on inverted pots of a suitable size. It is not necessary or indeed desirable to provide receptacles for water underneath the stages, for no more atmospheric humidity is required by cattleyas, *lælias*, and other genera that usually have a place in the intermediate house than can be supplied by sprinkling the stages and walls and pouring water upon the floor.

The whole of the species and their varieties may be grown in pots or baskets and a few upon blocks with or without a little sphagnum attached. But the only form that can with advantage be grown on blocks is the distinct yellow-flowered *C. citrina*, which from its peculiar habit appears to best advantage on a suspended block. The species which can be recommended for basket culture are *C. marginata*, *C. pumila*, and *C. Walkeriana*, which are of dwarf growth. All the other kinds should be grown in pots. Some years since I grew many of the species, including *C. Mossiæ* and *C. Skinneri*, in pans about five inches in depth and of a diameter proportionate to the size of the specimens. The pans were made with open sides for the admission of air to the roots, and the plants did very well in them, but not better than in pots, and as they had a much bolder appearance in the latter the pans have been discarded. Over-potting is decidedly injurious, and the greatest care should be taken that the pots are only just large enough to receive the plants and allow of the introduction of a moderate quantity of new material. The pots must, as a matter of course, be perfectly clean, and those previously used must have a thorough washing with a hard brush and plenty of water. The crocks ought also to be perfectly clean. Good drainage is imperative,

and pots of all sizes are filled to one-half their depth with large crocks, and it is a decided advantage for pots exceeding eight inches in diameter to have three or four holes round the sides, as the water can then more readily escape and the air circulate freely amongst the roots. For the roots there is nothing better than the toughest of peat from which most, if not all, the fine portion has been shaken away. Too much care cannot be taken in the selection of the peat, for if it becomes sour, as many peats will do in a very short time after it is used, the roots will not run freely in it and the growth will be unsatisfactory. The peat ought also to be broken up roughly for all but the smallest of the plants. Before placing them in the fresh pots as much of the old material as possible must be carefully removed from about the roots. When potted the base of the pseudo-bulbs should be from two to four inches above the level of the rim, and enough of the fresh peat must be placed on the crocks to raise the plants to the desired height. In filling in the peat about the roots add a few small crocks and pack it somewhat firm. The commencement of the season's growth is a capital time for repotting those requiring more root space or a renewal of the peat and for applying a surface dressing of peat to those requiring that attention. The last-mentioned operation consists in removing, with as little disturbance of the roots as possible, the old material from the surface and replacing it with new. A few kinds start into growth simultaneously with the development of the flowers, and these should be repotted or surfaced as soon as the flowers have lost their beauty.

Cattleyas, as compared with the oncidis, dendrobies, ærides, and most other genera, require but little moisture. A moderate amount of atmospheric humidity is beneficial throughout the growing season, and sufficient can be maintained by pouring water on the stages and paths once or twice a day according as the weather may happen to be dull or bright. Syringing overhead is injurious, excepting it be the lightest skiff in the afternoon when the weather is very hot; and the inexperienced cultivator will act wisely in not using the syringe at all in the cattleya house. Care must be taken in supplying water to the roots, and during the summer when they are growing freely the most thrifty examples will not require water more frequently than at intervals of from four to seven days. It will indeed suffice to maintain the soil in a moderately moist state only, and so long as it is in that condition no supply of water will be necessary. In the autumn as the plants are passing into the resting stage still longer intervals must be allowed between each application, and during the winter they should have no more water than is necessary to maintain the pseudo-bulbs and leaves in a plump state. From March until August they will require shading when the sun is shining, but the blinds ought not to be allowed to remain down longer than is necessary to protect the foliage from injury from sunlight. Some orchid growers shape their course as if they were afraid of a ray of light reaching their plants without its having first passed through a canvas blind, and in consequence the growth is weak, especially of the cattleyas, lœlias, and dendrobies, which suffer from an insufficiency of light. During the summer a temperature ranging from 65 deg. to 75 deg. will be the most suitable. In the winter a good range will be from 55 deg. to 65 deg.; but the nearer the temperature is kept to the mean the better will it be for the plants, and in very severe weather it may drop to 50 deg. with advantage.

The finest kinds at present in commerce, exclusive of those commanding high prices, are—

C. amabilis.—A beautiful species of rather robust growth, and bearing large pink flowers with crimson labellum. Flowering in summer it is well suited for exhibition.

C. citrina.—A distinct and pleasing species, with greyish leafage and lemon yellow flowers.

C. crispata.—A bold growing species, producing white flowers with crimson blotch on the labellum; and usually at its best about midsummer.

C. Dowiana.—A distinct and beautiful species, the sepals and petals yellowish buff, the labellum crimson, with yellow markings.

C. guttata.—An attractive autumn blooming species, producing rather tall spikes of flowers, which have richly spotted sepals and petals, and a white labellum with purple marking.

C. Harrisonia.—A handsome species of bold growth, producing towards the end of the summer large flowers of a rosy purple colour.

C. intermedia.—A fine species of medium height, blooming early in the summer, and bearing rose-coloured flowers with dark blotch on the labellum.

C. marginata.—A pretty little autumn-blooming species with medium-sized flowers of a deep rose colour; useful for baskets.

C. Mossiae.—The most useful of all the cattleyas blooming early in summer; it has a neat habit, is free in blooming, and the flowers are very attractive. There are many varieties and all are of great beauty.

C. Mendeli.—One of the finest of the species, and orchid growers may congratulate themselves on its being plentiful and cheap. The flowers, which are of a large size, have rose pink sepals and petals and a purple labellum.

C. pumila.—A small-growing species, resembling *C. marginata* in growth and colouring, and forming a good companion to it.

C. Skinneri.—A robust species producing a profusion of purple flowers, and admirably suited for the early exhibitions.

C. Triana.—A valuable species, flowering throughout the winter months. The large, handsome flowers are of a delicate pink colour with purple labellum. There are numerous varieties all more or less good.

ORCHIDOPHILIST.

SUMMER MANAGEMENT OF POT ROSES.

By J. C. CLARKE.

THE extreme value of forced roses, coupled with the high estimation in which they are held ought to obtain for them more care and consideration after they go out of bloom than they very generally receive. It is too much the practice in dealing with hardy plants that have been forced for early bloom to put them in some out of the way corner and leave them pretty much to themselves, sometimes neglecting them for several consecutive weeks. Pot roses should not be subjected to neglect when out of bloom; on the contrary, they ought to be well looked after, for it is impossible to obtain such a large number of flowers, or blooms of so good a quality from plants that have had to rough it at any stage as from examples that receive careful attention throughout.

In the first place they should be gradually hardened off, for when they are removed from the conservatory the new growth is much too tender for the plants to be exposed without injury. For my own part, I feel bound to say that throughout my long experience I have not achieved greater success in forcing roses than when I had a spacious turf pit in which to harden them off as they came from the conservatory and other structures. The pit was wide enough to take lights eight feet in length and of a suitable depth for affording the plants head room. At that time our first batch of roses were out of bloom by the end of March, and the pit made ready for their reception. In the bottom of the pit a bed of leaves two feet in thickness was formed, and in this the pots were plunged. From the time the first of the roses were placed in the pit until the end of May, the lights were allowed to remain on at night. During the day the ventilation was abundant, the admission of air being as a matter of course regulated by the weather. After the end of April the lights were removed on fine days. Due care was taken to avoid exposing the foliage to cold, cutting wind before it had time to become fully developed and hardened. A spacious pit or large frame made of any other material will do as well as a pit with turf sides. Shelter from cold, cutting wind and frost the plants must have, and if they can have a light airy position in a late peach house until the end of May they will be placed under conditions highly conducive to their welfare. Where there are large plants it is necessary that they should be placed in a roomy structure in which all parts of the plants can be fully exposed to light and air, and a late peach house answers admirably.

Having provided a suitable place for the plants until it is quite safe to place them out of doors, the next step is to provide summer quarters for them. In my opinion the best place for them during the summer is in a position fully exposed to the sun. The pots should be plunged to the rims in a bed of soil or coal ashes, the latter being preferable. They ought to have sufficient space between them to allow the sun and air to act upon all parts of them, as it is most important that the growth made in the forcing-house should be thoroughly matured. I advise plunging of the pots, because of the saving of labour in watering; plants in pots that are full of roots, and plunged to the rim require less water than those in pots standing on the surface. The water supply during the summer is a very important part of the management. The roots must have sufficient water, but the soil about them must not be kept constantly saturated or a serious attack of mildew will follow. It is a mistake to suppose that because the plants are quietly resting that they do not require nourishment, as such is not the case. In my own practice they are as much benefited by liquid manure of moderate strength when they are out of flower as at other times. Indeed it appears that a constant supply of some suitable stimulant is necessary to maintain a vigorous growth. When I now refer to my own practice it must be understood that my remarks apply to plants, of which many have been regularly forced early for fifteen years. Many of the roses I am now forcing were here when I came, and it is possible that some of them had been under pot cultivation at least five. From present appearances they will, if required, serve the same purpose for ten or twenty years longer. It may be useful perhaps to state that the majority of our oldest plants are upon the manetti and briar, and that none of them are in pots exceeding six inches in diameter.

The reference to the stocks renders it necessary to say that for pot culture one stock appears to be as good as the other. The manetti has the serious objection of sending up suckers very freely. To an experienced eye, perhaps the production of suckers is not of much consequence, but I would rather be without them. Some own root roses that have been grown in the same way as our other stock for the last twelve years are doing well, but there are some varieties that do not grow well on their own roots when in pots. It is also worthy of note that light roses do better in pots than dark ones. The best of the old roses that we have in pots are Alfred Colomb, Dr. Andry, Maréchal Vaillant, and Dupuy Jamin.

As the repotting of the plants properly belongs to the summer management, it may be needful to remind the reader that the shift should be given early in August. It is necessary they should be potted at this period to give them time to make new roots before winter. This is an important point, for unless the new roots have obtained a good hold of the new soil, early forcing of the plants ought not to be attempted. Excepting those in small pots it is not necessary to increase the root space. Our largest plants are in fourteen-inch pots, in which they have been for several years, and in these they grow quite large enough for conservatory decoration. But of course those requiring large pots should have them. No pruning should be done when they are potted except it be to shorten back the longest of the growths or to cut away any suckers that may have started from the stock.

The compost for pot roses should be of the best description. One prepared with three parts good turfy loam, one part thoroughly rotten manure, and a good sprinkling of coarse grit is the most suitable. When used it should be moderately dry to admit of its being pressed firm about the roots. Pots that are quite clean should be used if practicable, but when the same pots have to be used again they must be wiped out as clean as possible with a wisp of old matting. Perfect drainage is essential. The first few pieces of crocks must be packed very carefully, one large piece over the hole and others a size smaller round them, and over these must be placed a layer an inch in thickness of still smaller crocks. The larger the pot the more drainage is of course required. A twelve or fourteen inch pot will require two inches of crocks. About two thirds of the old soil should be shaken from about the roots, and in the case of old plants it may be desirable to shorten back one or two roots, but this must be done with judgment, for in this case it is better to prune too little than too much. The best place for them after they are potted is on the north side of a wall or fence. There they should remain for three or four weeks, and then be brought into the sun where they should remain until they are pruned in November. When the pots are not plunged they should stand on a firm bottom to prevent the worms finding their way into the pots.

EARLY FLOWERING PELARGONIUMS.

THE improvements effected in the early flowering or decorative pelargoniums of late years have been so great that they now form a group of immense value for the decoration of the conservatory during the latter part of the spring. Not only has the habit been made more compact, but the range of colours has been extended, the freedom of flowering increased, and the shape and size of the flowers has been improved. In many of the varieties, we have flowers equal in size and shape to some of the show varieties that are held in high esteem, combined with a short-jointed and free-branching habit and colouring of the most attractive character. With the good varieties have been introduced many of the most worthless character, but as very few of them have found their way into trade catalogues, it is not necessary to refer either to them or their raisers farther than to remark that the latter appeared to labour under the idea that thin petalled and ragged flowers were an indication of high merit in varieties required for adding to the attractions of the conservatory. Strongly impressed with the usefulness of the decorative varieties, I have no wish to see them usurping the place of the ordinary show flowers at the exhibitions, as there is some danger of their so-doing, for in an exhibition specimen we require something more than a mere mass of colour. In the conservatory, also, we ought to have, as soon as they can be produced, flowers remarkable for their fine form and well-defined markings. There appears some tendency on the part of those who grow for exhibition, and also of cultivators for home decoration, to confine their attention to the decorative section because of their greater freedom of flowering. Especially is this the case in the North, and at York, where the large-flowered pelargoniums are exhibited in immense numbers. Fully three-fourths of those staged belong to the early-flowering section. The proper course is to grow the last-mentioned for decorations from the early part of April until the middle of May, and the show flowers for continuing the display from the middle of May to the end of June, and for all exhibitions held after the second week of May. There is less occasion now to grow the decorative varieties in specimen form than was the case a few years since, for of late the raisers of show flowers have paid special attention to the habit of the plant, as well as the shape of the flower, and as the result many of the most recently-introduced varieties are as short-jointed and free-flowering as could be desired.

It may perhaps be well, in referring to the cultural details, to at once state that the period of flowering of the decorative section depends in a great measure upon the time of striking the cuttings, and the subsequent management. To secure an early display of bloom the stock must be propagated early enough in the season to allow of the plants being furnished with three or four side shoots, and becoming well established in the pots in which they are intended to bloom before the autumn is far advanced. There is no occasion to wait until the plants have been hardened off and exposed for several weeks before taking the cuttings. A certain degree of firmness is desirable, but with an ordinary degree of care the tops of the shoots may be struck as freely when taken from the plants standing in the conservatory as from those which have had the wood hardened by exposure. Cuttings of two or three joints each, with a firm base, are the most suitable, and shoots that furnish cuttings of this description should be taken advantage of for propagation purposes, even if a few trusses of flowers have to be sacrificed.

In preparing the shoots cut them clean through, immediately underneath the joint, and then remove the lower pair of leaves. Let the cuttings lay for an hour or two for the base to become somewhat dry, and then insert singly in small sixties filled with a light sandy mixture. It is a good practice to fill the pots moderately firm with the mixture, and then put a small heap of sand in the centre, so that when the hole is made a portion will run into it, and form a dry foundation for the cutting to rest upon. A warm pit is decidedly the best place for cuttings that are soft, as they necessarily are thus early, and if the pots can be placed upon, or plunged in, a mild hot-bed it will be a decided advantage. A light sprinkling of water will be necessary when the cuttings are first inserted. Afterwards no more water must be applied than is necessary to maintain the soil in a nice moist state, for if the latter is kept at all wet many of the

cuttings will damp off. A light skiff from the syringe daily when the shading material is removed will almost, if not quite, suffice until the cuttings are struck, when water may be applied freely without much danger. Shading from sunshine will be necessary, and the frame should have the lights tilted about an inch at the back during both the night and day, to maintain a pure atmosphere. Cuttings of soft wood require more care than those from well ripened shoots, and due attention must be paid to the several details mentioned.

Immediately the cuttings are struck they should be removed to a cold frame, and be lightly shaded for three or four hours in the middle of the day during bright weather. The ventilation of the pit ought to be liberal, and the water supply be increased to a moderate extent. When they are well established, and the pots filled with roots, shift into large sixties, and as soon as these are well filled, transfer to six-inch pots, and in these they should remain until after they have bloomed in the spring following. The compost for the early flowering, as for show varieties, should be substantial without being heavy or excessively rich. Probably the best mixture that could be prepared is one consisting of turfy loam six parts, and well rotted cow-dung, leaf-mould, and coarse silver sand, a part each. The loam ought to be used in a rather rough state, and the manure, leaf-mould, and sand be well mixed with it.

From the time the cuttings are struck, until the beginning or middle of September, a roomy pit or frame will be the most suitable place, and they should enjoy a free circulation of air, and have a little shading during brilliant sunshine. A moderate amount of stopping will be required to promote the production of side shoots, and as a rule they should be stopped twice. Sometimes three or four side-shoots will be produced after the point of the plant has been nipped out, and when this is the case no further pinching will be required. On their removal from the pit, place them near the glass, in a dry airy greenhouse, and supply moderately with water. In February remove to a warmer structure, in which a temperature of about 60 deg. is maintained, and in a very short time they will commence flowering freely. If they remain in the greenhouse the flowers will be produced considerably in advance of those of the show varieties, especially when the cuttings are struck early enough in the season previous for the plants to become strong and well established by the end of the summer. It may be added that two or three sticks will be required for tying out the leading shoots, to ensure well balanced heads of bloom, but when due care is taken to keep the plants near the glass, and the structure well ventilated, no training beyond this will be necessary.

Those who are desirous of working up a stock of decorative pelargoniums for next season, and have no plants from which to obtain cuttings, may be advised to purchase at once bushy examples of the desired varieties. Small plants in sixties would yield several cuttings, but examples in pots one size larger will be preferable. These should have the cuttings taken from them at once, and be then placed in a cold frame and kept rather dry. Two or three weeks afterwards prune the shoots back to within two or three joints of the base, keep rather dry, and as soon as they begin to break turn them out of the pots, shake away the soil, and return to pots of the same size. Early in August shift into six or seven inch pots. In other respects they should be dealt with in precisely the same manner as those raised from cuttings. Next season the latter must as soon as they go out of bloom be placed in a well ventilated pit for a fortnight or three weeks to harden, and then be pruned and repotted as advised for the stock bought in. "Cut-backs," as these plants are technically designated, may be had in bloom fully a fortnight or three weeks in advance of the "yearlings," as there is no occasion to stop the shoots. They must, however, be kept in rather small pots to check any tendency to luxuriance of growth.

The following are distinct in colour, highly meritorious, and will form a capital collection to begin with:—*Alice*, an attractive variety, the flowers rose crimson, with dark blotch on top; *Donna Maria*, bright rose pink, the upper petals feathered with maroon and the centre and margin white; *Miss May Gill*, a pleasing variety, with bright pink flowers, the top petals marked with dark maroon; *Captain Beattie*, bright red, with large maroon blotch on the top petals, flowers very large and attractive in colouring; *Defiance*, bright scarlet, with dark spot on the top petals, a telling flower of superb quality; *Duchesse de Morny*, rich rose, the centre white, and the upper petals blotched with maroon, a striking and beautiful variety; *Lucie Lemoine*, pure white, slightly veined in the upper petals with purple; very beautiful and of much value for supplying cut flowers as the veining is hardly perceptible. *Graham Bell*, dark crimson, the centre and margin white; a very distinct and handsome variety. *Prince Arthur*, rose carmine, the upper petals blotched with crimson, very bright and effective. *Mrs. Bradshaw Improved*, pure white with purple-crimson blotch on each petal. *Gloria Patrie*, pure white, the petals beautifully fringed, the upper ones with crimson blotch and the lower one veined with violet; a charming variety. *Volonte Nationale*, bright rose-crimson, with broad white margin, the petals fringed; very effective and most desirable in the smallest collection. *Duchess of Edinburgh*, white with purple blotches, petals fringed; one of the most valuable of the light varieties. *Madame Thibaut*, bright rose with white margin and centre and crimson blotches on the upper petals, one of the most beautiful of the decorative varieties. *Triomphe de St. Mande*, deep magenta crimson, the flowers large and produced in noble trusses; one of the most valuable of the dark kinds. *Princess of Wales*, rosy lilac, with white centre margin and veins, the upper petals marked with maroon. There are two early flowering varieties, and the best, which is here described, belongs to the Regal section.

MARKET GROWER.

TWO NEW TASSELLED FERNS.

THE two ferns figured are of considerable importance for their free growth, distinctness, and exceeding beauty. As they may be said to be as yet comparatively unknown, the figures will be the more acceptable to those of our readers who are desirous of obtaining the most ornamental ferns without regard to their geographical or botanical relationships. In Mr. Baker's edition of Hooker's "Synopsis," page 264, will be found a description of the normal form of *Lastrea obliquatum*, a species allied to *L. immersum*, but recognizable by its villose stems and fronds. In "Illust. Hort.," 402, appears the tasselled variety labelled *Aspidium obliquatum v. Germinyi*. This was obtained by M. Linden from Polynesia, and was exhibited at the Brussels Exposition in 1880, when it was greatly admired. The earlier plant named by Mettenius and included in the Synopsis was obtained from New Caledonia, but the tasselled variety now before us is from New Ireland, and is therefore more strictly tropical and in every sense a stove plant. It is exceedingly rich in leafage and colour, and forms a most sumptuous specimen.

The generic names will indicate the near botanical relation of these two ferns, but they are far separated in geography. *Lastrea Richardsi multifida* is less rich than the plant noticed above, but is of bold, decisive character, and may be allowed to remind us of the grand

catalogues under the respective designations of *alba*, *rubra*, *kermesina*, and *striata*. Now we have a whole host of types or varieties, and the cultivator who has no opportunities for making the acquaintance of the various forms as they are introduced is necessarily much perplexed in making out his seed list. Until very recently it was usual to meet with some such recommendation as "two colours—the red and the white will suffice for ordinary purposes" in papers on the cultivation of primulas. But those who consider two colours to be enough for the embellishment of the conservatory have dwindled down to an almost imperceptible portion of the community or they have thought it prudent to keep their opinions to themselves as it is a very rare matter to see such recommendations in print. Well grown examples of a red and white strain will of course produce a good effect in the conservatory during November and the three following months, but they will not equal in interest and attractiveness a display formed by half a dozen of the finest types now at the disposal of cultivators. Where primulas are grown for exhibition purposes less than that number cannot well be grown, for in a competition in which the plants are very equally matched in size and finish distinctness is an important factor. It is a question well worth considering whether it is not time that societies which offer prizes for primulas should stipulate that not more than two plants of one colour should be shown in the



LASTREA RICHARDSI MULTIFIDA.

Britisher, *Lastrea f. m. cristata*, as will be seen by the figure. This new and noble fern was obtained by Messrs. Veitch from Australia, and it has been several times exhibited in London. It is admirably figured in colour in "Flore des Serres," 2401, where regret is expressed that the history and diagnosis of the plant have not been published. It is a cool-house fern, and well adapted for planting-out in a good body of soil to develop its proper proportions; this treatment being greatly preferable to pot-culture.

CHINESE PRIMULAS.

In referring to these valuable decorative plants, it is no longer necessary to urge upon inexperienced cultivators the importance of being very careful in making purchases of seed, for there are now no really bad strains in the market. There is of course different degrees of merit, but according to my observations a strain that will not produce a good effect and afford satisfaction to the cultivator does not exist. Indeed the improvement in the Chinese primulas has within the past few years been simply marvellous, and it is questionable whether any other class of florists' flowers can show so marked an advance in so short a time. It was but yesterday, figuratively speaking, that we only had about four distinct types, the white, the crimson, the earmine, and the striped, which had a place in the seed

same collection. In conversation with some of the leading growers I have heard it suggested that exhibition collections should consist entirely of distinct colours. It is yet too early to impose that restriction upon exhibitors at the local shows as it would unduly tax the resources of many and prevent some very good growers taking part in the competition. The selection of varieties must first engage attention, and instead of stating that such and such are the best I will briefly allude to a few of the most important types in commerce and leave the cultivator to select from them according to his taste and requirements.

There are now numerous good strains of white primulas in cultivation, and it is difficult to make a mistake in purchasing the seed. I prefer one of the ordinary strains to either of those introduced under distinctive names. The most important of the latter are *Alba magnifica* and *The Queen*. The first-mentioned is a fine primula; it has a strong habit, produces flowers of large size, stout in substance, and beautifully fringed, and the trusses are very large, but the flowers have a slight drooping tendency, and bring into undue prominence the immense and much inflated calyces, and these, when the plants are seen from a short distance, impart a slight greenness to the flower-heads, more especially when the flowers begin to fall. *The Queen* also has flowers of immense size, but they do not appear to be borne in good trusses, and they are ungainly and wanting in refinement, as compared with those of an ordinary strain of first-class

quality. Both varieties are well worth growing in a collection, but their peculiarities prevent their taking the place of the strains with which we have so long been acquainted.

The dark strains comprise several that are comparatively new and of great merit. *Rubro-violacea*, which was raised at Ohiswick, and first distributed by Mr. B. S. Williams is very fine. The colour is a very rich shade of purple crimson, and the habit of the plant, the size of the flowers, and the boldness of the trusses render the variety one of the best of the *rubra* types. Exceedingly valuable also is Sutton's Ruby King, which has large, beautifully-formed flowers of a rich ruby crimson, and is very effective, although the trusses do not rise so high above the foliage as could be desired. Mr. Little has one or two varieties of the same style of colouring in which the trusses rise quite clear of the foliage, and valuable acquisitions they will prove; but as yet they are not in the hands of the trade. The bright scarlet variety, *Meteor*, raised by the gentleman last mentioned, which is being sent out by Mr. Williams, is a splendid addition to the high coloured flowers, for in it we have the brilliancy of colouring for which *Vilmorin's Red* is remarkable, and full-sized flowers of excellent shape. *Scarlet Gem*, introduced by Messrs. J. Veitch and Sons, has flowers of a bright vermilion red, and is somewhat lighter than the other scarlet varieties, and is exceedingly effective, especially during the winter months, when bright colouring is so much appreciated. Messrs.

distinct and pleasing. *Marginata* is an attractive variety with lilac flowers margined with white; and *Village Queen* is a pretty form, bearing flowers striped with rose on a pure white ground. The foregoing do not exhaust the list of good primulas, but they comprise those of the greatest excellence in their several shades of colour. We will now proceed to a consideration of a few of the more salient points in their cultivation.

The first point for consideration is the proper time for sowing the seed, and with reference to this it must be first stated that the sowing must be regulated by the time the plants are wanted in bloom. When the plants are required at their best in November and December, the seed should be sown as near to the middle of the current month as circumstances will permit. In raising a stock for flowering from the early part of January onwards June 15 is perhaps the most suitable date that could be fixed, I know of none better, and have no hesitation in recommending it. Sometimes a July sowing is advised, but generally speaking, it is not desirable to sow so late, for primulas are not wanted after the middle of March, and the smallest of the plants from the second sowing will afford flowers until that period. As is well known to experienced cultivators, the flowers of primulas do not stand the sun well, and the most effective and pleasing colours become dull and unattractive when the sun acquires strength in March. For the majority of gardens two sowings may be recom-



ASPIDIUM OBLIQUATUM V. GERMINYI.

Cannell and Sons have introduced two high-coloured forms of great excellence, and the best is that known as *Dr. Denny*. In this variety we have a brilliant shade of reddish scarlet, flowers of the largest size and the most superb quality, and fine bold trusses; to the exhibitor it is indispensable. The other of Messrs. Cannell's high-coloured flowers is *Swanley Red*, which, if not quite equal in quality to *Dr. Denny*, is so thoroughly good in every respect, that for general decorations it is simply invaluable. There yet remains to be mentioned *Carter's Holborn Gem*, which in colour marks a quite new break, and is of high quality. The plants in freedom of growth are equal to those of other types, the flowers are large and borne in good trusses well above the foliage, and the colour is a distinct and pleasing shade of azure blue. It is without question a valuable addition, and it well deserved the first-class certificate conferred upon it by the R.H.S. in January last.

Some of the light shades are exceedingly beautiful, and foremost amongst them is Sutton's *Reading Pink*, of which the flowers are of a bright salmon-pink colour, and form a pleasing contrast to the rich purples and bright reds. Sutton's *Rosy Queen* is a beautiful fern-leaved variety with rosy salmon flowers, and will doubtless be much appreciated by those who have a partiality for those with fern-like foliage. *Delicata*, sent out by Messrs. Cannell and Sons, belongs to the same class as the last-mentioned, and has splendidly-shaped flowers of a bright flesh-pink colour. *Lilacina*, introduced by the same firm as the last-mentioned, has rosy lilac flowers, and is at once

mended, one immediately and the other a month hence. Both sowings should be made in precisely the same manner, and shallow pans about twelve inches be used. Pots of a medium size may of course be employed if so desired. Whether pots or pans be employed, one-third of the depth should be filled with medium-sized crocks, which must have a covering of moss, cocoa-nut fibre refuse, or some other loose material that will keep the soil in its place. A good mixture for filling the pans is one consisting of mellow loam three parts, leaf mould two parts, and sand one part, and the loam should be broken up fine and have the leaf mould and sand well mixed with it. Press the soil rather firm, and make it quite level on the surface so that all the seed may be buried the same depth. Thin sowing is desirable, and the seed should have a light covering of fine sandy soil, and when this has been applied sprinkle with water. The pans should then be placed in a pit or frame which can be kept quite close and shaded until the young plants make their appearance. If the pit is heated a temperature of about 65 deg. should be maintained in dull cold weather. At other times the solar heat will suffice for the maintenance of the requisite degree of warmth.

Immediately the first seedling is visible remove the covering from the glass and shade during bright weather only, but at first it will be better to err on the side of shading too much than of too freely exposing them. A little air must also be admitted and the ventilation be gradually increased. As the plants become large enough to handle

lift them carefully and pot singly in small sixties and keep close and shaded until they have become established. From the small sixties shift into five or six inch pots immediately they are becoming pot bound and again keep rather close for a few days. The most suitable compost is one formed with three parts of fibrous loam and a part each of leaf mould, well rotted cow-dung, and sharp silver sand. The most suitable summer quarters will be a cold pit, and the ventilation must be liberal and shading applied in bright weather. In fine open weather during July and August it will be a decided advantage to draw the lights off in the evening and leave them off during the night. A position near the glass and moderate supplies of water are also points that must not be overlooked, and it may be added that the middle of September is a good time for removing the stock from the cold frame to the greenhouse.

W. B.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

IMMEDIATELY the bedding out is completed the owners of small gardens should commence the work of raising stocks of the most important of the hardy subjects for flowering during the spring and summer months of next year. The under-mentioned are particularly worthy of notice.

WALLFLOWERS.

When well grown there are not many hardy subjects flowering during April and May that can surpass the wallflowers. The principal points in their culture are, perhaps, to sow early, and give them a sunny position in which to make their growth. It is essential to have good strains, for the streaked flowers so common in gardens are singularly ineffective whether the plants stand singly in the borders or form masses in beds. The Dark Red of the trade catalogues, which has flowers of a rich maroon crimson, and Graham's Selected, bright golden yellow are the two finest strains for general cultivation. New Golden Tom Thumb is also a very excellent yellow-flowered strain, and rather dwarfier in growth than Graham's Selected. To obtain strong plants, from which alone a good display of bloom can be had, the seed must be sown not later than the first week of June, and it can be sown in the quarter where the plants are to remain until the autumn, or in a bed and the plants be transplanted as soon as they are of a suitable size. The latter plan is in some respects preferable, as it favours the production of fibrous roots, and the plants are in better condition for lifting in the autumn. When it is intended to transplant, sow the seed in shallow drills six inches apart, and to assist the seed to germinate quickly well water the drills previous to sowing. When the seedlings are an inch or so in height, transplant to nursery beds, and put them six inches apart in rows with a space of twelve inches between them. They should be well watered in, and be assisted with an occasional watering until they have become established. In raising a stock without transplanting, sow in drills twelve inches apart, and thin to six inches. Wallflowers should not have a very rich soil as a luxuriant growth is not desirable. Plants intended for small beds may have their points nipped out when about three inches high. Wallflowers may be propagated by means of cuttings struck under hand-glasses.

ALYSSUM AND EVERGREEN CANDYTUFTS.

The dwarf-growing Alyssum saxatile compactum is one of the most effective of yellow-flowered plants for marginal bands to beds and for the front lines of borders, and amongst white flowered subjects blooming in spring we have not many to equal the evergreen candytufts. They are not so readily propagated as some other plants employed for flower garden decoration, and this fact prevents their being so generally grown in quantities as their merits deserve. In most gardens the best way is perhaps to arrange them as permanent occupants of the front line of the mixed border. Cuttings of the young growth taken now and inserted in pans or boxes will strike freely if they are well looked after. The pans should be filled with a light sandy mixture, and when the cuttings are inserted they should be placed in a cold pit. They must be shaded in bright weather, and be sprinkled with water as often as may be necessary. When the cuttings are struck, plant them in nursery beds about six inches apart each way. As they will not be large enough by the autumn to be planted in the flower garden they should remain in the nursery beds until March, and be then lifted and replanted six inches apart in rows twelve inches distant from each other. In the autumn following they will be in capital condition for the flower garden. The most useful of the evergreen candytufts is, it remains to be said, Iberis sempervirens. The raising of a stock from seed is not attended with much trouble, and the seed, fortunately, is comparatively cheap. It should be sown in pans or boxes prepared in much the same way as for the cuttings, and the shelter of a cold frame is desirable until the plants are of a suitable size. The seedlings should be planted in nursery beds, and in the March following be lifted and put further apart as advised for the stock raised from cuttings. Old plants that occupy a place in the borders and are growing out of shape should, within a short time, have a little trimming with knife or shears to bring them into shape and keep them compact.

CANTERBURY BELLS.

The varieties of Campanula media, familiarly known as Canterbury Bells, form a most useful group for flowering in June, and are of immense value for mixed borders. They are not well suited for beds, as they do not last a sufficient length of time, but in the borders with other subjects they will be found exceedingly useful. The blue, the

white, and mauve forms of the ordinary type are all highly attractive, but the most effective are those known respectively as Campanula media calycanthema, and C. e. alba. The flowers of these are blue and white respectively, and the calyces are of the same colour as the bell-like corolla, which adds much to their beauty and effectiveness. The seed of the two last-mentioned varieties is now the same price as that of the ordinary forms, and is therefore cheap enough. The sowing of the seed is frequently deferred until too late in the summer for the plants to acquire their full strength by the autumn, and this delay should be guarded against. There is no better month in which to sow than June, and the earlier the sowing is made the more complete will be the success, provided other conditions are favourable. To save time and labour sow thinly in shallow drills and thin the plants when large enough to six or seven inches apart. They ought to be transferred to the beds or borders early in September to give them a chance of becoming well rooted before the winter sets in.

PYRETHRUMS.

This is not, generally speaking, the best time for planting the pyrethrums, but in many cases new plantations may now be made with advantage. The autumn is undoubtedly the most suitable season for planting on soils of an ordinary character, as strong plants put out then will produce a good display of bloom in the season following. On heavy soils losses occasionally occur after planting in autumn, and where the soil is heavy or not well drained the planting is most advantageously done in the spring and summer. For summer planting well established examples in pots are of course necessary, and they require the assistance of moderate supplies of water for ten days or fortnight after they are put out. Planted out at once and assisted to make a good start, they will bloom superbly in the year following. The single varieties are hardly less beautiful than the double forms, but as they can be readily raised from seed, those who have to be careful in their garden expenditure may be advised to purchase plants of the double varieties and seed of the others. In raising stock from seed it is simply necessary to proceed as advised for the alyssum and iberis. Seedlings raised this year will produce a splendid display two years hence.

HERBACEOUS PHLOXES.

Although the herbaceous phloxes are frequently recommended as suitable for growing in pots for the decoration of the conservatory, I must confess that I do not consider them suitable for that purpose. Their proper place is the mixed border, in which a good selection of varieties will, under favourable conditions, produce a most attractive appearance. I am induced to refer to them now because so few amateurs are acquainted with the fact that they may be readily raised from seed, and that the majority of seedlings produce flowers of superb quality. When there is a hot-bed and plenty of frame-room at command the seed should be sown in February or March, as spring-raised plants will bloom nicely in the summer following, but those who have only the convenience of a cold frame should sow in June. The best seed obtainable should be purchased and sown in pans, and placed in a cold frame. When large enough plant in nursery beds, and in September transfer to the quarters in which they are to bloom. A rich and friable soil is the most favourable to the growth of the perennial phloxes, and seedlings raised this season will bloom most satisfactorily next summer. Phloxes in small pots may be planted now, but it is better to plant them early in the autumn or in March.

The House, Garden, and Home Farm.

LOVE, TIME, AND DEATH.

Ah me, dread friends of mine,—Love, Time, and Death :
Sweet Love, who came to me on sheeny wing,
And gave her to my arms—her lips, her breath,
And all her golden ringlets clustering :
And Time, who gathers in the flying years,
He gave me all, but where is all he gave ?
He took my love and left me barren tears,
Weary and lone I follow to the grave.
There Death will end this vision half-divine,
Wan Death, who waits in shadow evermore,
And silent, ere he gave the sudden sign ;
Oh, gently lead me through thy narrow door,
Thou gentle Death, thou trustiest friend of mine—
Ah me, for Love—will Death my love restore ?

FREDERICK LOCKER.

THE HOUSE.

CAGE BIRDS will enjoy the fresh air now, but care must be taken not to put them in the full sunshine or in cold draughts. It makes one's heart ache to see the mistakes people make in putting cage birds where they must suffer much, and where perhaps their lives are in danger. "More offend for want of thought than offend for want of feeling." They must also be placed where the cats cannot reach them, or indeed come very near to the cages. The food supply must be liberal without being excessive. They should have fresh water daily, and the vessels be well washed out at frequent intervals. A saucer containing water should be placed in each cage every morning, or two or three times a week, to enable them to have a bath if so disposed.

THE GARDEN.

AZALEAS going out of bloom to have all the ill-placed shoots cut back, the trusses removed, the plants placed in a moderate heat liberally supplied with water, and frequently syringed. Camellias have mostly completed their growth now, and require to be hardened.

COCKSCOMBS for exhibition to have a good shift in rich light soil, and a little extra heat to promote new roots. They must have abundance of water to prevent green fly, which is sure to attack them if they are starved. As they fill their pots with roots give liquid manure.

CHRYSANTHEMUMS struck late to be potted off, and have a little bottom heat for a week or ten days, and after that to be plunged in beds of coal-ashes or coco-nut waste.

CINERARIAS, of which it is desired to obtain stock, to have a little sandy compost placed round them; the suckers will root into this, and when taken off may be put into thumbs singly at once. As they are cut down and moulded, place them in a cold frame, and shade from midday sun.

KITCHEN GARDEN.—Top broad and long-pod beans as they show flower, if attacked with black fly, earth up succession crops of peas and beans, and dust them with soot or wood ashes. Prick out winter greens of all kinds from the seed beds. Sow succession peas, prickly spinach, cauliflower, parsley, radishes, lettuce, and scarlet runners.

LETUCE.—Sow for succession where the plants are to remain, and plant out at every opportunity. Extra care must be taken now to shade and water after planting, to ensure a quick growth and prevent the plants running to seed. The larger cabbage lettuces will prove useful if sown now.

PANSIES.—This is a good time to strike cuttings for a good autumn bloom, and to secure pot plants of choice kinds to keep over winter for spring cuttings. The side shoots and very young tops of the leaders root quickest and make the best plants.

PEAS from late sowings must be earthed up, and those more advanced have sticks put to them immediately support becomes necessary. For succession, sow second early dwarf sorts, and if there is any prospect of a break in the supply, sow also a few rows of the earliest. It is a good plan now to prepare trenches as for celery, but less deep, and sow peas in them, as the trenches can be quickly filled with water in case of dry weather, and the vigorous growth ensured will be proof against mildew.

PINES for fruiting in autumn to have a bottom heat of 90 deg. by day and 70 deg. by night, with abundant moisture. Plants throwing up suckers to have liquid manure and every necessary attention. In too many instances they are neglected at this stage of their growth, and the consequence is that stock has to be raised from poor weakly suckers instead of the strongest that the plants can make.

STOVE.—This is the best time to propagate a supply of cannas, begonias, euphorbias, justicias, poinsettias, and other quick-growing soft-wooded plants for display during winter. Specimen plants to be assisted with liquid manure, and the shoots to be stopped of all shrubby and branching kinds. Justicias especially should be freely grown now, to have the wood well ripened for a good bloom at the turn of the year.

SUMMER SALADS will soon be in request, and must be provided for by timely action; the planting out of lettuces from seed beds, and the sowing of successional breadths of such things as radishes, onions, &c., will of course be attended to; but it will be remembered by many that about August there sometimes occurs a dearth of saladings. One way to get over this difficulty consists in sowing, at intervals of about a fortnight, short rows of lettuce seed, and instead of planting out, leaving them undisturbed, save that they should be thinned at every opportunity, to allow them more and more room as they increase in size.

VINES in cool houses to have the bunches again thinned, and the operation must be accomplished without handling the berries. Crops ripening to be kept rather dry, and with a temperature of not less than 90 deg. with sun heat, and 65 deg. by night.

THE HOME FARM.

TURNIP crops are of so much importance on farms chiefly devoted to live stock that every effort should be made to sow the several kinds on the most suitable dates. Field turnips comprise the green and purple topped Swedes, the latter being the most valuable, and several yellow turnips, of which the best are Golden Stone, Yellow Scotch, Green Globe, and Pomeranian. There are many selected strains in the market that are specially adapted to particular districts and purposes, as, for example, the Lincolnshire Red, which pays better than most others on a thin soil in a bad climate; the Red and White Tankards, which are especially useful for autumn feed; and the Yellow Tankard, a valuable sort for fattening sheep, which should not be sown until July, and is too tender to be left out after Christmas. In all cases enough seed should be sown—say 2½ to 3 lbs. per acre, for a thin plant will require as much hoeing as a thick one, and a frequency of blanks in the field tells tremendously against the aggregate of the crop, the cost of seed being in a certain sense nothing. In cases where there is any prospect of a scarcity of feed in the autumn it is good practice to sow now such quick growers as Golden Stone and Early Six-weeks, and wait until the usual time to sow the main crop of swedes. Turnip growing must be well done, and a good start is half the race in the turnip field. There is no crop that pays better for the use of artificials, and a decidedly phosphatic manure should be employed.

A NEW METHOD OF ANALYSIS, especially suitable for the examination of arable soils, has been communicated to the Belgian Academy by M. Peterman. A vessel is divided by a piece of membrane. On one side the soil is placed, on the other pure distilled water; by dialysis the following substances, which are the nutriment of plants, pass into the water: lime, magnesia, iron, potash, soda, chlorine, with phosphoric and other acids. The organic matters contained in soils are separable in like manner by endosmose.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—“By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame.”—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in Packets labelled—“JAMES EPPS & CO., Homeopathic Chemists, London.”—Also makers of Epps's Chocolate Essence for afternoon use.—[ADVT.]

Notes of Observation.

SHADING PLANT HOUSES.

THE shading of plant houses is now engaging the attention of both the amateur and the practical, for few plants that have a place in English gardens can be successfully cultivated under glass without some amount of shade during bright weather. Some plants of course require more shade than others, but upon the general question I do not intend entering; what I am now desirous of doing is to make a few suggestions that are likely to prove useful at the present moment. There can be no question as to the superiority of moveable blinds for shading most plants, but they are rather costly, and require frequent attention or the plants will be burnt up at one time and deprived of light at the other. When blinds are used, whether movable or fixed, they should be of a light colour, the dark green blinds which are used in some gardens are particularly objectionable, for they injure the plants by depriving them of light, and they give a dark heavy appearance to the house. A very light stone colour is perhaps the best. One of the most suitable textile fabrics that I have yet seen is that used by Mr. B. S. Williams in his nursery at Upper Holloway, for whilst effectually protecting the most delicate foliage from the sun, it presents but little obstruction to the light. It is a strong cotton netting, woven in squares, but the mesh is so small that it affords an efficient screen from brilliant sunlight. The material will evidently be found of special value for fixed blinds. Where movable or fixed blinds of some textile cannot be employed because of the expense, a good wash may be used. The best wash with which I am acquainted, and I have tried a considerable number of mixtures, is inferior to blinds, and it must be understood that the washes are recommended as substitutes. The mixtures I use are prepared by myself, and have been found so satisfactory that I can recommend them with confidence. A few years ago I tried a preparation for applying to the roofs of plant-houses which has of late attracted much attention, and it answered very well indeed; but it is too costly to use upon any but the smallest of structures. Two preparations are used in the gardens under my charge, one of which is green and the other a very light stone colour. Of the two I prefer the latter, but the green has a pleasing appearance, and is well suited for the cool and stove ferneries. The green shade is prepared with Brunswick green and skim milk. There are two shades of Brunswick green, and to obtain the desired tint we mix them together at the rate of one pound of the light shade to half a pound of the dark shade. To the mixture is added sufficient skim milk to reduce it to the consistency of thin paint. The milk must be added gradually as the stirring proceeds, as when a considerable quantity is poured on the pigment at once there is some difficulty in mixing it. It should be applied with a medium-sized painter's brush that has been but little used, and when the glass is dry. When the mixture is applied thinly and evenly and then lightly stippled with the brush it has a very pleasing appearance. A very excellent light wash is prepared with newly-slaked lime, whitening, and skim milk. The whitening and lime is mixed together in equal proportions, and enough milk is, as in the case of the green mixture, added to make it of the consistency of paint. This should be applied lightly and in fine weather, to give it time to become dry before exposed to rains. Both washes should of course be applied to the outside of the glass. The lime and whitening may be mixed with water, but the mixture will not adhere so well as when milk is used. Both washes can be readily removed in the autumn.

PRACTICAL CULTIVATOR.

PLUMBAGO CAPENSIS.

Large examples of this old and beautiful plumbago are so seldom met with either in large or small gardens that the huge specimen I saw the other day in the Church Walk Nursery, Stoke Newington, pleased me not a little. It was not only remarkable for its dimensions, but for its extreme vigour, and the profusion with which it was flowering. It is in a pot about twelve inches in diameter, stands between seven and eight feet in height, and from the rim of the pot to the top it was densely clothed with foliage of the richest green. It cannot be said that it densely flowered, because as a matter of course the flowers are cut and sent to market, but the plant bristled all over with flower buds; and having regard to the number of trusses in various stages of development I was not surprised to hear from Mr. Oubridge that he had been cutting from it freely since February. The point of special importance in the management of specimens is to keep them free from red spider and green fly, and this Mr. Oubridge accomplishes by syringing overhead and feeding the roots. The specimen is in fact syringed once or twice a day, and supplied frequently with liquid manure of a moderate degree of strength. The liquid manure used by Mr. Oubridge for the plumbago and other subjects grown by him is prepared by steeping cowdung and sheep's droppings in water. The manure is put in old potato bags, and then immersed in the water, and by this arrangement all the goodness is obtained from the manure without any risk of the liquid becoming too thick for use. When cowdung is mixed with water the sediment forms in a cake on the surface, and prevents the moisture soaking into the soil otherwise than at the slowest of rates.

VISITOR.

TULIPA GESNERIANA.

I am aware that your readers have on more than one occasion been advised to plant this tulip, but it seems to me that it cannot be recommended too often, for it is undoubtedly the most stately and brilliantly coloured of all the late-flowering varieties. I have some large patches in the front of a shrubby border, which are very attractive, and present a striking effect some distance from them.

LAURA L.—

MOUTAN PEONIES.

When visiting one of my friends the other day, I was particularly struck with an example of the Moutan Pæony he had in his garden. It had a place in a quiet nook on the lawn, and it was a very striking object, for it was furnished with no less than twenty-three fully expanded flowers. These, in contrast with the ample leafage, made a lasting impression on me. On inquiry I found the plant had been in its present position about nine years. The soil of the garden is rich and deep and the pæony was evidently thriving most satisfactorily. The fact that it is deciduous renders it unsuitable for planting in very prominent positions, but I am sure if there are any of your readers who do not grow it they may safely be advised to do so, as it is quite hardy, and will do well in any ordinary garden soil.

J. M.

LARGE v. SMALL GLADIOLI CORMS.

Experienced cultivators of the *Gladiolus* do not need to be told that medium-sized corms are more suitable for planting than those of large size. But it may be of service to point out this fact, for many growers when purchasing prefer the larger corms. In March last I planted several hundred bulbs in a long border, beginning at one end with the largest roots. Many of them were very large and to all appearance sound, but not more than 70 per cent. of them have grown. The smaller corms which did not exceed in size an ordinary filbert have grown at the rate of 90 per cent. What is of most importance, the small ones will, according to past experience, give as good flower spikes as the larger ones, but not quite so early. The overgrown bulbs are certainly not to be desired. Such I know is the opinion of the Messrs. Kelway, and my own experience in dealing with several hundred bulbs every year supports that view of the case.

J. C. C.

ONCIDIUM TERETIFOLIUM.

Numerous as are the good *oncidiums* in cultivation, *O. teretifolium*, which was shown at the meeting of the R.H.S. on May 9 by Mr. Spyres, is a decided acquisition, and well deserved the certificate conferred upon it. The flowers are rather small, but they are produced in rather large and very dense spikes, and they are of a rich yellow colour. A well-bloomed specimen, such as that exhibited by Mr. Spyres, presents a very effective appearance, and the species may be added to collections with advantage. G.

HARDY AZALEAS.

The splendid baskets of *Azalea pontica* *narcissiflora* and *A. pontica altaclarensis* exhibited by Messrs. J. Veitch and Sons this season have suggested to me the propriety of writing a note for the purpose of reminding cultivators how useful the hardy azaleas are for flowering under glass. The varieties of *A. mollis*, with their glorious orange, nankeen, buff, and pink flowers, may be had in bloom in April, with no more assistance than that afforded by a cold pit or house. When in flower there are not many plants that can surpass them in effectiveness, especially when the conservatory is large enough to admit of the exercise of taste in grouping them. The Ghent azaleas, to which the two varieties above-mentioned belong, have flowers of the purest white, most brilliant scarlet, the richest orange, and many intermediate shades, and several varieties are delightfully fragrant. They require but little warmth to bring them into bloom early. No preparation is required by either section, as it is simply necessary in the autumn to lift from the beds plants that are well set with bloom buds, and after potting them to place in a cold pit, where they can remain until removed to the forcing-pit.

HEAD GARDENER.

EARLY FLOWERING AZALEAS.

It is rather singular that the old *Azalea obtusa* should be so little grown, for although the flowers are of small size as compared with those of the kinds which usually have a place in the greenhouse, they are very attractive. The flowers are of a bright red colour, and they are produced in February and March without any forcing, and with the aid of a little artificial heat they can be had at Christmas. It would, however, appear that some of the raisers of azaleas have duly noted its free and early flowering characteristics, and employed it freely as a seed bearing or pollen parent. As the result we are having from various quarters new forms blooming freely and early, and producing medium-sized flowers of nice shape. Mr. Todman, of Bushey Down, Tooting, has, for example, raised numerous seedlings from this and other early-flowering species, and several of them were exhibited at South Kensington in January and February last. They were all of much merit, and will be much appreciated for winter decorations, but the plants were not quite large enough to secure for any of the varieties the recognition they so well deserve. *Azalea* Miss Buist, introduced by Mr. B. S. Williams, is a valuable acquisition amongst the early-flowering kinds, and is probably related to the above-mentioned species, and *A. Indica alba*. The growth is very compact and short jointed, the flowers are of medium size, waxy in texture, and of the purest white, and they are produced most profusely. With the warmth of an intermediate house it blooms freely at Christmas. Another particularly fine early variety is Mrs. Gerard Leigh, which has bright rose-coloured flowers. Amongst these selected by Mr. Todman is a variety with semi-double flowers of a brilliant red colour; this is known as Mr. Corbett, and when exhibited at Regent's Park in March last a certificate was conferred upon it.

SCOLOPENDRIUM VULGARE KELWAYI DENSUM.

The *scolopendrium* exhibited at South Kensington on May 9, by Messrs. Kelway and Son, under the name given above, is one of the most distinct and beautiful of the varieties of *S. vulgare* yet introduced to cultivation. It appears to be dwarf in growth, and the fronds are so finely cut and densely crested as to form compact globular masses of the most delicious verdure. It is quite distinct from other known ferns. The plants, although small, were exceedingly attractive, and gave a foretaste of the beauty of full-grown specimens. Seldom is a first-class certificate more thoroughly deserved than was awarded to this form of the Hart's Tongue. G.

THE PICK OF THE ZONALS FOR BEDDING.

As the bedding out is now in full swing, I would suggest to the practicals that the following zonal pelargoniums are well deserving of a trial. I have grown them all as bedders for some years past, and so far as my experience goes they are the very best of those in commerce for the decoration of the flower garden. But as soils exercise a great influence upon the zonals when planted out, I have thought it better to advise those cultivators who are unacquainted with them to grow a few for trial purposes before they plant them out largely. The "pick" consists of the following:—John Gibbons, Theocritus, Didon and Arago, various shades of orange scarlet; Havelock and Lord Gifford, deep scarlet; Henry Jacoby, Edward Sutton, and Wellington, deep crimson; Newland's Mary, Mrs. Fyfe, and Mrs. Turner, bright pink; Vanessa and Salmon Vesuvius, salmon; White Clipper and Snowdon, white. I have arranged them as near as possible in the order of merit in the respective colours, but all are good and have the merit of distinctness. With such superb varieties as these at command, and obtainable at a price which places them within the reach of the humblest amateur, I cannot understand why *Vesuvius* is almost the only scarlet zonal grown in gardens in which the summer bedders are put out in tens of thousands.

HEAD GARDENER.

Exhibitions and Meetings.

BATH FLORAL FETE, MAY 10.

BATH, with its parks and gardens, hospitals and hotels, colleges and schools, churches and chapels, public buildings and institutions, baths and fountains, streets and squares, terraces and crescents, qualifies to rank as the "Queen of English cities." Surrounded as it is by hills, studded with mansions on every available part, with splendid views on all sides, its situation is rendered most beautiful; and the pure soft air and the health-giving qualities of its mineral waters are sufficient to attract the tourist, cheer the invalid, and give repose to the overworked man of business. The amphitheatre of hills encircling the city present at all times the most varied outlines, and endless phases of light, shade, and colour. In one part bold eminences impend over low lying fields and gardens, while elsewhere a green and gradual ascent presents a widening prospect. The traveller from Oxford or London cannot fail to be struck with the beauty and grandeur of the panorama when first he emerges from the darkness of the Box tunnel (which is two miles long), and gazes on the scene spread out before him—broad fields, stately crescents rising tier above tier, handsome villas climbing the steep hill-sides, nestling amid groves of beech that flourish on the freestone soil—in every direction a blending of town and country. Did the traveller choose to alight at Bathampton and take his time, he could climb the steep cliffs at his left, and obtain magnificent panoramic views from Hampton Rocks, Sham Castle, Widecomb Hill, or Beechen Cliff; and having passed through the city on to the other side, still further and more comprehensive views might be had on Solisby Hill, or Landsdown, whose verdant yet very steep slopes are clothed by some of the finest parades, crescents, and terraces in England. Once on the top of Landsdown and the outlook is grand in the extreme.

But we are still south of the Abbey Church, our business confining our attention to the splendid horticultural display held in the Sydney Gardens. These gardens are leased to the Hanoverian Band Committee, whose zealous and praiseworthy exertions are regarded with much admiration by the citizens of Bath, who second their efforts by liberal subscriptions. Each year two fêtes are arranged, one in May and one in September, the latter being supplemented by a poultry exhibition, and, taken as a whole, the arrangements of both are perfection. Up to the present time, extending over a quarter of a century, the committee have enjoyed a successful career. On the above date, favoured by genial weather, a most successful exhibition was held, and thousands of visitors crowded the tents and gardens, which were formerly considered to contain sixteen acres. In the largest tent, 250 ft. by 40 ft., were arranged with artistic effect the

STOVE AND GREENHOUSE PLANTS.—In the class for twelve, Mr. J. Cypher, Queen's-road, Cheltenham, staged a remarkably noble group, every specimen massive, fresh and well flowered; it consisted of *Azalea Le Conquerant*, *A. elegantissima*, *A. Duc de Nassau*, *Clerodendron Balfourianum*, *Erica Cavendishii*, *E. magnifica*, *E. depressa*, *Aphelexis macrantha purpurea*, *Anthurium Scherzerianum*, *A. Scherzerianum Wardi*, *Stephanotis floribunda*, and *Franciscea eximea*. The second prize was awarded to J. F. Greswolde Williams, Esq., for superbly-grown examples of *Erica Cavendishii*, *E. ventricosa magnifica*, *E. v. coccinea minor*, *E. v. magnifica superba*, *Dracophyllum gracile*, *Franciscea calycina major*, *Anthurium Scherzerianum*, *A. Scherzerianum Wardi*, *Aphelexis macrantha purpurea*, *Clerodendron Balfourianum*, *Hedera tulipifera*, and *Azalea Criterion*. The third place was occupied by J. C. Hurl, Esq., who had clean but smaller specimens of *Clerodendron Balfourianum*, *Hedera tulipifera*, *Erica Cavendishii*, *Dipladenia Brearleyana*, *Azalea Gledstanesi*, *A. Oxonian*, *A. Prince of Orange*, *Hedera Hookeri*, *Acrophyllum venosum*, *Ixora Fraseri*, *I. floribunda nana*, *Stephanotis floribunda*, and *Aphelexis macrantha purpurea*. For nine plants the prizes were awarded to Mr. C. Gardiner, Mr. F. J. Mould, and Colonel Landon for well-flowered collections. In the class for six, E. E. Bryant, Esq. (gardener, Mr. Mould), College Road, Landsdown, Bath, presented very handsome examples of *Bougainvillea glabra*, *Clerodendron Balfourianum*, *Allamanda grandiflora*, *Polygala oppositifolia*, *Hedera Hookeri*, and *Rhododendron Veitchi laevigatum*; Mrs. West, second.

AZALEAS.—These are always a great feature at the Spring shows at Bath, classes being provided for twelve, nine, six, four, and one, and for twelve of the newest varieties; but the keenest competition is generally in the long numbers. For twelve, J. C. Hurl, Esq. (gardener, Mr. W. F. Biggs), presented a dozen examples which for uniformity of size, shape, and neat training it were hard to equal; every plant a clean pyramid, densely flowered and very fresh; the varieties were: *Criterion*, *Duke of Devonshire*, *Gem*, *Madame Ambrose Verschaffelt*, *Duchesse Adelaide de Nassau*, *Optima superba*, *Model*, *Stella*, *Sir C. Napier*, *Flag of Truce*, *Fascination*, and *Duc de Nassau*. The second card fell to Mr. J. Cypher for a dozen bulky pyramids clothed with superb bloom and foliage, and containing the following varieties: *Reine du Pays Bas*, *Vivid*, *Duc de Nassau*, *La Paix*, *Grandis*, *Charmer*, *Beauty of Surrey*, *Appolon*, *Triumphant*, *Stella*, *Cedo Nulli*, and *Hereules*, the majority of the specimens ranging from five to six feet through. For nine specimens, C. Gardiner, Esq., was first with creditable examples of *Iveryana*, *Stanleyana*, *Rei de Holland*, *Souv. de Prince Albert*, *The Bride*, *Charmer*, *Model*, and *Stella*; these were fine robust pyramids, and well bloomed. The second card went to Mr. J. C. Drummond. In the class for six and four, the specimens were but third rate; but for a single specimen several good examples were staged, C. Gardiner, Esq. (gardener, W. Long) was awarded premier honours for *Criterion*; the second prize being taken by Mr. W. C. Drummond with a fine plant of *Magnifica*. For twelve newest varieties, C. Gardiner, Esq., took the chief award for Neptune, Mrs. Turner, Sigismund Rucker, President Ghellinck de Walle, Daphne, Jehn Gueld Veitch, Mous. Joseph Lefebvre, Empress of India, Marquis de La Puente, Jean Nuyens Verschaffelt, and Souv. de Louis Van Houtte. The second card fell to Mr. W. C. Drummond for *Antigone*, Souv. de Louis Van Houtte, Empress of India, Comtesse de Kerchove, Louise Pynart, Madame Louis Van Houtte, General Steynham, Marie Vervaene, Jean Vervaene, Rembrandt, and Mme. Eugenie de Kerchove.

FINE FOLIAGE PLANTS occupied a large amount of staging. In the class for fifteen specimens, Mr. J. Cypher led with a fine group, including *Kentia Fosteriana*, *Gecoma pumila*, *Thrinax elegans*, *Lantana rubra*,

Thrinax barbadense, *Cordylino indivisa*, *Cycas revoluta*, *Yucca aloifolia variegata*, *Kentia Canterburyana*, *Croton fasciatus*, *C. majesticus*, *Geonoma gracile*, *Phormium Veitchii variegata*, *Cycas Normandburyana*, and *Dasyllirion acrotichium*. The second prize was awarded to J. F. Greswoldo Williams, Esq. (gardener, Mr. E. Tudgey), for grand examples of *Cordylino indivisa*, *Croton Queen Victoria*, *C. Hamburyana*, *C. Mortii*, *Pandanus Veitchii*, *Cycas Normandburyana*, *Geonoma princeps*, *Cycas revoluta*, *Thrinax elegans*, *Thrinax elegantissima*, *Kentia Australis*, *Cycas circinalis*, *Cocos Weddelliana*, and *Pritchardia pacifica*. The third prize collection was shown by Mr. W. C. Drummond, and contained neat though smallish specimens of *Tillandsia zebrina*, *Theophrasta imperialis*, *Dracaena Veitchii*, *D. indivisa Australis*, *Agave Americana*, *Hibiscus Cooperi*, *Alocasia metallica*, *Ananassa sativa variegata*, *Croton pictum*, *Scaevola elegans*, *Pandanus Veitchii*, *Araucaria excelsa*, and *Croton Weismanni*. For nine plants the honours were divided between W. H. Long, Esq., M.P., and Mr. J. F. Mould, Tewsey, Wilts.

SINGLE SPECIMENS.—The competition in these classes was keen; for ornamental, J. F. G. Williams, Esq., presented a noble *Cocos Weddelliana*; Mr. J. Cypher, second, with *Lantana borbonica*; for stove, premier honours went to J. F. G. Williams, Esq., for *Anthurium Andreanum*; the second place being filled by a large plant of *Anthurium Williamsi*, staged by Major W. Clarke; for greenhouse, Mr. J. F. Mould, secured the card with a finely-bloomed *Aphelaxis macrantha purpurea*, the second prize being awarded to J. C. Hurle, Esq., for a dense bush of *Hedera tulipifera*; for a henth, the last-named exhibitor carried off the palm for a sturdy specimen of *Erica Cavendishii*; E. E. Bryant, Esq., second for a bright-coloured plant of *Erica aristata superba*; while for a new or rare plant, Mr. J. Cypher, led with a quarter specimen of *Anthurium Scherzerianum Hendersonii*, the second card going to J. F. G. Williams, Esq., for *Anthurium Andreanum*. In this class we noticed plants of the following species, *Aphelandra Fascinator*, *Croton Prince of Wales*, *Scolopendrium vulgare Kelwayi densum* (a parsley-like fern of very dwarf habit, which secured the exhibitors, Messrs. Kelway and Sons, Langport, a first-class certificate).

CAPE HEATHS made a fine display. For six, J. F. G. Williams, Esq., took the card for dense bushes of *Erica Eximia*, E. Hartnelli virens, E. tricolor Wilsoni, E. magnifica ventricosa, E. mutabilis, and E. Cavendishii; Mr. J. Cypher, second, with E. Ventricosa minor, E. depressa, E. affinis, E. Victoria, E. aristata obata, and E. Ventricosa grandiflora; C. Gardiner, Esq., third, with E. Cavendishii, E. Ventricosa magnifica, E. perspicua, E. jasmiflora alba, E. eximia, and E. venosa superba. For three plants E. E. Bryant, Esq., led with three-quarter specimens of E. Cavendishii, E. depressa multiflora, and E. Ventricosa tricolor rubra; the second place being taken by a neat group from Colonel Landon of the following: E. Intermedia, E. picturata, and E. florida.

PELAGONIUMS.—Four classes were devoted to these showy, early summer favourites, and the collections were characterized by specimens of high cultivation. For nine, Mr. J. Cypher filled the post of honour with very large convex-trained specimens, full of flower, leafy, and quite fresh of the following well-known varieties, viz.: *Triomphe de St. Mande*, Mad. Thibaut, Kingston Beauty, Emperor of Russia, Duchess de Morny, Duchess of Edinburgh, Miss Bradshaw, Harlequin, and Edward Perkins; Mr. W. Geo. Garraway, Bath, second with Mrs. Ashby, Mrs. J. Hayes, Black Prince, Duchess of Bedford, *Triomphe de St. Mande*, Delicata, Earl Beaconsfield, Napoleon, and Kingston Beauty. For six, E. E. Bryant, Esq., who put up Mad. Place, Prince Arthur, Digby Grand, William Bull, Peacock, and Glorie de Belleville; Gen. Doherty second, with King Arthur, Glorie de Belleville, Florence Nightingale, Mad. Place, and Mad. de Lemoine; Mr. J. Matlock, Headington, Oxon, third, with Marie Lemoine, *Triomphe de St. Mande*, Duchess of Bedford, Duchess of Edinburgh, Digby Grand, and Belle Blanche. For six spotted or fringed, E. E. Bryant presented the best group, including Una, Eclipse, Rose Celestial, Duchess of Bedford, Conspicua, and Duchess of Edinburgh; J. C. Hurle, Esq., second, with Alladin, Chameleon, Glorie de Belleville, Conspicua, Vestris, and Beadsman; Gen. Doherty third, with Rose Celestial, Dr. Andre, Mary Hoyle, Lilacina, and Ariel. Only one group of fancies was staged, and that was very choice, a first being awarded to J. C. Hurle, Esq., for Godfrey Turner, Ellen Beck, Madame Sontag, Delicatum, Sweet Lucy, and the Shah.

HERBACEOUS CALCEOLARIAS were hardly equal to what we have seen at the Bath May Show in previous years; nevertheless there was a fine display, the dwarfest grown and richest coloured groups were staged by S. Butler, Esq., and Lewis Fry, Esq., M.P.

EXOTIC FERNS AND SELAGINELLAS were very fine, several groups being staged. For fifteen, the first card went to A. P. Stancombe, Esq., Mr. J. Kemp second, and W. C. Drummond third; for nine specimens, Major W. P. Clark first, and Colonel Sandon second, with well-known varieties.

COLLECTIONS OF BOUQUETS.—In this department Lewis Fry, Esq., M.P., E. E. Bryant, Esq., Mrs. R. T. King, and W. C. Drummond, took the cards in the order of their names for twenty-four bunches, in which the choicest of stove and greenhouse flowers were arranged.

TABLE DECORATIONS, EPERGNE, OR BASKET, were limited to half-a-dozen exhibits, Mr. Mark Hookins taking the premier honours for a most elegant arrangement, Mrs. Ellen E. Hudden a close second, and R. V. Leach third. Mr. M. Hookins also secured the premier award for a bouquet for the hand; there were seven beauties, Mrs. E. Thomas, second, and Miss A. P. Stancombe third.

ROSES, of which several fine boxes were staged, proved the centre of attraction the day through, Mr. J. Matlock, Headington, Oxford, occupying the post of honour for eighteen blooms, of which there were some grand specimens of *Souv. d'un Ami*, *Marechal Niel*, *Baroness Rothschild*, *Magna Charta*, *Devoniensis*, *Marie Van Houtte*, *Climbing Devoniensis*, *Bougere*, and *Marie Baumann*; the second card going to Mr. R. B. Cater, Bath, for *Marquise de Castellane*, *Comte de Paris*, *David Pradel*, *Baroness Rothschild*, *Madame Falcot*, *Souv. d'un Ami*, *Le Motte Sanguine*, *Duke of Connaught*, *Marechal Niel*, *Mad. Welch*, *Mad. de St. Joseph*, *Mad. Knorr*, and *Magna Charta*. Among other varieties staged, not named above, may be mentioned *Charles Lefevre*, *Mad. M. Cote*, *Duchesse de Valombrosa*, *Duchess of Westminster*, *Beauty of Stapleford* (good), *Jean Sisley*, *Mons. E. Y. Teas*, *Mrs. Bosanquet*, *Victor Verdier*, *La France*, *Princess Charlotte*, *Michael Saunders*, *Jean Pernet*, *Niphotos*, *Alfred Colomb*, *Belle Lyonnais*, *Glorie de Dijon*, and *Lady Mary Keith*.

TULIPS AND PANSIES are always shown well here and in quantity, the competition lay principally between Mr. H. Hooper, who scored first for six tulips and twenty-four pansies; A. T. Hall, who carries off the first card for twelve pansies, and second for six tulips; W. G. Meddick came in third for tulips and second for twelve pansies, beside a first-class cultural certificate for collections of tulips and pansies; Mr. H. Catley took the second prize for twenty-four pansies. Of the varieties of tulips and pansies we shall have a word to say on some other day.

PYRETHRUMS.—Single and double varieties were splendidly put up by Messrs. Kelway and Son, Langport, who presented no less than half-a-dozen blooms each in forty double varieties, and three each in fifteen single forms. Of these we shall hope to make a future note; a first-class certificate of merit was awarded.

MISCELLANEOUS.—Mr. H. Hooper staged, not for competition, stands of his splendid strain of pansies; a number of auriculas representing the several divisions of selfs, alpinas, and edged flowers; varieties of dwarf perpetual-flowering carnations; stands of carnations and picotees; blooms of seedling carnations "Duke of Beaufort" and "Nora;" blooms of bedding viola "Fore-runner," intense velvety blue; and pansy "New Colour," a grand circular flower of rich red bronzy chestnut hue, with large dark blotch. Mr. A. Walters, Kensington Nursery, Bath, staged a choice collection of anemones and ranunculuses; and, last, though not least, the box of geranium triple trusses in twenty-four varieties staged by Mr. E. Taylor, 56, Bathwick-fields, Bath, in the following varieties, viz.: Lizzie Brooks, Laura Strachan, F. Hughes, Aida, Lucy Bosworth, Samuel Plimsoll, Lawrence Heywood, Mrs. Musters, Miss Hamilton, Gustave Morlet, Mr. Edmonds, Jealousy, Mrs. Findlay, Evening Star, Jules Grevy, Mr. F. Barron, David Thompson, Sophie Birkin, Burns, Mrs. Wright, Remus, Henry Jacoby, and Gnome. Certificates were granted to several of the exhibitors in this class.

FRUITS formed a more than usually limited display. A small pine, from W. H. Long, Esq., M.P.; very handsome dish of Oscar strawberries, half-a-dozen pots of the same variety well laden with handsome fruits, S. Butler, Esq. (gardener Mr. Burridge), taking first prizes in both classes; three boxes of black Hamburg grapes, R. V. Leach, Esq., taking the card for small but well-finished bunches; S. Butler, Esq., first for half-a-dozen very heavy, firm, well-coloured fruits of Uvedale's St. Germain pears (of which variety there were several dishes). The dishes of apples were very numerous, Mr. F. J. Walker being placed first for a fine dish of Court of Wick, the second card going to W. G. Garraway, for Blenheim orange; the third prize was awarded to Mr. E. Hall for a very fine dish of Mela Carla; the other varieties were Orange Pippin, Norfolk Beaufin, Gooseberry Pippin, Cox's Orange Pippin, Wellington, Ribston Pippin, Golden Russett, Easter Pippin, and Red Hollandsbury.

VEGETABLES.—This division was well represented by collections and classes for cucumbers, mushrooms, beans, peas, asparagus, and potatoes. Of potatoes we noticed good samples of *Mona's Pride*, *Myatt's Prolific*, *Ashleaf*, *Beauty of Hebron*, *Shinar*, *Jefferson's Kidney*, and *Early Hamersmith*. Of the cucumbers, which were exceedingly plentiful, the Telegraph form predominated, while of peas Alpha, William the First, Sutton's Ringleader, American Wonder, and Sutton's Earliest, were the principal varieties, and the pods of all were fairly well filled.

In closing this account of the Bath Floral Fête, we must not omit to mention the courtesy extended by the officials to

Oxford.

WILLIAM GREENAWAY.

ROYAL BOTANIC SOCIETY.—FIRST SUMMER EXHIBITION, MAY 17.

The Royal Botanic Society held the first of its summer exhibitions on Wednesday last, and having regard to the number and great excellency of the various collections, the exceptionally fine weather and the large attendance of visitors, it may be spoken of as a great and unequalled success. As is customary at the early summer shows, stove and greenhouse plants formed the strongest feature, and, as affording some idea of the extent to which they contributed to the success of the exhibition, it may be mentioned that all the leading cultivators took an active part in the competition. Orchids were admirably represented; azaleas were numerous and good, and pot-roses were staged in splendid condition. Very attractive also were the collections of clematis, which afforded further proof of the great value of those subjects for exhibition purposes when skilfully handled. Pelargoniums were, regarded as a whole, below the average of the "Park" shows, although two or three very good collections were staged. Novelties were not wanting, and several very beautiful miscellaneous collections were staged.

STOVE AND GREENHOUSE PLANTS in bloom were in point of numbers and quality quite up to the average, and formed a most important part of the exhibition. The competition in the amateurs' class for ten was very severe, and the premier award was made in favour of Mr. Tudgey, gardener to J. H. G. Williams, Esq., Henwick Grange, Worcester, who had large and superbly-flowered specimens of *Erica ventricosa coccinea minor*, E. Cavendeshii, E. ventricosa magnifica, one of the most beautiful of the varieties of ventricosa; *Azalea Criterion*, A. magnifica, an excellent white variety for specimens, *Dracophyllum gracile*, *Clerodendron Balfouriana*, *Pimelia decussata*, *Francisea confertiflora*, and *Anthurium Scherzerianum*. Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley was a close second with a group in which were medium-sized but exceedingly well-flowered specimens of *Erica odora*, E. Cavendishii, *Hedera tulipifera*, *Aphelaxis macrantha roseum*, and *Acrophyllum venosum*. Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, third. In the class for six, in which the competition was limited to amateurs, Mr. Chapman was first and Mr. Tudgey second. The first prize group comprised well-grown and beautifully-flowered specimens of *Anthurium Scherzerianum*, *Ixora Dixiana*, I. Williamsi, *Aphelaxis macrantha purpurea*, *Azalea Iveryana*, and *Erica Cavendishii*. Mr. Tudgey had *Anthurium Andreanum* bearing four fine spathes, A. Scherzerianum Wardi, a superb form with immense spathes, *Clerodendron Balfouriana*, and *Erica ventricosa magnifica*. Mr. J. Childs, gardener to Mrs. Torr, Garbrand Hall, Ewell, third, with an excellent collection, in which *Azalea Iveryana* and *Bougainvillea glabra* were particularly good.

The leading exhibitor in the trade classes was Mr. J. Cypher, Cheltenham, who was first in the class for twelve with exceptionally fine specimens of

Erica depressa, *E. ventricosa magnifica*, *E. Cavendishi*, *Azalea magnifica*, and Jackson's Grand Crimson, *A. Holfordiana*, *Dracophyllum gracile*, *Anthurium Scherzerianum* Wardi, *Aphelaxis macrantha purpurea*, *Clerodendron Balfouriana*, *Stephanotis floribunda*, and *Bougainvillea glabra*. Messrs. Jackson and Son, Kingston-on-Thames, second, with a splendid collection, in which *Pimelia mirabilis*, *Erica affinis*, *Rhododendron Dalhousianum*, *Epacris Eclipse*, and *Clerodendron Balfourianum* were the most noteworthy specimens. Messrs. B. Peed and Son, Norbury Nursery, Streatham, were third. For six the exhibitors last mentioned occupied the first place with splendid examples of *Azalea Souv. de Prince Albert*, *Statice profusa*, *Ixora*, *Prince of Orange*, and *Hedera tulipifera*; Mr. Cypher second.

AZALEAS were numerous and good, and produced a splendid display of colour. For six, open to amateurs, Mr. J. Childs was first with *Model*, *Reine des Pays Bas*, *Iveryana*, *Criterion*, *Conzinnum*, and *Duchesse A. de Nassau*. Mr. George Wheeler, gardener to Lady Goldsmid, St. John's Lodge, Regent's Park, second with well-flowered specimens of *Charles Encke*, *Stanleyana*, *Magnifica*, *Extranei*, and *Punctata*. For six azaleas, in ten-inch pots, Mr. Ratty, gardener to R. Thornton, Esq., Sydenham, was first, and Mr. Child second.

In the great open class for twelve azaleas, Mr. Charles Turner, Slough, and Mr. Ratty were first and second respectively with collections of great excellence. Mr. Turner had medium-sized and densely-flowered specimens of *Duc de Nassau*, *Mlle. Marie Henriette*, *Duchesse A. de Nassau*, *Ferdinand Kegeljan*, *Reine des Fleurs*, *Estandard de Flandres*, *Roi Leopold*, *Stella*, *Souvenir de Prince Albert*, and *Mons. Cuvelier*, all of which are of a high order of merit in their several lines of colour. In Mr. Ratty's collection were *Homer*, *Duc de Brabant*, *Charmier*, *Reine des Pays Bas*, *Crottiana*, *Roi d' Holland*, and other good varieties.

ROSES in Pots were splendidly shown in the competitive classes by Messrs. Paul and Son, Cheshunt, and Mr. C. Turner; and in the miscellaneous class by Messrs. W. Paul and Son, Waltham Cross. In the class for nine the premier award was made in favour of Messrs. Paul and Son, who staged gigantic specimens superbly flowered and finished of *Marquise de Castellane*, *Beauty of Waltham*, *Dr. Andry*, *Cheshunt Hybrid*, *Anna Alexieff*, *Madame de St. Joseph*, *Charles Lawson* (not less than eight feet through), *Perfection de Monplaisir*, *Victor Verdier*, and *Madame Victor Verdier*. Mr. Mould, Pewsey, Wilts, staged a neat group of rather small bushes and was awarded the third prize. The competition was very close in the class for twenty, and the first prize was awarded to Mr. C. Turner for neat examples bearing from six to twelve splendidly developed flowers each. The varieties were *Victor Verdier*, *Mlle. Therese Levet*, *General Jacqueminot*, *John Hopper*, *Duke of Edinburgh*, *Madame de St. Joseph*, *Edouard Morren*, *Charles Darwin*, *Souv. d' un Ami*, *La France*, *Vicomte Vigier*, *Etienne Levet*, and *Madame Lambard*. Messrs. Paul and Son were second with examples of a similar size to those staged by Mr. Turner, and well flowered. The leading varieties were *Madame Margottin*, *Leon Renault*, *La France*, *Princess Beatrice*, *Madame Elise Taisson*, *Innocenta Pirola*, *Perfection de Monplaisir*, *Duke of Edinburgh*, *Ladame Lachame*, *Marquise de Castellane*, and *Egeria*. In the class for six open to amateurs, Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, was first with fresh and nicely flowered examples.

ORCHIDS were quite up to the average, and as usual received their full share of attention from the visitors. At the head of the trade exhibitors was Mr. James, Castle Nursery, Norwood, who was first for twelve with *Oncidium ampliatum*, *O. concolor*, *Masdevallia Lindenii*, *M. Veitchiana*, *Odontoglossum citrosum*, *O. Alexandræ*, *Cypripedium niveum*, *Dendrobium Paxtoni*, *D. nobile*, *Oncidium Marshallianum*, and *Cypripedium barbatum*; Messrs. T. Jackson and Son were a close second with a good collection, in which *Saccolabium guttatum*, *S. ampullaceum*, and *Vanda suavis* were remarkably fine. The finest collection of orchids in the exhibition was contributed by Mr. C. Coningsby, gardener to D. C. Dorman, Esq., The Firs, Sydenham, who was first in the amateurs' class for twelve. The collection consisted of *Odontoglossum citrosum*, *Cypripedium barbatum*, *Dendrobium thrysiflorum*, *Odontoglossum Alexandræ*, *Masdevallia Harryana*, *Oncidium concolor*, *Cattleya Skinneri alba*, *Odontoglossum Halli leucoglossum*, *Masdevallia Veitchiana*, *Cattleya Mendeli*, *Dendrobium Falconeri*, and *Odontoglossum vexillarium*, which was the most important specimen in the collection, for it was quite four feet in diameter and perfectly solid with bloom, hardly a leaf being visible; Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, second with a splendid lot; and Mr. A. G. Catt, gardener to W. Cobb, Esq., Sydenham, third.

FINE FOLIAGE PLANTS were grandly shown by Mr. Rann, who was first for six with immense and splendidly-coloured specimens of *Croton interruptum*, and *C. Hendersonii*, and well-developed examples of *Gleichenia Mendeli*, *Cycas revoluta*, *Latania borbonica*, and *Areca sapida*; Mr. Tudgy second; Mr. G. Wheeler third. In the corresponding class for trade growers Mr. J. Cypher, Mr. James, and Messrs. Hooper and Co. were the prizetakers in the order of their names.

EXOTIC FERNS were staged by Mr. Douglas, Mr. Wheeler, and Mr. Butler, St. Dunstan's, Regent's Park, and the prizes were awarded in the order of their names. Mr. Golder, Hampstead, staged six splendidly-grown specimens of *Adiantum euneatum*, and was awarded a large bronze medal.

GLOXINIAS were shown in capital style by Mr. Lambert, Mr. Ratty, and Mr. Griffin in the class for twenty-four.

PELAGONIUMS were on the whole much below the mark. Mr. Wiggins was first in the amateurs' class for six, and Mr. Hammond, Stamford Hill, second; and in the trade class, Mr. Cypher and Mr. C. Turner were first and second respectively. The varieties consisted chiefly of the robust growing market kinds.

CLIMATIS were grandly shown by Messrs. G. Jackman and Son, Woking, who were awarded the silver-gilt medal, and by Messrs. Richard Smith and Co., Worcester, who were awarded the large silver medal. The two firms exhibited about twenty specimens each, all of which were of grand proportions and splendidly flowered. The chief varieties in Messrs. Jackman's collection were *Alba Magna*, *Robert Hanbury*, *Mrs. G. Jackman*, *Madame Van Houtte*, *Bleu Gouin*, *Purpurea elegans*, *Excelsior*, *Countess of Lovelace*, *Lucie Lemoine*, *Princess of Wales*, and other fine varieties. Particularly good in Messrs. Smith's collection were *Lawsoniana*, *Lucie Lemoine*, *Mons. Lefebvre*, *Gloire de St. Julien*, *Verschaffeltii*, and *Princess Beatrice*.

MISCELLANEOUS CONTRIBUTIONS.—Messrs. J. Veitch and Sons were awarded the large silver medal for a beautiful group of Japanese maples

and cut flowers of hardy azaleas and rhododendrons. Messrs. W. Paul and Son were awarded the large silver medal for a collection of pot and cut roses, and medals of like value were awarded to Messrs. J. Laing and Co., and Mr. B. S. Williams, for collections of miscellaneous plants. A bronze medal was awarded to Messrs. Kelway and Son for a splendid display of pyrethrums and pæonies; to Mr. Rumsey for cut roses; to Mr. Hooper for pansies, and to Messrs. Carter and Co. for a collection of hardy plants.

NEW PLANTS AND FLOWERS.—Botanical certificates were granted as under: To Mr. B. S. Williams, for *Croton Baron Schröder*, a striking variety, the leaves long, slightly lobed, and of a rich green colour, with yellow centre; *Phalangium elegantissima*, a distinct plant of yucca-like aspect, the leaves marked with longitudinal bands of yellow; *Agapanthus umbellatus aureus*, a distinct variety with golden margined leaves; *Kentia costata*, a charming addition to this valuable group of palms; *Adiantum dolabraforme*, a dwarf slender-growing species with elegant pinnate fronds; *Pescatorea Klabbachorum*, a handsome orchid with creamy white flowers, marked at the tips of the petals with purple. To Mons. Vavaert, Ghent, for *Pescatorea Lehmanni*, a beautiful species recently described in these pages. To C. Dorman, Esq., Sydenham, for *Trichopilia Backhousiana*, a white-flowered species of great beauty. To Messrs. Kelway and Son for *Scolopendrium vulgare Kelwayi densum*, a very beautiful variety of dwarf growth. To Messrs. J. Veitch and Sons for *Acer polymorphum decompositum*, *A. p. linearilobum*, *A. p. ribesifolium*, *A. cratægifolium*, *A. japonicum aureum Veitchii*, all of which are extremely elegant in growth, and most valuable acquisitions, and for *Pratia angulata*; and to Messrs. Paul and Son for *Corylus aureus*, a handsome nut with bright yellow leaves.

Floricultural certificates were granted to Mr. Balchin for his new *Double White Mignonette*; to Messrs. J. Laing and Co. for *Caladium albo-luteum*, a distinct variety with yellowish leafage; *C. Ibis Rose*, a beautiful variety, the leaves pink, veined with red; *Begonia W. Bealby*, *B. Arthur G. Soames*, and *B. Marquis of Bute*; to Messrs. W. Paul and Son for *Rose Queen of Queens*, a grand hybrid perpetual, the flowers of full size, globular in form, and of a bright pink colour; to Mr. Rapley for *Calceolaria Cloth of Gold*, a herbaceous variety, with immense flowers of a bright canary yellow colour; and to Mr. Hooper for pansies, *General Garfield*, a striking variety of a rich blue-purple colour, and *Eclipse*, a handsome fancy variety, the colour rich bronze-red, with black blotch on the lower and side petals and golden centre.

THE POTATO CROP.

At this season of the year there is usually more or less excitement amongst potato growers, and it is not surprising, for it is a very critical time with the crop, a moderate frost being sufficient to do much mischief to the rising shoots. So far the potatoes have escaped, and if we do not have any frosts within the next few days there will not be much danger of the crop receiving any check at this stage of the growth. I am very glad to say that the potatoes which I planted first are coming away vigorously, for there has been no frost to nip the tops, and the terrible gale of April 27 did not injure them. This is all the more remarkable, for fruit trees and shrubs growing along side the potatoes had on the exposed side their leaves much blackened. It has been suggested in some quarters, as your readers are aware, that the rain which fell during the gale was heavily charged with salt, but had it been so or had there been a frost the potatoes also would have suffered. The injury to the tender leaves was caused simply by their violently flapping against each other. Peas fully exposed to the blast were not injured, probably owing to their being short or small leaved. The potatoes which are the most forward and looking best are *Matchless*, *Wiltshire Snowflake*, *Sutton's Prizetaker*, *Fiftyfold*, *Cosmopolitan*, *English Rose*, *Woodstock Kidney*, *Fillbasket*, *Beckenham Beauty*, *King of Potatoes*, *Vicar of Laleham*, *Purple King*, *Mr. Breese*, *Radstock Beauty*, *Bliss No. 13*, *International Kidney*, *American Purple*, *Bountiful* and *White Emperor*. *Blanchard* is vigorous, but as in former years, the haulm of several roots of this variety has turned rusty, the fibres at the roots being quite brown and with but little vitality in them. *Blanchard* is the only variety that shows this peculiarity. Last year it was perfectly healthy, but previously it had suffered more or less every year. My potatoes are not this year so forward as usual, for although we have had an exceptionally mild winter they were less sprouted at planting time than in previous seasons. In fact, several sorts still in their bins are not yet sprouted to the extent of an eighth of an inch. Another reason of their being somewhat later is that owing to the little rainfall we had during the winter, and looking to the chance of a fairly dry summer, I planted fully two inches deeper than usual. I planted deeper not only to enable the finer varieties to withstand the drought, but to have the tubers more free from scab. The mention of this may, perhaps, give rise to some discussion; but I will now state that according to my experience potatoes near the surface are in a hot summer more scabby than those sown deep in the soil. This applies also to the top tubers of the same root. The reason of this I shall not attempt to discuss in this note, and I should be glad to hear the opinion of other growers.

Penge.

PETER MCKINLAY.

LEPPING FOREST.—Mr. G. J. Micklewright, of 57, Salcott Road, Wandsworth Common, writes to the *Daily News* to point out that his father, the late Mr. G. Micklewright, "procured and sifted all the evidence in support of the claims of the Corporation on behalf of the inhabitants of the forest, and moreover, that he lost his life entirely through undermining his constitution in the work he had at heart; and further, that no notice has been taken of his services except by the poor people of the forest, who subscribed their pence and shillings towards erecting a monument to his memory."

No Toilet Soap ever introduced to the public has met with such deserved success as **WRIGHT'S COAL TAR SOAP**. It cleanses the skin, frees it from impurities, promotes its healthy action, and immunity from infectious disease, and last, and not least, washing with it is a luxury. Purchasers, to avoid disappointment, should refuse all imitations, which are not only useless but are positively dangerous. [ADVT.]

WHO WOULD BE WITHOUT LAMPBLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPBLOUGH, 113, Holborn, London. [ADVT.]

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Ridding, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by **BOULTON and PAUL** Norwich. Illustrated Catalogues sent free by post. [ADVT.]

MESSRS. J. CARTER AND CO.'S NURSERIES,
FOREST HILL, S.E.

THE cultivation of primulas, cinerarias, herbaceous calceolarias, and other choice florists' flowers for the production of seed now forms an important part of the work carried on in the extensive nurseries of Messrs. J. Carter and Co. at Forest Hill, and indicates in some degree the extent of the business done in flower-seeds by the firm. In January last we made a brief reference to the immense collection of primulas grown by the Messrs. Carter, and pointed out the characteristics of the several splendid strains of which it consists. Therefore at the present moment it is not necessary to do more than say that heavy crops of seed are now being ripened of all but that beautiful and important novelty, Holborn Gem, which does not appear to seed so freely as the crimson and white strains. Even of this form, owing to the large stock of plants, a good quantity of seed will no doubt be obtained at the end of the harvest. Those two splendid dark strains, Rosy Morn and Royal Purple, which have rosy crimson and purplish crimson flowers were bearing most satisfactory crops of seed with a few flowers here and there, which admirably showed their distinct and rich colouring and high quality.

The two most attractive features of the nurseries at the time of our visit a short time since were formed by Carter's Brilliant Prize cinerarias and Victoria compact calceolarias, two strains of the highest excellence, that are held in high repute by cultivators. The cinerarias were stout and compact in growth, and the flowers were of large size and of splendid substance and form. Not less satisfactory were the colours, for the crimson, the blue, and the purple selfs were as bright and rich as could well be desired, and the tipped flowers had grounds of the purest white, and the colours clear and sharply defined. The calceolarias, as indicated by the distinctive appellation, are also compact in growth, and in this respect differ widely from many strains in cultivation. The average height is about fifteen inches, the flower stems are particularly strong, and the flowers are so closely packed together as to form solid heads. The blooms, as in the case of the cinerarias, are of large size, and in them we have excellent form and a remarkable diversity of colouring, the spotted flowers being especially attractive. The selfs are worthy of note for their effectiveness, and conspicuous amongst them was the clear yellow form which, under the appropriate name of Cloth of Gold, has had two or three certificates conferred upon it for its excellent habit, the size of its flowers, and the richness of the colour. The uniformity of the immense number of plants of cinerarias and calceolarias is not less remarkable than the high quality of the flowers, a fact worthy of mention, as it shows in the most conclusive manner that much care and judgment must have been brought to bear upon the strains for many years past.

Coleus have during the past three or four years formed a special feature at Forest Hill, and the Messrs. Carter have introduced many highly attractive varieties of these free growing and richly coloured subjects. This season they are distributing a series of six very beautiful varieties raised by Mr. J. King, late of Wray Park, who, without question is the most successful of English raisers. These are *Ada Sentance*, a distinct variety, the leaves are unusually large, the centre bright carmine with purple blotches, and the margin green, veined with yellow and crimson. *Miss Simpson* is very effective, the centre of the leaves rosy crimson, the margin bright yellow. *Mrs. Steadall*, an exceedingly distinct variety of the most effective character, the leaves bright carmine red in the centre, with band of purple and narrow green margin spotted with crimson. *Edith Sentance*, a strong growing form, the leaves extra large, with crimson centre, which is enclosed with a broad band of blackish purple and a narrow green margin. *Miss Vaughan*, a beautiful variety, the leaves purple-carmine in the centre, with purple band and green margin, which are attractively veined with carmine and yellow, and *Mrs. John Pawle*, a robust grower with magenta crimson leaves margined with a narrow band of green. The first four have been certificated by the R.H.S., and all are so thoroughly good in

every respect that they will be found of the highest value for exhibition purposes as well as for general culture.

The new bouvardia, *General Garfield*, is likely to prove a most valuable acquisition. In growth and freedom of flowering it is similar to the well-known Alfred Neuner, the flowers are also double, and they are of a beautiful shade of pink. Alfred Neuner is now rapidly making its way into general cultivation, and from Messrs. Carter, who hold a stock comprising some thousands of plants, we learn that the market growers are taking it up with much spirit, one grower alone having been supplied by the firm with five hundred plants to start with.

Replies to Queries.

Names of Plants.—J. S.—The Bladder-nut, *Staphylea pinnata*. R. H. Johnson.—1, *Rubus acaulis*; 2, *Rubus canadensis*. R. E.—1, *Epidendrum aromiticum*; 2, *Bignonia equinoctialis*; 3, *Hedysarum candidum*; 4, *Alstromeria oculata*.

C. N. Q.—You may not legally remove a box edging. It belongs to the freehold, the same as a tree or a fence.

THE TABLES TURNED.

Dog Topsy, who felt puzzled where to lay
The litter she expected day by day,
Begged of a female friend,
For this occasion only, she would lend
Her kennel as a nursery: she consented,
And both were well contented.
After a while the friend, in terms polite,
Proposed to reassume an owner's right:
Still for a fortnight's grace the mother pleaded—
"A little longer is so greatly needed
To help us all;
Look at these darlings—they can hardly crawl."
Well, she succeeded.
The time soon passed, and still there was no sign
Of turning out; more plainly than before
The owner asked her lodger to resign
The borrowed quarters she could need no more.
This time the creature showed her teeth and said,
"I'm quite prepared to give up house and bed—
If you can turn me out." Her whelps, you see,
Had grown by this time quite as strong as she.

LA FONTAINE,

TRADE CATALOGUES.

JOHN FRASER, LEA BRIDGE ROAD, LEYTON.—*Bedding and Border Plants, New Roses, &c.*

E. G. HENDERSON AND SON, MAIDA VALE, W.—*Plants for the Conservatory, Hothouse, and Garden.*

E. GILLET SOUTHWICK, MASSACHUSETTS, U.S.A.—*Fifth Annual Catalogue of North American Perennial Plants.*

DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Catalogue of Bedding Plants.*

Obituary.

ON May 8, Mr. A. OLIVER, late gardener at Eslington Park, Northumberland, the residence of the Earl of Ravensworth. The deceased occupied the position of head gardener at Eslington Park fifty-seven years, and was in his 80th year at the time of his death.

WHAT AMOUNT OF SUFFERING COULD BE AVOIDED IF WE ONLY KNEW HOW.

IT is often remarked how many more people that formerly complain of feeling unwell. It is not that there is a greater amount of contagious disease afloat, for there is proof that the extent and strength of such are far less than of yore, because of better sanitary arrangements and greater attention to cleanliness and other matters. The enormous prevalence cannot be doubted of pains in the back, side, and chest, enervated and languid feelings, with loss of energy; distress and fulness of the stomach, with often a sense of deadly faintness at its pit, which eating does not stay; sick headache; so called biliousness, unpleasant breath; a sense of weariness when rising in the morning, with an unpleasant taste in the mouth; and the loss of appetite or non-enjoyment of food. These are but the mildest effects of "feeling unwell," and yet how great is the distress and suffering, with hindrance to business and pleasure, they give rise to! The cause is not far to seek: it lies in the stomach and digestive organs, which have become impaired to the distress of nearly all the other functions of the body. Assuredly could the stomach always be kept in well-regulated condition through life, it would tend to far greater longevity than is now the case. The stomach is a wheel within wheels, and just as an erratic tendency on the part of a small but still important wheel of a clock leads to the disarrangement of its whole function as a timekeeper, so does the failure of so important a wheel as the

digestive organs in the mechanism of the human frame, throw, by their impaired vigour or inaction, all the parts depending on them—and they are Legion—out of gear. Just as the wheel of the clock will require to be adjusted that accurate time may be kept, so must the impaired organs of the stomach be restored to their original vigour. Digestion must be promoted by increasing the flow and strength of the gastric juice, and this "Seigel's Curative Syrup" will effectually do. It will impart strength to the stomach, invigorate the liver, and impart tone to the bowels, to the greater enjoyment of life and health of all who use it, and that it is so may be tested by a perusal of the testimonials in an Almanack, which will be furnished free of charge to any applicant by the proprietors, A. J. White, Limited, 21, Farringdon Road, London, E.C. The Syrup can be obtained from any chemist or medicine vendor. Read the following:

Waterloo House, London Stile, Chiswick,
February 17, 1882.

Messrs. White and Co., London.

Gentlemen,—It is with great pleasure that I add my testimony to the wonderful effects of Seigel's Syrup. For years I had been suffering from bilious attacks, which began with giddiness, then a mist would come before my eyes, so that I should not be able to recognize any one or anything at the distance of a yard or two from my face. This would be followed by excessive trembling of my knees, so that I could not stand without sup-

port, after which a severe headache would occur, lasting often two or three days. I have tried various remedies for these distressing symptoms, but until I tried Seigel's Syrup I had no relief—since then I have had excellent health in every respect, and if ever I feel a headache coming on I take one dose of the Syrup, which arrests it.

Hoping that this testimonial may be the means of inducing others (who suffer as I used) to try the Syrup, as I feel sure they will receive speedy benefit and ultimately be cured, I beg to remain, yours faithfully,

A. H. HORTON.

St. Mary's Street, Peterborough,
November 29, 1881.

Sir,—It gives me great pleasure to inform you of the benefit I have received from Seigel's Syrup. I have been troubled for years with Dyspepsia but after a few doses of the Syrup I found relief, and after taking two bottles of it I feel quite cured.—I am, Sir, yours truly,

Mr. A. J. White.

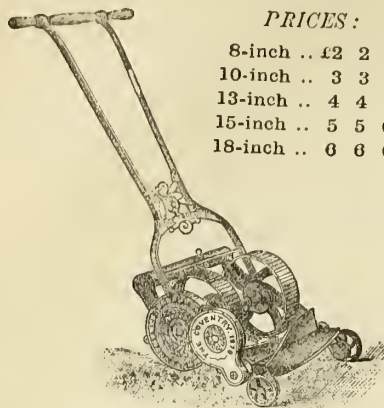
WILLIAM BENT.

Woodside, Aberdeen, September 9, 1881.

Respected Sir,—The sale of your Syrup continues with me most satisfactory, and just the other day I heard of a woman long ailing giving it all the credit of her recovery to health. Trusting a fresh circulation of your valued Almanacks will result in mutual benefit, believe me, Sirs, yours most sincerely,

Mr. A. J. White.

ROBERT HALL.



PRICES:

8-inch ..	£2 2 0
10-inch ..	3 3 0
13-inch ..	4 4 0
15-inch ..	5 5 0
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Awarded First Prize at the Sydney Exhibition, 1880. Awarded First Prize at the Melbourne Exhibition, 1881. Also Awarded Silver Medal at the Royal Horticultural Society, June, 1881, for collection of Garden Implements, Tools, &c., &c.

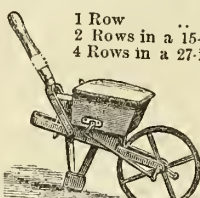
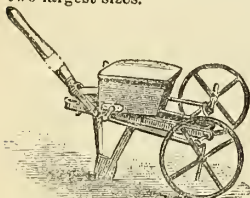
"THE COVENTRY" LAWN MOWER

(REGISTERED). MANUFACTURED BY
NETTLEFOLD and SONS,
54, HIGH HOLBORN, LONDON, W.C.

The great success which has attended "THE COVENTRY" LAWN MOWER during the two seasons in which it has been before the Public, enables the Manufacturers to recommend it with increased confidence as the best and cheapest yet introduced; for lightness and ease in working it cannot be surpassed. It has all the improvements which have of late been introduced into this class of Machine, either in England or America. It will cut wet or dry grass of any length, will turn in its own width, and is so light that a lady can use a 15-inch Machine of this make with greater ease than a 10-inch of the ordinary kind. It is made, as its name implies, at Coventry, by skilled English workmen, and of best English Steel and Iron. These Machines can also be supplied with ROLLERS at the same price, and with Grass Boxes at the following extra cost:—8-inch, 6s. 6d.; 10-inch, 7s.; 13-inch, 7s. 6d.; 15-inch, 8s. 6d.; 18-inch, 9s. each. Front Wooden Rollers for cutting verges:—8-inch, 2s. 6d.; 10-inch, 2s. 9d.; 13-inch, 3s.; 15-inch, 3s. 6d.; 18-inch, 4s. each.

ONE, TWO, FOUR, SIX, AND EIGHT ROW DRILLS.

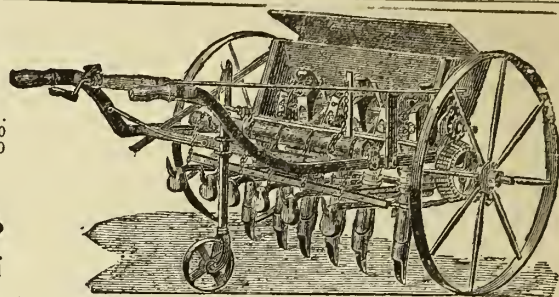
These Drills are similar, in most respects, to the Suffolk Lever Drills, but much lighter. They will sow Wheat, Barley, Manais, Swedes, Turnips, Onions, Parsnips, Carrots, Cabbage, Cauliflower, Vetches, Flax, Tares, or any other Farm or Garden Seeds. For Market Gardeners, Seedsmen, Small Occupiers, or Colonial Farmers, they will be found most useful Drills. They can be worked by a man and lad, or a pony or donkey could be attached to the two largest sizes.



1 Row ..	£ s. d.	6 Rows in a 30-inch width ..	£ s. d.
2 Rows in a 15-inch width ..	5 0 0	8 Rows in a 64-inch width ..	12 10 0
4 Rows in a 27-inch width ..	6 10 0		

1 & 2 WHEEL HAND SEED DRILLS

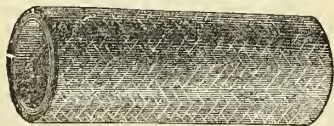
Will sow all descriptions of Farm and Garden Seeds. There is no spring and slide to get out of order and damage the seed, being worked by a Brush. The rows can also be put in at equal distances without a line, by using the Drill with 2 Wheels.



Price, with Two Wheels, 20s. each; with One Wheel, 16s. each; to Drill Two Rows at once, 35s. each. Illustrated Catalogue of Seed Drills, Expanding Horse Hoes, &c., of **FREDERICK BIRD and CO., 11, GREAT CASTLE STREET, REGENT STREET, LONDON, W.**

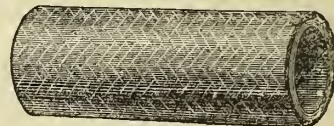
The New Patent Overspun Indiarubber Seamless and Pleatless

GARDEN HOSE.



UNEQUALLED FOR LIGHTNESS,
PLIABILITY,

STRENGTH, AND CHEAPNESS.



Its Lightness enabling easy handling of great lengths even by ladies or children.
Its Strength adapting it to all purposes where high pressure is applied and when other and expensive Hose was hitherto required.
Its Price making it the cheapest of its class now in the market.
Important Notice.—Dealers are cautioned to accept no delivery of Indiarubber Hose overspun either upon the surface of the Rubber or covered by it, as all such goods would be liable to confiscation.

This Hose can be obtained from all Nurserymen, Seedsmen, Florists, Ironmongers, &c.

Responsible Agents required in every town for the sale of this Hose. Liberal terms will be given,

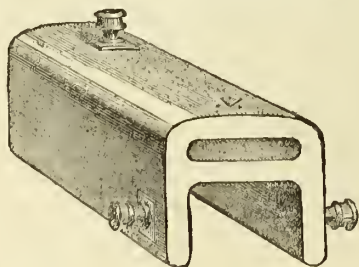
SOLE LICENCEES:

The IRWELL INDIARUBBER and GUTTA PERCHA WORKS (Limited).
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THE THAMES BANK IRON COMPANY,

Upper Ground Street, London, S.E.

Have the largest and most complete Stock in the Trade to choose from.



CAST IRON FLUED SADDLE BOILER.

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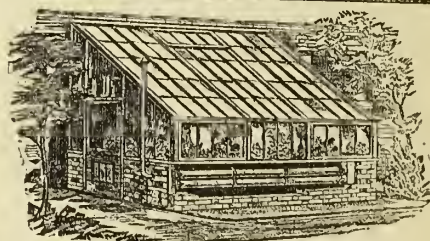
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.
			Rises.	Sets.	Before Noon.	Rises.	Sets.	London Bridge.	Liverpool Dock.	Morn.	After.			
1882	S	Whit Sunday. Pentecost.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882
28	M	Bank Holiday.	3 55	3 0	8 0	3 27	1 27	10 20	10 52	7 15	7 45	57.2	Adenandra fragrans, G.	1882
29	Th	Earl Spencer born, 1798.	3 54	2 53	8 1	4 35	1 49	11 20	11 47	8 17	8 45	57.5	Apheloxia macrantha purpurea, G. Deep flower.	118
30	W	Chalmers died, 1817.	3 53	2 45	8 2	5 44	2 15	—	0 10	9 12	9 35	57.9	Bougainvillea glabra, S.	149
31	Th	JUNE.	3 52	2 36	8 3	6 50	2 46	0 33	0 53	9 53	10 18	58.1	Erica hybrida, G.	150
1	Th	Nicomede. O Full Moon, 8b. 33m. after.	3 51	2 28	8 4	7 55	3 27	1 15	1 37	10 40	11 2	58.4	Erica tricolor speciosa, G.	151
2	F	Gordon Riots, 1780.	3 51	2 19	8 5	8 53	4 16	1 58	2 17	11 23	11 42	58.6	Iris peris matronalis fl. pl., H.	152
3	S	Prince George of Wales born, 1865.	3 50	2 9	8 6	9 41	5 16	2 38	2 53	—	0 3	58.8	Primula Sieboldi, H.	153

The Gardeners' Magazine.

SATURDAY, MAY 27, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s. EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

WEDNESDAY, MAY 31, AND THURSDAY, JUNE 1.—KINGSTON AND SURBITON HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, JUNE 1.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

THURSDAY, JUNE 1.—BORDEAUX.—Exhibition of Agricultural and Industrial Products.

COLLECTORS OF HARDY PLANTS appear to be ever increasing in numbers, and scarcely ever declining in proper enthusiasm. It is our pleasure, from time to time, to inspect gardens that have been formed by amateurs for the especial purpose of affording accommodation and means for the display of hardy trees, and shrubs, and flowers, and one conclusion is agreeably forced upon us as the collective result of these visits. It is made abundantly evident that in the round of horticultural pleasures the most healthy, most lasting, and most satisfying, is that which a genuine amateur derives from collecting and keeping ornamental plants of many kinds that prove to be capable of enduring the many trying climatal conditions to which they are subjected as permanent occupants of British gardens. The cultivator of hardy plants is, indeed, no monopolist of the gratification that attends successful horticultural endeavour. The amateur of orchids may suitably claim to divide delights with him; and the all round man, who has an appetite for anything that belongs of right to the garden, from an apple tree to a fernery or a cabbage plot, or a grand display of leaf embroidery, may also with propriety put in a claim, and say, "I also am happy." But the "hardy man" does in some sense stand alone in the enjoyment of his pastime. It is far reaching; it demands much knowledge, taste, and judgment; and therefore occupies high ground in the region of rural recreations. It is, moreover, as compared with some other horticultural hobbies, inexpensive, and may be made in some degree materially, as well as spiritually, remunerative. When prudently pursued the outgoings are balanced by the incomings, for they are not altogether sentimental, although returns under this head are of higher importance doubtless than those that can be measured by the commercial standard. An amateur who is in earnest does not count upon money gain when he embarks in the making of a garden, but it is well he should have substantial rewards to justify his labour and his outlay. He will not fail of these in the hardy garden, and indeed he will not proceed far without discovering that with all the disappointments incidental to gardening, he has here to encounter what our lively neighbours are wont to designate an embarrassment of riches.

In this, as in other things, there are limits to be defined and mistakes to be avoided, and distinct objects to be kept in view. A very common mistake of a beginner is the encouragement of a hunger for anything that is described as "hardy," and a greater hunger for anything described as "new." The catalogues of hardy plants contain the names of very many worthless subjects, and hence those who buy without due discrimination will certainly encumber themselves with much costly trash. Our friends occasionally complain that we do not "write up" this or that worthless weed that has excited a moment's rapture. In respect of a vast number of hardy plants of quite questionable merit, it is safer to say too little than too much, and we take care at all times that really useful things do not escape us. The passion for novelty is in the main

No. 891, NEW SERIES.—VOL. XXV.

chargeable with the overloading of the lists and the consequent accumulation in gardens of worthless plants. It would be far better to diminish than to augment the catalogues by cutting out plants that none can require, save the few who are omnivorous in appetite and very peculiar taste. The list of select hardy plants commenced in our issue for the 4th of April, 1863, and continued for some three years thereafter, was intended and served as a salutary check to the dissemination of the weedy trifles that men of broad views gladly consign to the rubbish heap. As regards "new" plants, indeed, the novice does not need them. There is no proper place in any garden for new things until it is sufficiently supplied with old things as to the merit of which there can be no dispute. The wise man will take care to be strong in old plants before attempting to make room for new ones, and when he has got the good old plants well into his head as well as his garden, he will be the better enabled to appraise the values of the latest inventions.

In every place, whatever its character, there is an opportunity afforded for a good feature of some sort or other. The very best gardening consists in developing the natural capabilities of the soil, the climate, and the surroundings. There are plants that love sand, chalk, clay, loam, and peat. But we never meet with all these soils in one and the same garden. To a certain extent a garden, whatever the soil or situation, is required to produce many things at a disadvantage. Those who are located on clay will nevertheless desire to grow asparagus, and those who are located on limestone may desire to have rhododendrons around them. There is much credit due to those who surmount difficulties for a purpose worthy of the effort, but there is no credit due to those who habitually crave for things that nature has denied them, and who incur much labour and expense in order to do something badly when they might with less labour do something well, and not less worthy of the doing. A very considerable proportion of all the best garden plants, including vegetables, fruits, and roots, may be grown on a great variety of soils, but nature does here and there draw defining lines of a somewhat severe character, and true wisdom suggests the noting of them for guidance in all labours and pleasures. The very first and the very last object of the owner of a garden should be to develop its capabilities to a point consistent with his means and tastes. A hungry sand will not suit roses, and a starving limestone will not suit rhododendrons, and a heavy clay will not suit many alpine, but all these soils are capable of producing something, and the true theory of action is to adapt the vegetation to the circumstances; in other words, to cut the coat according to the cloth. In the first instance the proceedings must be more or less experimental, but they need not be wastefully so, and there will be found as much pleasure in discovering what is possible and desirable, as in discovering also what it will be well to avoid or to handle with peculiar caution.

LEFFLEY (OXON) VILLAGE FLOWER SHOW will be held on Tuesday, July 25.

THE SUTTON ROSE SOCIETY will hold its first annual exhibition on July 7.

SOCIETY OF ARTS CONVERSAZIONE will take place at the South Kensington Museum on Wednesday, June 14.

ARISTOLOCHIA GOLDIEANA is again flowering in one of the stoves in the Regent's Park Botanic Gardens. It was figured at page 315 of our volume for last year.

THE MANCHESTER WHITSUN SHOW was opened yesterday, and will continue open until Friday next. The display is extensive, various, and brilliant, but the weather seems disposed to contend against complete success.

AT THE AGRICULTURAL EXHIBITION held at Port Elizabeth, Messrs. Sutton and Sons, of Reading, were awarded a silver medal for their collection of grasses, seeds, models, &c., this being the highest award for seeds.

A VISIT OF BELGIAN HORTICULTURISTS TO LONDON is expected about the 25th of June, in time for the Pelargonium exhibition on the 27th. At the meetings of council and committees of R.H.S. on Tuesday Dr. Masters stated that a party of about thirty persons, representing the School of Horticulture of Ghent, had determined to devote six days to visiting parks and gardens near London, and it was desirable they should be received and assisted in their pleasure trip by a few of our own representative horticulturists. Dr. Masters was desired to nominate a reception committee and to call a meeting in the course of a few days.

MR. WILLIAM BULL'S NURSERIES AT CHELSEA have been and still are very attractive in all departments, but more especially in the departments devoted to orchids. The odontoglosses are in great force; the masdevallias, vandas, and dendrobies are rich in variety and in fine specimens.

MELON WILLIAM I., which had a first-class certificate conferred upon it at South Kensington on Tuesday last, is a valuable addition to the list of scarlet-fleshed varieties, combining as it does beauty and high quality in an eminent degree. The raiser, Mr. Howe, of Benham Park, was granted a certificate for this variety at the autumn show of the Reading Horticultural Society in 1881. William I. forms a capital companion to Suttons' Hero of Lockinge, which obtained the premier award at the exhibition of the R.H.S., and it will perhaps interest cultivators to know that the entire stock has passed into the hands of Messrs. Sutton and Sons, of Reading, and will be distributed in due course.

THE ALPINE AURICULA.

By JAMES DOUGLAS.

I HAVE this year had a large number of letters, and also pips, sent to me of several strains of border auriculas. In each case they have been a coarse strain of Alpines. The petals have been notched, and in many instances there have been scarcely any dividing lines between the centre of the flowers and the margins. The Alpine auricula, as it has been defined by those who have studied it, and who are competent to judge, is divided into two classes—flowers that have deep yellow centres and those that have white or creamy centres. The former are most generally esteemed, as the rich maroon and reddish or crimson shaded edges contrast so beautifully with the rich golden centres. The Alpines are destitute of farina on any part of the flowers or foliage. The white-centred varieties are also very beautiful, and during the last few years many really good varieties have been raised and exhibited at the exhibitions of the National Auricula Society. The colours of these are generally of a lilac or purple tint, with maroon shading. The form of the flowers should be round and, if possible, without notches in the petals; but many of the named flowers have notched petals. We have not yet arrived at the same stage of perfection with the Alpine flowers as we have with the show auriculas. Mr. Charles Turner, of Slough, has been for a great number of years working upon the Alpine auricula with the object of raising new varieties from seeds, and he has been remarkably successful. His catalogue contains a large and varied collection, mostly of his own raising. The only two really good Alpines raised in the north that I know of are Diadem, from Mr. Gorton, of Eccles, near Manchester, and Mrs. Meiklejohn, raised by the veteran grower, Mr. Alex. Meiklejohn, of The Raploch, near Stirling.

The culture of the Alpine is not difficult; or rather, I would say, the plants do not require much looking after, for the culture of none of them can be said to be difficult, unless it may be that of some miffy varieties which happen to be of weakly constitution. There are a few of this character, which have been brought into a state of debility by injudicious treatment—mostly over-feeding—and a few more which are naturally weak. Alpine auriculas if they are grown in pots should now be placed in a shady position behind a north wall, where they would not get much sun until about two or three in the afternoon. They do not take up much room, and about once in two or three days they may be watered with the rose of a water-pot: a large collection may be watered in two or three minutes. The cultural requirements are of a very simple kind. They may be grown in two ways, either planted out in suitable positions in the open ground or in pots. If the garden soil is dry, light, and on a gravel substratum, the Alpine auricula will not thrive in it unless the place where the plants have to be put out has first been prepared for them by taking out the natural soil and replacing it with fresh loam from a district where primroses grow naturally; if it can be had, a little leaf-mould and rotten manure should be mixed with it. We have treated plants in that way, and they have done well, for many years; some few of them have been from ten to seventeen years in one place. They ought always to be planted in a partially-shaded place, as they would probably die off during the hot summer days if they were fully exposed to the sun during the greater part of the day. Their cultural requirements when they are grown in pots are much the same as those recommended for other auriculas. They are generally more free in growth, and are very easily propagated.

PRESENTATION TO MR. THOMAS MOORE, F.L.S.

WHEN it became known that Mr. Thomas Moore, who has been associated with the literary management of the *Gardeners' Chronicle* for some twenty or more years, was about to retire from editorial responsibilities, his friends determined to mark the event by an expression of personal and public regard. The result was the formation of a committee comprising one hundred and ten persons, many of them intimate friends of Mr. Moore, others unacquainted with the man but familiar with his labours, and more especially his important contributions to horticultural botany. The committee brought its agreeable labours to a close on Tuesday last at a dinner at the Cannon Street Hotel, Mr. Moore being the chief guest and in the place of honour.

Dr. Masters, F.L.S., presided. There were present: Mr. William Paul, treasurer of the presentation fund; Mr. B. S. Williams, of Holloway; Mr. William Bull, of Chelsea; Mr. Charles and Mr. Harry Turner, of Slough; Mr. George Paul, of Cheshunt; Dr. Kellock, of Stamford Hill; Mr. H. Cannell, of Swanley; Mr. J. Cutbush, of Highgate; Mr. G. Deal, of Messrs. Weeks and Co., Chelsea; Mr. Peter Grieve, of Bury St. Edmunds; Mr. W. Richards, of the *Gardeners' Chronicle*; Mr. E. J. Beale,

of Messrs. Carter and Co., High Holborn; Mr. J. Tegg, of Bearwood; Mr. J. Wills, of South Kensington; Mr. W. Hinds, of Dawlish; Mr. Forsyth Johnson, of Alexandra Palace; Mr. Kelway, of Langport; Mr. G. Jackman, of Woking; Mr. G. S. V. Wills, of Westminster College of Chemistry; Mr. John Cross, of Burton Crescent; Mr. Charles Mitchell, of Stoke Newington; Mr. Shirley Hibberd, secretary to the presentation fund, and others.

A substantial meal having been disposed of, and the usual loyal and patriotic toasts having been duly honoured, Mr. B. S. Williams proposed "The Prosperity of the Royal Horticultural and Royal Botanical Societies." He said those corporations differed in constitution and, to some extent, in purpose, but there always prevailed a spirit of mutual accommodation between them, and their joint exertions in behalf of horticulture were of great advantage both to their supporters and the country generally. He was sure all present would wish to see these important societies strengthened and supported by an ever-increasing constituency.

Dr. Kellock responded for the Royal Horticultural Society, saying that although the difficulties to be encountered at South Kensington were many and great, the society had accomplished an immense amount of good, and might be rendered more and more useful in the advance of horticultural science.

Mr. William Bull replied for the Royal Botanic Society. He said the governing bodies of the two corporations differed considerably, and he thought the Royal Botanic Society had the advantage of the difference. He thought there were two points of primary importance in the management of all such bodies; one was to secure a council suitable for the work, and comprising men who exercise a high social influence, and the other was to have a well-informed and energetic directing mind—in other words, a thorough manager. Everybody was anxious to support the Royal Horticultural Society, and this fact made more evident the secret of its weakness. In the general scheme of the management the society he was now especially privileged to speak for certainly had the advantage.

Dr. Masters, the chairman, then proposed the toast of the evening, "The Health of Mr. Thomas Moore," which was received with great enthusiasm. The learned chairman said his "elder brother," Mr. Moore, has claims upon our sympathy, founded alike on his many years of hard literary work and his readiness at all times to assist a brother in distress, or take charge of a great undertaking for the advancement of horticulture. Thirty years had passed since he first met Mr. Moore, and looking back he could say that he had never known him to change in his habits or sympathies; he was then, as now, devoted alike to the science he had done so much to advance, and those human interests that so often brought him into contact with his friends when some good cause demanded a patient worker. Calling to mind the busy times of 1866, he remembered how assiduously Mr. Moore then applied himself to the organization of horticultural energies, and how he then proved himself, as on many other occasions, a model secretary and a real man of business. As the curator of the Botanic Garden at Chelsea, he was the official descendant of the great Philip Miller, whose mantle had certainly fallen upon him. It would be compensation for the retirement of Mr. Moore from the joint-editorship of the *Gardeners' Chronicle* if he would now do as Miller did, prepare a gardener's dictionary; for such a book was wanted, and it would be no easy matter to find one so competent to the task as the present occupant of Miller's office at Chelsea. Mr. Moore possessed such an immensity of knowledge, he was accurate and withal so kindly communicative of that knowledge that it required somewhat of an effort to regard him as a specialist. But then they all knew that he was above all things learned in ferns, and his books upon that subject were of the greatest value and importance. As a judge of plants and flowers he made manifest another of his special acquisitions, for he was a thorough florist, and had produced what he (the chairman) believed to be the best code of judging flowers. He was both a maker of law and an administrator of law, and his decisions were never questioned. (Cheers.) Perhaps his qualities as a man were of more importance now that they had met to offer him a trifling compliment. It could never be forgotten that when there was a good deed to be done, Thomas Moore was always ready to do it. The small gift he would now ask his friend to accept was no measure of their admiration and esteem; it was but the straw thrown up to show which way the wind was blowing, and assuredly it was a kindly wind that blew the straw, and he would ask Mr. Moore to accept it, not for what it was, for it was nothing, but for what it meant—for the good feeling it was intended to express and the hearty wishes for Mr. Moore's health and happiness felt by them all. (Cheers.)

Dr. Masters then presented Mr. Moore with a silver salver and a purse. The salver bears the following inscription:—"Presented, with a purse of three hundred guineas, to Thomas Moore, Esq., F.L.S., F.R.H.S., &c., on his retirement from the joint-editorship of the *Gardeners' Chronicle* newspaper, by Friends who value his scientific labours and cherish remembrances of his constant devotion to Social Fellowship and Pure Philanthropy. May 23, 1882." The presentation was accompanied with musical honours.

Mr. Moore, on rising to return thanks, was greeted with prolonged cheers. He said he felt perplexed as to what he should say, for his friend the chairman had placed him in a difficulty by the warmth of his eulogy. One thing at least he could say, and it was that he fully appreciated the kind feeling that had prompted them to make this presentation; and he very heartily thanked the committee and the treasurer, and others who had taken measures to afford him so much gratification. It was known to them all that he did not often speak in public, and if his words were few, he was none the less conscious of the honour conferred upon him by the combined endeavours of his excellent friends. (Cheers.)

Mr. G. Deal proposed "The Health of the Treasurer," Mr. William Paul, which was received with enthusiasm and was suitably acknowledged. Mr. John Fraser proposed "The Health of the Secretary," Mr. Shirley Hibberd, who acknowledged the compliment. Mr. Wills, of the Westminster College of Chemistry, proposed "The Health of Dr. Masters," their chairman, which, having been honoured in bumpers, was briefly acknowledged. Mr. J. B. Brown proposed "The Ladies," for whom Mr. Cross responded. The health of the committee made an end of the toast list.

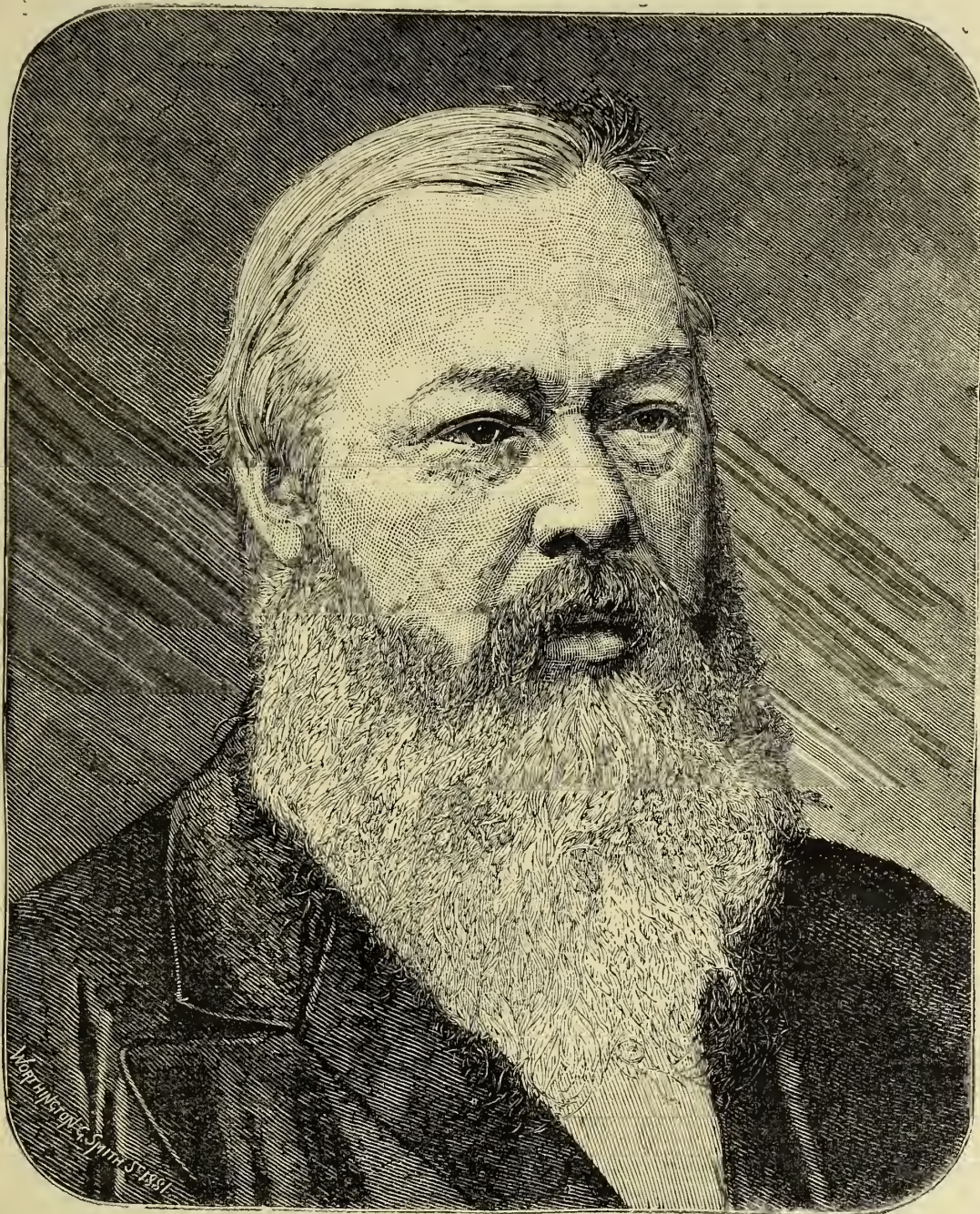
During the evening a few songs were sung by Madame Belval and Mr. Cross, and the reluctance of the party to break up made it pretty evident that they had enjoyed their merry meeting.

MR. THOMAS MOORE, F.L.S.

WITHIN a certain range of intellectual activities Mr. Thomas Moore is one of the best known men in the world, but beyond that range he is comparatively unknown, owing to the restrictions he has—by free choice we may be quite sure—imposed upon himself in respect of his own activities. Of his religious belief we know nothing, of his political bias we are equally ignorant, and we would not hazard any conjectures as to his views of men and things. He is a curiously reticent man, and if it were possible to blame him for being so—which of course it is not—we should find that he has made ample amends for all his natural reserve and reticence by the amplitude and perfection of his scientific work. Mr. Moore is above all things a substantial worker in horticultural botany and the higher departments of floriculture. He has had the good fortune to accomplish much original work, that will not only be valued in time to come, but has been valued from the moment of its production, while steeped in the turmoil of journalism and the bustle of making and managing horticultural exhibitions. When we

as a gardener, besides attaining to more than average knowledge and skill in certain of the higher departments. One of the books by which he is best known is his "Handbook of British Ferns," published in the same year as his appointment at Chelsea. This book has been many times reprinted, and in the midst of dozens of similar works—for in the present day every man who thinks he loves ferns also thinks he can write a book about them—it still stands alone, for the compactness of its information, its happy indications of typical characters, its comprehensiveness, and its accuracy. This, however, is one of the least pretending, though most useful of his works. His "Genera and Species of Cultivated Ferns," his "Nature-Printed Ferns," and "Index Filicum" testify more directly to his powers of analysis, grasp of characters, and minute practical knowledge of ferns, in which, indeed, amongst the horticultural botanists of the present day he stands alone like a Colossus.

In a circular issued in connexion with the recent presentation occurs the following summary of his activities: "Mr. Moore was appointed Curator of the Botanic Garden, Chelsea, in the year 1848, and has served the Society of



THOMAS MOORE, F.L.S.

reflect upon our friend's career, and note that it is next to impossible to discuss the merits of a fern or the place it should have in a scientific classification without considering first of all what he has said about it, we are filled with astonishment and admiration at the magnitude and completeness of the several labours he has accomplished. A versatile, diffusive, communicative nature must have fallen short, and very short perhaps, of the mark he has attained to, whatever the taste or power impelling it. He has reserved himself to some purpose, as his works do testify, and a certain neutrality of character is compensated by the positive soundness, breadth, and searching nature of his literary labours.

From *Men of the Times* we learn that Mr. Moore was born at Stoke-next-Guildford, May 29, 1821, and was appointed in 1848 curator of the ancient Botanic Garden of the Society of Apothecaries, at Chelsea, which office he still holds. For this office, however, he had passed through the best possible preparation, having mastered all the details of ordinary garden work

Apothecaries in that capacity during a period of thirty-four years. He was secretary of the Floral Committee of the Royal Horticultural Society from 1857 to 1865, when he was appointed floral director of the society at Chiswick. He was the principal acting secretary of the great International Horticultural Exhibition of 1866, and for several years examiner in floriculture to the Society of Arts and Royal Horticultural Society. He was secretary and subsequently trustee of the Veitch Memorial Fund; secretary to the Pelargonium Society, from its formation in 1874 to the transference of the secretaryship to other hands in 1881, and has had charge of many other undertakings of a similar character, or for the higher objects of promoting social fellowship and personal benevolence. The literary works by which he is best known are his *Handbook of British Ferns*; the *Nature-Printed Ferns of Great Britain and Ireland*; the *Index Filicum*; the *Field Botanist's Companion*; his joint editorship of the *Gardeners' Magazine of Botany*, and joint editorship of the *Treasury of Botany*; editorship of the

Gardeners' Assistant; and the *Florist and Pomologist*; and his contributions to the latest edition (now publishing) of [the *Encyclopædia Britannica*. To these labours must be added the joint editorship, during the last twenty years of the *Gardeners' Chronicle*."]

From the last-named appointment Mr. Moore retired recently, and during the past week his friends have marked their appreciation of his many services to science and humanity by a social gathering and a modest presentation. It is a comfort to know that although he is released from the toils of editorial responsibility, he has not doffed harness altogether, but is still in the field of labour he has marked out for himself, and enjoying the health and strength that are always needed for work of any kind, and doubly needed for the kind of work to which he is devoted.

Calls at Nurseries.

MESSRS. SUTTON AND SONS', READING.

As previously stated in these pages, Messrs. Sutton and Sons' nursery, immediately contiguous to the town of Reading, is devoted exclusively to the cultivation of florists' flowers, either for the production of seed or for trial purposes, and at all seasons of the year it is exceedingly rich in interest to those engaged in floricultural pursuits. At the present time the herbaceous calceolarias, of which Messrs. Suttons' strain is unsurpassed, are now at their best and produce a splendid display. The skill with which they have been cultivated is worthy of a vote of commendation, but the most important matter to cultivators of these attractive flowers is their high-class quality. The plants are vigorous in growth, and indicate that the constitution of the strain is exceptionally good, and they are so compact that very few sticks and ties have been required for the support of the great masses of bloom. Many of the plants have no supports whatever, yet the flowers are so even and form such solid heads, in some instances fully two feet over, that those not acquainted with the strain are not a little surprised to find they have not been most carefully trained. The flowers are of the largest size, and quite free from the indentations which disfigure so many of the strains in cultivation, and the colours are wonderfully diversified, and in all cases exceedingly attractive. Amongst the selfs are clear yellow, creamy white, deep claret, and brilliant crimson, some of the crimson selfs closely approaching scarlet. The spotted flowers afford an endless variety of markings, some having purple spots on a pale yellow ground, whilst others have a rich golden ground with the most brilliant red markings. There also are many intermediate shades both in the grounds and the spots, the latter differing widely both in size and shape in the various flowers. Such successful results would of course have only been accomplished by the most skilful and systematic labours extending over many years, and perhaps the best proof of the perfection to which the strain is brought is the fact, that although no "weeding out" has been done, there is not a bad flower in the immense collection.

Gloxinias, to which much attention has been paid by Messrs. Sutton for some years past, were not in bloom, but a peep into the several spacious structures devoted to them was by no means devoid of interest. In the houses were some thousands of plants, ranging from examples in small sixties to specimens, comparatively speaking, of gigantic proportions, and visitors to the nursery during the holding of the exhibition of the Royal Agricultural Society will have an opportunity of seeing the most splendid display of gloxinias that has yet been produced. Drooping and erect-flowered varieties are as a matter of course grown, and of these there are, in the matter of growth, two distinct types, one of which produces the flowers and leaves direct from the corms, and the other has a short stem. In the latter the stems are stout, about four inches in height, and have two tiers of leaves, one about half-way up, and the other at the top where the stem ends abruptly, the thickness being the same throughout. From the axils of the leaves of each tier the flowers are produced very freely, and as they are all developed at the same time they form exhibition specimens of the most striking character. These have drooping foliage of large size, but in the stemless type the leaves turn down and clasp the pot in such a way as to entirely hide it. The flowers are borne on short stout stems, and in size, shape, and substance, leave nothing to be desired; whilst the colours are much diversified and exceedingly rich. The Reading strains have, indeed, been brought up to so high a state of perfection that almost every plant raised from seed can be depended upon to produce flowers in every way

equal to the best of the varieties in cultivation under name. The large specimens are fifteen or sixteen months old, but the thousands of smaller plants, of which a considerable proportion are thrifty examples in five-inch pots, have been raised from seed sown early in the current year.

Tuberous begonias are also represented by a strain of the highest class, and it is evident by the crowded state of the hundreds of seed pots that, provided the seed is good and a due amount of care exercised, the raising of seedlings may be successfully accomplished by both amateur and practical cultivators. Many fail because of their allowing the soil to become dry during the process of germination, and some through keeping the soil too wet after the seedlings are up. If overdone with moisture at an early stage there is great risk of the young plants damping off, and to obviate this the pots are filled somewhat above the rim with soil, which is made slightly convex on the surface. It is thus impossible to over-water, but the plants require more frequent supplies. A few hundred plants were coming into flower, but the great bulk of the collection will probably not be in full bloom until August and September, when, as in previous years, they will contribute in no small degree to the attractions of the seed grounds.

In the frames, just ready for being planted in the quarters, were vast stocks of seedling petunias and verbenas, to which a brief allusion must be made, so different was the condition of the plants as compared with those elsewhere that have been raised from cuttings. Those particularly worthy of notice were the verbenas, for instead of the spindling plants so common on all sides, they were thriving examples, with five or six stout short-jointed shoots, and when planted out commence to bloom at once, and can be depended upon to continue in flower until the autumn. The seed was sown in February last, and the seedlings were first pricked off and then potted singly as soon as large enough. The raising of seedling verbenas is of the simplest character, and when the seed is carefully sowed, as in this case, the flowers will be of as large a size, good a form, and bright a colour as could possibly be desired for flower garden decoration. As a matter of fact, the finest displays of verbenas that we have yet seen have been produced in Messrs. Sutton and Sons' trial ground by seedlings, which alone are grown. One of the great advantages of the seedlings is their robust growth; and, as showing their vigorous condition, it may be mentioned that plants that had not been stopped at all were furnished with from three to five shoots each. Petunias were equally satisfactory, and, considering the high quality of the flowers produced by a good strain, it may be safely said that it is hardly less than a waste of time to renew the stock by means of cuttings. Seedling hollyhocks in the open quarters were growing with great vigour, and promise to produce grand spikes later on, a fact that must not be overlooked at a time when it is a work of extreme difficulty to obtain a few good flowers from plants raised from offsets, because of their extreme liability to the attacks of disease.

MR. H. HOOPER'S, WIDCOMBE HILL, BATH.

We were able, on the occasion of our visit to the Bath Floral Fête, to make a brief visit to the above nursery, an opportunity we had long desired, in order to see the floral treasures at the "western home" of the pansy.

To reach Widcombe Hill, the traveller from London or Oxford will arrive on the Widcombe side

of the Great Western Railway, and, having descended into the street, can cross the toll-bridge facing on payment of one halfpenny. This bridge, an iron structure, stands on the site of a wooden foot-bridge which, in 1877, on the occasion of the centenary show of the Bath and West of England Agricultural Society, fell, and thirteen persons were killed and about one hundred injured. Once over the bridge, you turn to the left, and passing Sussex Place on the left and Widcombe Parade on the right, you climb a steep incline, past a fine Gothic church; a few paces beyond stands the nursery, exactly opposite a fine row of villas known as Widcombe Crescent. The nursery stands on the brow of the hill, and contains a good general assortment of nursery stock, although the subjects which receive special attention are herbaceous perennials, carnations, pinks, picotees, phloxes, pansies, hollyhocks, anemones, tulips, polyanthus, pyrethrums, roses, and gladioli, &c. The nursery grounds occupy about three acres, the greater portion of which is devoted to the culture of the pansy. In our walks in and out among what might be described as a maze of blue, yellow, cream and mulberry, we jotted down the names of some of the best of the varieties of the present year.

To our mind many of the named varieties appeared so nearly alike as scarcely to warrant their being sent out as new varieties; yet, on closer inspection, there was generally an improvement either in the marking or

size of the flower or the habit of the plant. We were much struck with a dwarf bedding pansy, *Mrs. Laing*, the distinct character of which will make it popular; it is a fine round flower, cream, with purple markings. *Lady Rosebery*, also a bedder, is most distinct; a clear lavender, with dark blotches; and *Sylph*, amber-yellow; these were the best of the varieties of the present year among the bedders.

The greatest strides during the past few years have been in the direction of the "fancy" section, and most lovely are the forms and markings: the new varieties in this section are as two to one of the show kinds. Of the new forms belonging to the latter class we selected as being very rich in colouring and of fine circular outline the following: *Zulu King*, crimson-lake, very large, pleasing; *Maréchal Vaillant*, purplish crimson, yellow eye, smooth outline; *Aurora*, bronzy purple, yellow ground; *Forerunner*, fine form, dark velvety blue; *Governor General*, yellow, dark purple belt, distinct blotch; *Macbeth*, yellow, crimson belt, dense blotch; *Mrs. Llewelyn*, fine amber-yellow, grand; *Queen of Lavenders*, clear lavender, dark blotch; *Lord Burleigh*, deep purple, shaded violet; *California*, deep golden yellow, dense blotch; *Defiance*, rich mulberry, distinct, fine flower; *Mont Blanc*, pure white, smooth, neat blotch, and *Nabob*, fine black, golden centre. Among the "fancies" foremost for high quality were *New Colour*, red-bronze, crimson belt, dark blotch, splendid; *Major Skrine*, mulberry-crimson, edged white, will rank A 1; *A. J. Way*, large flower, stout, rich maroon blotches, broad edge of primrose, deep yellow eye, white brow, a real novelty; *Bob*, upper petals bronzy, edged white, mulberry blotches; *Avon Beauty*, crimson-mulberry, velvety blotches, fine form; *Eclipse*, crimson, edged amber; *Goliath*, dark bronze, yellow edges, large flower;

noticed a number of dwarf growers with fine robust flowers. Herbaceous phloxes are represented by most of the newest varieties, while pelargoniums occupy a large share of the space under glass. The hollyhocks were looking healthy, as did the delphiniums, sweet williams, hepaticas, lychnis, rockets, and other border plants grown here for sale, as plants or for the production of seed. Chrysanthomums in great variety, and tulips are also done well here. Of pansies you may count over 400 varieties, and of bedding violas fifty named kinds.

All the plants at this nursery appear to do well, the light soil suiting the pansies admirably. The only help the plants receive is an addition of decayed street sweepings.

Oxford.

WILLIAM GREENAWAY.

FOOD OF THE CUCKOO.—According to Count Casimir Wodzicki, the cuckoo is most useful in destroying *Bombyx pini*, eating its eggs and larvæ. In 1847, a pine forest in Darsin, Pomerania, was threatened with destruction by these larvæ when it was suddenly saved by a large flight of cuckoos, which were on passage, but remained two days, to enjoy the abundance of food; and in a very short time they so cleared the forest that the pest did not appear next year. . . . According to Zimmermann, on the island of Elbe, at Leitmaritz, the larvæ of *Liparis chrysorrhæa* appeared there in such quantities as to prevent the otherwise much-frequented promenade from being used, when four pairs of cuckoos began clearing the larvæ and remained quite peaceably together (*Dresser*). Mr. J. H. Gurney told me of the larvæ of *Zeuzera æsculi* being found in the stomach of a

Duke of Albany, lavender, deep purple blotch; *Lady Carington*, crimson or yellow grown, bronzy belting, superior form; *Royal Robe*, very dark violet-purple, shaded blue, dense blotches; *Stonewall Jackson*, white shaded blue, dark blotch, large circular flower; *Rainbow*, claret-crimson, amber-yellow edge; *Squire Skrine*, dark violet blotches, deep golden eye, dark maroon petals; *Peeping Tom*, crimson and yellow, lower petal bronze, large blotch, very distinct; *Reuben Van*, dark crimson edge, dense blotches, fine substance; *Queen of Beauties*, white, very large blotches, back of petals shaded; *Dinah*, deep amber, edged all round purplish rose, very striking and distinct; *Mrs. Siddons*, dark mulberry blotches, yellow eye, edged white; and *Miss Franklin*, rich maroon blotch, purple margin, edged white, a very beautiful variety.

The above comprise about one-half of the varieties offered to the public for the first time, and they have been selected principally on account of their form and effective markings. Thousands of seedlings are raised year by year, and in going over the plots we found that nothing was allowed to grow which did not come up to a fairly high standard. As the culture of the pansy is Mr. Hooper's forte, it will be conceded that a true florist's estimate is given in the varieties selected.

The auriculas and polyanthus, of which a large stock is cultivated, were practically over; but the pyrethrums (single and double) were coming rapidly into flower. Roses also receive considerable attention; but forcing pinks, picotees, and carnations are grown in large numbers. Perpetual-flowering carnations are a great feature here, and in very small pots we

cuckoo. Some which I dissected were full of large hairy larvæ, probably those of *Spilosoma menthrasti* and *S. lubricipeda*. The gizzard of all cuckoos, young or old, dissected by me were entirely lined with such a thick layer of hair that when the gizzards were turned inside out they resembled the skins of mice. The hairs appeared to be firmly rooted, and all pointed in regular order, as if they had been brushed in one direction by the action of the gizzard. I have known cuckoos to frequent gooseberry bushes in a garden at Aylmerton for several days, and believed that they were destroying larvæ (*F. Norgate*). Old cuckoos seem very partial to hairy larvæ, young cuckoos eat flies, beetles, larvæ, grasshoppers, small snails, tender shoots of grass, and young wheat or vetches (*Yarrell*). Larvæ of *Pieris brassica*, larvæ infesting gooseberry bushes, &c. (*Stevenson*). From July 18 to 22 forty cuckoos were seen, chiefly among the gooseberry bushes, in a garden in the county of Down. Almost all permitted a near approach, but not near enough to be caught by hand (*Bishop Stanley*). A young cuckoo killed on August 20, contained twenty full-grown larvæ of *Vanessa Io* (*Bishop Stanley*). Young cuckoos seem to have enormous appetites, and to be fed by different species of birds besides their foster parents.—F. NORGATE, in *Zoologist*, 1881.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

THE QUEENSLAND TREE FERN.

THE new tree fern introduced by Mr. William Bull from Queensland merits special attention for its tropical character and comparative hardiness. Why it is named *Alsophila Rebecce* we do not know, but a commemorative name appears to answer as well as one of a descriptive nature; and a matter of greater importance is that this *alsophila* is well adapted for cool-house culture, most other members of the genus being tropical and requiring stove culture. *Alsophila Rebecce* has a slender stem, firm smooth fronds, and a free habit of growth, the colour bright, and the general appearance of the plant rich and elegant. Three closely-allied species, namely, *Alsophila australis*, *A. excelsa*, and *A. Moorei*, are also natives of the Australian continent, but some twenty others are located in Africa, tropical America, and the Philippines.

IVY HAMMOCKS AT AMSTERDAM.

WHEN roaming lately through the Zoological Gardens at Amsterdam we made note of a few peculiar and interesting modes of training the ivy. One of these has been figured at page 763 of last year's volume, and we now present another of quite equal merit. Near to the great aviary, that is encompassed with the pole and chain ivies

FERNS IN TOWN GARDENS.

A FEW of our hardy ferns are capable of playing a very important part in the furnishing of a town garden. With more truth I may say that they already do play an important part, and it is a singularly gratifying fact to note that everywhere in urban districts ferns are appreciated. As a matter of course, thousands and thousands of ferns are carried into towns to perish. But, for all that, a considerable measure of success attends what, for present purposes, may be spoken of as the City fern garden, and the consequence is that in the outskirts of London—aye, and even in the very heart of the City itself—the fresh green colour and plummy growth of these elegant plants effect some mitigation of the brickiness that generally prevails. It is not impossible that some sensitive reader may be ready to deplore the fact that ferns may be grown in towns, both because of the destruction of many a rural scene by the digging of fern roots, and the disfigurement of town gardens by the things called “rockeries,” on which the ferns are usually planted. But we must not allow any sour views of the subject to affect us. It must be remembered that if ferns are destroyed by thousands nature is busy producing thousands to make amends. There is a dark side to this subject certainly, as to many another, but there is a bright side also—a very bright side, as I am forcibly reminded when I look from my window on a certain portion of the plot called the “front garden,” and observe that where almost



ALSOPHILA REBECCE.

represented in the figure above cited, is a small compartment consisting of grass turf and clumps of shrubs encompassed with ivies trained as hammocks. The effect is perhaps more singular than beautiful, and doubtless it is above all things very Dutch in its conception. Nevertheless, it has a quaint sort of merit, and our rough sketch of it will fairly well tell the tale. The ivy employed is a common and nearly typical form of *Hedera helix*. Where the hammock touches the ground are the roots of the ivies, which are trained to chains attached to the heads of lime trees. These hammocks are now in the full splendour of the golden green of their new leafage. We have seen them in early spring when, owing to the bleak, dry wind that pinches vegetation there, they present a very miserable appearance. Ivies are not much grown in Holland, soil and climate being alike unfavourable, but those in the Zoological Gardens at Amsterdam and at two or three places on the western shores of the Zuyder Zee, present through the greater part of the year a very agreeable appearance.

MR. FRANCIS GEORGE HEATH has accepted the editorship of the *Journal of Forestry*, the new volume of which, just commencing, will give considerable space to all subjects interesting to lovers of the country.

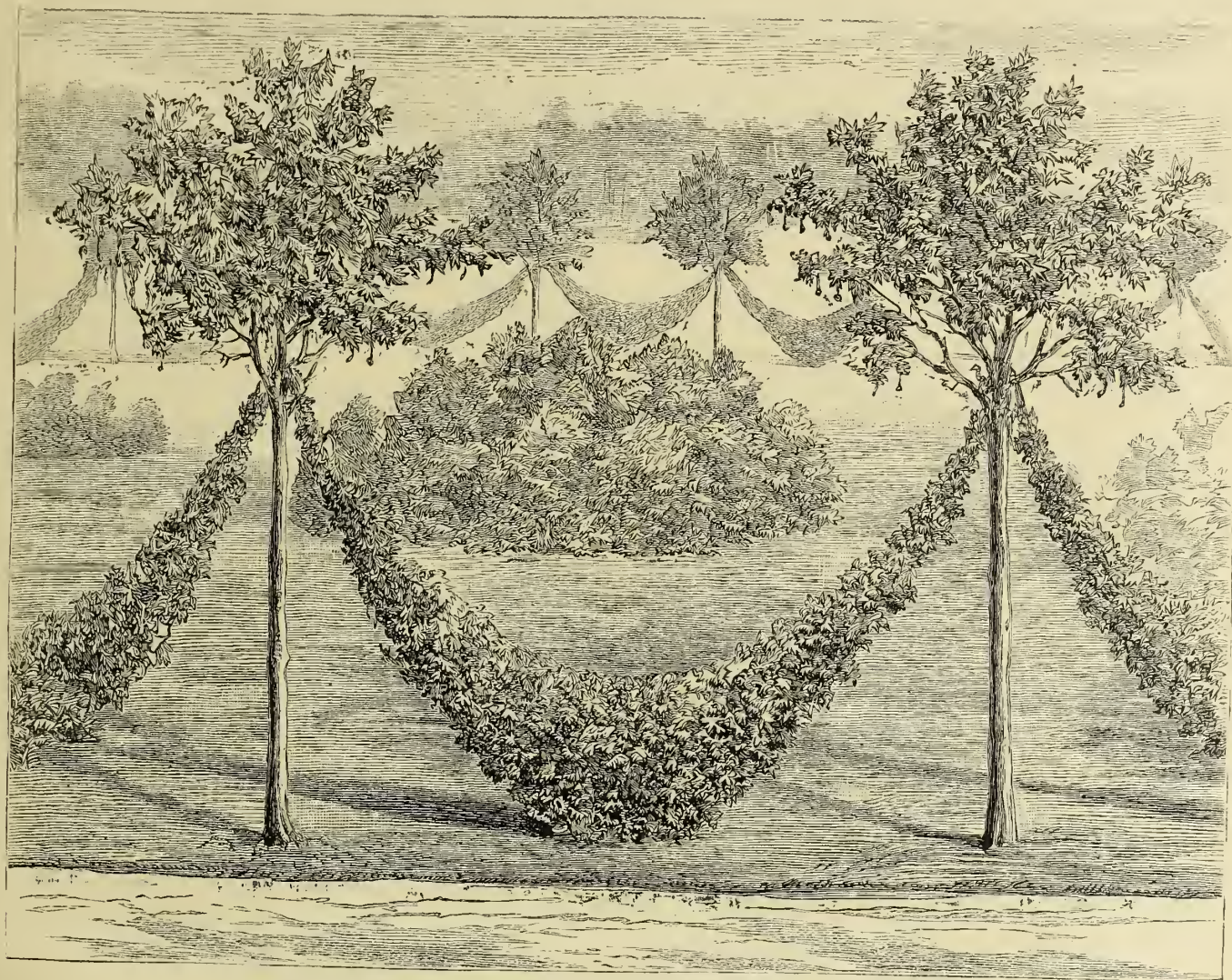
nothing else would grow I have a really magnificent lot of hardy ferns, brilliant with health, and as fresh and clean as if they were still located in the pure air of the far-off woodlands. Those very ferns, that have indeed suggested to me the propriety of making these remarks, have for a long time past appeared to me the finest specimens of their several kinds within my knowledge. Fine they are without a doubt, but they can be equalled in many a town garden. I have had lately to call on a working-man, who occupies a house that is most unfavourably situated for any kind of gardening. While waiting for his reply to the message I had delivered, I cast my eyes downward in response to the invitation of a mass of greenery, and great was my delight to see some ferns equalling mine, and perhaps even surpassing them. Several of my great clumps of the common male fern, *Lastrea filix-mas*, have fronds over four feet in length. But here in the small open space in front of a breakfast-parlour window below stairs were some gigantic plants that none of mine could surpass, although mine enjoy a liberal allowance of light and air, and have a great body of soil to sustain them. There is, so far as I know, not another plant in the whole world that can equal in beauty and general usefulness for such a position this commonest of the common ferns. In this same contracted space before the workman's underground window many plants would thrive perhaps, and the ivy would prove especially

valuable if wanted. But the fern is princely in its beauty; there is nothing that can be brought into competition with it, and it is impossible not to feel while in view of its sumptuous clusters of feathery fronds that its commonness is an especial blessing, for it brings one of the highest forms of vegetable beauty to any and every man's door.

This plentiful lastrea is not only the very best of all ferns for a town garden, because of its stately growth, but is the most accommodating in constitution: it will thrive in sun or shade, in a damp or dry position, and in almost any kind of soil. The town gardener who is disposed to take an interest in ferns may, however, be advised to make somewhat of a study of the plant, for it will teach him how to handle ferns, how to ensure the healthy growth of a considerable number of fine species, and perhaps how a rockery should be made and managed, both to accommodate ferns and flowering plants. The object in taking a special interest in this cheap fern should be to develop its fine character in the most perfect manner possible. If it is well managed it will produce fronds of from four to five feet in length, the substance firm, the colour rich, the stipes or stem very stout and clothed with large chaffy scales of a beautiful brown colour. The growth of the plant will tell you exactly the degree in which it is thriving or (as it may be) perishing. In a poor thin soil and a dry sunny situation it

are the best of all hardy ferns for a town garden, and where any one of the group is found to thrive there any of the others may with safety be planted. But *Lastrea filix-mas* should always lead the way and predominate, because of its cheapness, its thrifty accommodating habit, and its exceeding beauty both of form and colour.

The things called "rockeries" are often particularly obnoxious to the eye trained in the observation of nature. But it will be observed that just as nature delicately hides the gashes men make in rocks, so that a neglected quarry soon becomes a glorious wild garden, so an ugly town rockery soon becomes bearable, and may even become beautiful, provided only that it is liberally furnished with suitable plants, and the plants really take kindly to the place provided for them. When plaster busts and cockle-shells, and such gimerack stuff, are scattered about a rockery, we can but pray for the owner that he may be turned from his evil ways, for to argue with him would be waste of time, and might even amount to an intrusion. Many a spot, however, that appears beyond the reach of art for its embellishment may be made interesting and beautiful by means of a simple rockery and a few suitable plants. It is not necessary to incur expense in providing a large quantity of peat, because any loam or clay, or such as we term "common stuff," will answer the purpose for the foundation. But a considerable body of soil of some sort is needed, and



IVY TRAINED HAMMOCK FASHION, IN THE ZOOLOGICAL GARDENS, AMSTERDAM.

will be small, thin, and of a poor colour. It likes to be in full daylight, and the morning or evening sun will do it no harm. But its position should be in some degree shaded, the soil should be a good loam or peat, and a moderate degree of moisture the whole year round, and especially during summer, will conduce to its welfare. In a thousand instances that might be taken at random, it requires absolutely no attention beyond being honestly planted in the first instance. My beauties were provided for by opening a trench next the stone parapet at the rear of the front court; the trench was filled with good peat and the plants were dotted along, and they have never had a drop of water in the course of the five years that have passed since they were planted. Now there is a wealth of ivy and periwinkle on the parapet and about, forming a rich groundwork, out of which spring the plummy ferns, making a delightful garden and a sufficient screen to the two windows of the breakfast parlour, which is in use only during the summer season.

But this fine fringe of ferns comprises a lot of handsome Hart's-tongue, *Scolopendrium vulgare*; Prickly Shield Fern, *Polystichum angulare*; Common Polypody, *Polypodium vulgare*, and the two common Buckler Ferns, *Lastrea cristata* and *Lastrea dilatata*. These

this may be thrown into any form that taste may suggest as suitable to the spot, and being faced with large "burs" from the brick-kiln may be considered as a rockery in the first stage of its existence. In this first part of the procedure it will be well to remember that you will require to reach almost every part of the structure without difficulty or danger, and therefore it should be nowhere of greater breadth or height than will be consistent with convenience of management. If it is kept in view that the plants will be paramount, and the rocks subsidiary, a good thing is likely to result from a very moderate endeavour. But if the chief constructor has in his mind the mischievous notion that a display of rocks is the proper object of a garden rockery, then farewell the quiet taste and the horticultural judgment, and welcome be the paltry pinnacles and the frivolous fancies that so often characterize these "rustic adornments."

Having laid the foundation, the planting is the next business. Now it will be well to secure a sufficient quantity of good hazel loam or turfy peat for the ferns, and for any other plants that are known to require a peat soil. It is a folly to fight against nature, because success can never come of the conflict. If you have a good loam to begin with you may plant the common lastreas in it, and, as far as

they are concerned, the peat is not of great consequence. But the best way is the best way after all, and I recommend that every fern be planted in a peck of peat at the very least, and being planted it should be comfortably pressed into its place and have regular watering to help it for a season. As regards the watering, however, much depends upon circumstances. If the ferns are growing freely when planted they will want a little help; but if they are quite dormant and the spot is reasonably moist, and shaded, and open to the rainfall, there need not be given a single drop of water at any time. However, the ferns themselves will tell you if they want it; and if you see them flag or droop at midday you may be quite sure that they are likely to die of thirst, and to refresh and save them will be an easy matter.

It would serve no useful purpose were I to attempt a discourse on the several beauties or peculiarities of the ferns that are available for the town garden. But there are two matters demanding attention now that I will dispose of as quickly as possible. First, then, as to the ferns that may be added to the selection already given of the very best. I would advise the repudiation by the beginner of all the smaller ferns, such as the spleenworts, adiantums, cystopteris, and the little woodsias. But a few robust-habited sorts are still available, such as the Evergreen Shield Fern, *Aspidium* (or *Cyrtomium*) *falcatum*; the Lady Fern, *Aspidium* (or *Athyrium*) *filix-femina*; the common Prickly

required furnishing, a rockery has been made and planted with common lastreas. It consists of smallish rocky spikes and pinnacles disposed with mathematical regularity, and at regular intervals appear the plants, all in perfect health, growing gloriously, and yet, alas! looking as if the man who planted them intended to rebuke Nature for her way of muddling things on the mountains and in the woods. The uncomfortable ground needs a clothing of green stuff. I would gladly at my own expense and, if need be, with my own hands clothe the surface with ivy, primroses, and a few such materials, and then we should soon have the thing in somewhat the way that Nature would have it, if the superior wisdom of the man with the hoe and rake could be got rid of. And yet there must be somebody in the Regent's Park Botanic Gardens who has seen a bit of natural rockery and a few ferns growing in the way that ferns are apt to grow when the creature called Man has never interfered with them. MOSES.

THE WAR WITH INSECTS.

A CAPITAL hint has been given in some of the French country districts to schoolmasters in other parts of the world. The *instituteurs* have been despatching the pupils during the hours of recreation in search of noxious insects, and especially of May bugs, which are said to be particularly pre-

Shield Fern, *Polystichum aculeatum*; the Common Brake, *Pteris aquilina*; the Royal Osmund, *Osmunda regalis*, suitable only for a very damp or dripping locality, and perhaps the Pedate or Footed Fern, *Adiantum pedatum*, which requires a warm, moist, shady spot where neither strong sunshine nor strong wind will be likely to assail it. But here we seem to be sailing too near the rocks, and so I will turn to the other points that need to be mentioned.

Ferns do not look so well and they do not grow so well when they stand on bare earth as when they rise out of a carpet of congenial vegetation. A rockery kept clean with the hoe and dotted with ferns rising out of ground as clean as a plot in the kitchen garden presents a truly ridiculous appearance. A bit of nature's gardening may delight us, but it is never accomplished in this close-shaving style. A rockery should be clothed with several sorts of carpetry: here a sheet of ivy, there a sheet of arabis, and somewhere else a fringe of periwinkle or a tangle of brambles and primroses, and then the ferns that thrive and make their just proportions will have somewhat of their proper beauty. There is a good lesson for all Londoners on the need for clothing the ground of a fernery to be read any day in the Botanic Gardens, Regent's Park. By the side of the lake, where a gap

valent this spring. In some places the invasion has already commenced, and in others it is confidently anticipated by all the weather prophets and gardeners who pretend to a knowledge of the insect world. The natural history of the May bug appears to be somewhat peculiar, as the lady of the household, after appearing on the leaves of hedges and trees for eight or ten days only, beats a retreat into the ground, where she devotes her attention to the laying of eggs. So important is this business that before it is finished many thousands of eggs are deposited, and out of these are soon hatched an equal number of white grubs. The mement for directing an attack upon the bugs is therefore that immediately preceding the retreat into the soil, and it is during these few days that the schoolboys have been sent out on their murderous campaign. They are rewarded for their exertions by a small payment, but it may easily be believed that the desire for killing operates as a stronger inducement to them than the hope of gain. Such a service may also act as a sort of antidote to the passion for birds'-nesting, which is as mischievous as the other is beneficial.—*Globe*.

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The House, Garden, and Poultry Yard.

HIDDEN JOYS.

PLEASURES lie thickest where no pleasures seem:
There's not a leaf that falls upon the ground
But holds some joy, of silence or of sound,
Some sprito begotten of a summer dream.
The very meanest things are made supreme
With innate ecstasy. No grain of sand
But moves a bright and million-peopled land,
And hath its Edens and its Eves, I deem.
For Love, though blind himself, a curious eye
Hath lent me, to behold the hearts of things,
And touch'd mine ear with power. Thus, far or nigh,
Minute or mighty, fixed or free with wings,
Delight, from many a nameless covert sly,
Peeps sparkling, and in tones familiar sings.

S. LAMAN BLANCHARD.

THE HOUSE.

THOSE who cultivate ferns in cases must not overlook the fact that the plants are now making a vigorous growth, and must have rather liberal supplies of water. It is, however, necessary to be very careful in this matter, for if a great quantity of water is given at one time most of it will run down amongst the drainage without wetting the general body of the soil, and cause sourness without any corresponding benefit. Supposing the soil of a fern case to be rather dry, we should advise the giving of moderate supplies of water for three or four days in succession. In the first place, the ferns and the soil should be well wetted by means of a syringe; then water may be poured into the crowns of the more robust ferns, and allowed to spread and diffuse, but the quantity should not be sufficient to cause the affair to become waterlogged. Two or three such operations in the course of a week will result in thoroughly moistening the whole body of soil, after which a smallish supply about once a-week will suffice until September, when watering should cease or be practised with extra caution. It will be well to shut up the cases after each watering for an hour or so, after which a little air should be given. It is a good rule now to admit a little air to the fern cases night and day, except where filmy ferns are growing, and they need so little that we may almost say the less they have the better. However, we do give a little air all through the summer to our hymenophyllums and trichomanes, and find the growth to be rich and strong; but then we never forget them, as many people do. Where forgetfulness is practised it is perhaps a good rule never to give filmy ferns any air at all.

THE GARDEN.

AMERICAN PLANTS in old beds should be refreshed now with a top dressing of rotten cow-dung, which will help the new growth. Remove the trusses of bloom as fast as they lose their colour, and be careful not to break any young shoots at the same time.

CLIMBERS in free growth look best when left a little to themselves, but some tying and training must be done, and the cultivator must have an eye that the shoots intended for future flowering are not unduly shaded by disorderly growths.

CAULIFLOWERS should have liberal supplies of water if the weather is dry; they are the most hungry and thirsty plants in the garden, but pay well for good living. Plant out from frames as fast as possible, as they do no good to stand crowded and starving. It is customary to snap the leaves over the heads to protect them, but it is better to break off one of the lower leaves and lay it on the flower to protect it.

FORCED FRUITS.—As the crops are gathered, give liquid manure to swell up the spurs for next year's crop; syringe with force to clear the foliage. Crops ripening to have less water at the roots, and over head more air, and full sunshine.

HERBACEOUS PLANTS.—Continue to propagate, remembering that Pinks, Carnations, and Picotees come as readily from cuttings as layers, if that method is most convenient.

ORCHIDS.—Most of the Indian species will now require an abundance of water and a moist atmosphere. Stanhopeas, Dendrobiums, Aerides, Saccoboliums, and Vandas now especially require moisture, and those on blocks must have their wants supplied by dipping and syringing.

PELARGONIUMS now require close attention. See that stakes and ties are in order to keep the plants in the required form as they come into bloom, and remember that the fewer ties the more credit is due to the cultivator. Give shade as the plants show flower, and keep the whole stock as cool and airy as possible consistently with avoiding damp and cold draughts.

POLYANTHUSES.—On passing out of flower the plants will have several heads, which may be separated and potted singly. They must never be allowed to flag for want of water. Green fly must be kept down. Seed may be sown on a shady border, and the seedlings be pricked off when large enough to handle.

PRIMULAS have undergone great improvement within the last few years, and a considerable number of distinct and pleasing colours have been introduced. Considering their usefulness, it is satisfactory to be able to state that they may be brought to the highest perfection by the most simple means, if those means are seasoned with patience. It is a great point to give them a long period of growth before they flower, hence they should never be subjected to a forcing temperature, and, in fact, should be treated as nearly hardy, but have ample protection against frost, damp, and cutting winds. In order to enjoy the bloom of Chinese Primulas for a long period, make at least two sowings of seed, the first at once, and the second towards the end of June. Sow on a rich granular soil, and cover with a mere dusting of fine earth, and every seed will germinate; but if buried deeply much will be lost.

Roses need abundant supplies of water now, and green fly must be kept down or the bloom will be impoverished. A little time should be spared to look over briars intended for budding soon, to cut away weak ill-placed shoots, and shorten in the strong rambling shoots on which buds are to be entered.

SMALL TOWN GARDENS should be well furnished with suitable evergreens. Any one who would select wisely and plant liberally might make a town plot marvellously rich with overgreen shrubs, and the wise way would be to have plenty of such as are known to do well in towns, and avoid altogether those of doubtful character. In many instances where grass refuses to grow as it ought the ground might be clothed with ivies, for even under the shade of large trees ivy will thrive if aided with water during May and June.

WALL TREES as soon as necessary to be nailed in and the shoots thinned, that there may be no crowding of unnecessary wood. Shoots that run away with undue vigour to be cut clean out to the base, unless in positions where much needed, in which case shorten them back.

WINTER GREENS, comprising Brussels Sprouts, Kales, and Savoys, to be planted out in showery weather at every opportunity. If only one row can be put out at a time, it is a benefit to the seed bed in giving the seedlings more room, and a benefit to the plants in preventing their becoming drawn.

THE POULTRY YARD.

IN the management of the poultry yard much depends upon the manner in which the birds are fed, as to whether it will be a source to profit or otherwise. The proper course in regulating the food supply is to give the birds enough food of a suitable description without incurring any waste, for it will not pay to adopt either a starving or a too liberal diet. To do this some amount of observation is necessary, as no specific directions can be given beyond stating that full-grown fowls should have just as much as they will readily eat and no more, for when the supply of food is such that a portion is left upon the ground after a meal the waste is very great. Barley either whole or in the ground state is fairly economical, used either alone or in combination with other food, and oats and oatmeal are so rich in flesh and fat forming substances that they are of especial value in fattening for the table. Indian corn is economical in suburban districts where sparrows abound, as these marauders cannot swallow it, and are consequently unable to rob the fowls of their food, as they do to a very considerable extent when oats and barley are used. Corn and meal should as a matter of course be largely supplemented by the "scraps" from the kitchen. Potatoes, well boiled and mixed with sufficient coarse pollard or bran, when scalded to form a rather stiff paste, are useful for helping out the corn. A constant supply of fresh, clean water is essential, and a moderate quantity of green food, such as cauliflower, cabbage, lettuce, broccoli leaves, and turnip tops should be thrown into the yard daily.

Exhibitions and Meetings.

READING HORTICULTURAL SOCIETY, MAY 18.

THE exhibitions of the Reading Horticultural Society are invariably attended with a large measure of success, but on no occasion have the results been more thoroughly satisfactory than on the date above mentioned. Encouraged by a liberal schedule, the leading cultivators in the district entered with much zest into the competition, and the whole of the collections, although differing in relative merit, evinced cultural skill of a high order. Particularly good were the stove and greenhouse plants in bloom, for on this occasion the local productions were supplemented by a collection from Mr. Tudgey. Azaleas, heaths, fuchsias, ferns, gloxinias, and selaginellas were all presented in capital style, and show pelargoniums were staged in such splendid condition that it was impossible to avoid a feeling of regret that one or two of the collections were not exhibited at Regent's Park on the previous day. Table decorations, hand and button-hole bouquets, and collections of cut flowers formed as usual an important feature, and fruits and vegetables were well shown for so early in the season. The arrangements, as customary under the direct superintendence of Mr. Phippen, were eminently satisfactory, and the admirable exhibition ground within the abbey ruins was turned to the best possible advantage. Not less important to the society than the great excellency of the show was the weather, which was exceptionally favourable and enabled the townsfolk and residents in the district to muster in strong force.

STOVE AND GREENHOUSE PLANTS in bloom were admirably represented in point of numbers and excellency, and in the great open class for twelve Mr. Tudgey, gardener to J. G. Williams, Esq., Henwick Grange, was first with a splendid group. Amongst others were grand examples of Clerodendron Balfouriana, Pimelea decussata almost solid with its beautiful pink flowers, Hedera tulipifera, Erica ventricosa magnifica, and Franciscea confertiflora, a fine exhibition plant when well done. Mr. Lees, gardener to Mrs. Marshall, The Wilderness, Reading, was a very close second with an excellent collection, in which were fine specimens of Epacris Eclipse, Stephanotis floribunda, and Rhynchospermum jasminoides; Mr. Bennett, gardener to M. Lonergan, Esq., Cressingham, third with a capital group. In the class for six a good collection was staged by Mr. Mortimer, gardener to Major Storer, Puxley Park, Reading. The finest group of six heaths was contributed by Mr. Tudgey. The classes for azaleas were especially well filled, and the whole of the plants were densely flowered. For nine Mr. Lees was first with gigantic pyramids almost solid with bloom, and in the class for six (8-inch pots) Mr. Lockie, gardener to Lord O. Fitzgerald, occupied the first place with neat examples as fresh and well flowered as could possibly be desired. Mr. Mortimer, Mr. Armitage, and Mr. Atkins, Lockinge Park, also exhibited with much success in the classes for azaleas. In the class for a specimen the first prize was awarded to Mr. Tudgey for Dracophyllum gracile; the second to Mr. Mould, Pewsey, Wilts, for Aphelexis macrantha purpurea; and the third to Mr. Hope, gardener to the Hon. R. Boyle, Puxley Lodge, Reading, for Imatophyllum miniatum, bearing fourteen noble clusters of its orange-coloured flowers.

FINE-FOLIAGE PLANTS were admirably represented, and afforded a pleasing relief to the glowing colours of the azaleas, pelargoniums, and roses. For six Mr. Tudgey was first with Croton Mortii, one of the most highly coloured of the broad-leaved forms with golden variegation; C. Queen Victoria, a brilliantly-coloured form of much merit, Kentia australis, Cycas revoluta, and Pritchardia pacifica, one of the most striking of the

fan palms. Mr. Mortimer was an exceedingly good second, and Mr. Bezant, gardener to H. J. Simonds, Esq., Caversham, third. For four Mr. Hope was first with a group in which the noble *Alocasia Thibautiana* was represented, and Mr. Burgess was second, and had amongst other good things a superbly-coloured example of *Hibiscus Cooperi*.

SHOW AND FANCY PELARGONIUMS formed one of the most attractive features of the show. In the great open class for nine Mr. Ashby, gardener to W. Fanning, Esq., Whitechurch, was first with large superbly-flowered and highly-finished specimens of well-known varieties; Mr. Mortimer second with a capital lot. The prizetakers in the class for four show varieties were, Mr. Burgess, gardener to Col. Clayton, Marden Heath; Mr. Hope, and Mr. Sumner, Reading, who were first, second, and third, respectively, with very excellent groups. The only exhibitor of fancy pelargoniums was Mr. Burgess, who staged a capital half-dozen, for which he was deservedly awarded the first prize.

SPECIMEN AND CUT ROSES were contributed in comparatively large numbers and in admirable condition. For six roses in pots Mr. C. Turner, Slough, was first with medium-sized and beautifully-flowered specimens of *Duchesse de Valombrosa*, *Edouard Morren*, *La France*, *Camille Bernardin*, and *Souv. d'un Ami*; Mr. Mould second, and Mr. Tranter, Henley-on-Thames, third. For four Mr. Lees first with capital bushes. Mr. C. Turner was also first for twelve cut blooms with a stand in which were fine blooms of *Alba rosea*, *Edouard Morren*, *Star of Waltham*, *Souv. d'un Ami*, *Madame Victor Verdier*, *Vicomte Vigier*, *Miss Hassard*, *Niphetos*, *Marguerite Brassac*, and *Captain Christy*; Mr. Lees and Mr. Lockie second and third respectively.

GROUPS FOR EFFECT were characterized by great taste, and appeared to attract much attention. In the class for groups ten feet by twelve feet Mr. Lees received the premier award for a particularly tasteful arrangement; Mr. Burbidge second, and Mr. Pursey third. For a group six by four feet the prizes went to Mr. Pound, Mr. Sumner, and Mr. Burgess, in the order of their names.

HARDY RHODODENDRONS, for which a class was provided, were represented by two large groups, which were so well flowered as to produce a rich and striking effect. Mr. Turton, gardener to J. Hargreaves, Esq., Marden Erleigh, Reading, and Mr. Ashby, were the exhibitors, and were first and second respectively.

GLOXINIAS were simply superb, the specimens being of unusual dimensions and grandly flowered. Mr. Mortimer, who was first, had *Marquis of Lorne*, *Prince Leopold*, *Lord Derby*, *Belfort*, *Sir Stafford Northcote*, and *Boule de Neige*, the latter a beautiful white variety, and bearing fifty or sixty blooms. Mr. Hope was a good second.

FERNS AND SELAGINELLAS were plentiful and good throughout. For six ferns Mr. Mortimer and Mr. Tudgey were first and second, and in the class for four Mr. Bennett and Mr. Hope were first and second. Mr. Mortimer was first in the class for selaginellas with six excellent pyramidal examples.

FUCHSIAS AND CALCEOLARIAS were both good. Mr. Mortimer staged one of the finest collections of fuchsias seen for some years; and in the class for six calceolarias Mr. Burgess, Mr. Lockie, and Mr. Hope were the prizetakers.

BOUQUETS AND TABLE DECORATIONS made a charming and much-appreciated feature, the arrangements of Mr. and Miss Phippen being much admired. For a bridal bouquet Mr. Phippen was first with a very light and elegant arrangement; Mr. Turner, Redlands, second. In competition for the prizes for three stands Miss Phippen was first, and Miss Curtis, Richmond, second. Miss Phippen was also first for three button-hole bouquets. Miss Adnams presented three tastefully-arranged stands in the interesting class for decorations of wild flowers.

MISCELLANEOUS CONTRIBUTIONS included seven or eight very fine stands of single and double pyrethrums from Messrs. Kelway and Son, Langport, and a very elegant wreath from Mr. Phippen, to both of which extra prizes were awarded. Numerous excellent boxes of cut flowers were staged, chiefly by exhibitors in other classes, whose names are given above.

FRUITS consisted of grapes, strawberries, and melons, and the most successful exhibitors of grapes were Mr. Atkins and Mr. Ashby, the latter staging in the class for a black variety superb *Black Hamburgs*. The finest strawberries were those from Mr. Mortimer and Mr. Bowie, who were first and second respectively with President. Mr. Atkins was awarded a first-class certificate for a new melon, *Lockinge Conqueror*, a handsome scarlet-fleshed variety, of splendid flavour.

VEGETABLES.—Messrs. Sutton and Sons' prizes for cucumbers brought out a strong competition, twelve brace being staged. Mr. Lockie was first with Model, Mr. Millen second with Suttons' Improved Telegraph, and Mr. Mortimer third with Model. In the other classes for vegetables the winners were Mr. Lockie, Mr. Read, Mr. Burbidge, Mr. Bowie, Mr. Howe, and Mr. Millen. The first prize in the class for half a peck of peas was awarded to Suttons' American Wonder, a dwarf and very early variety of a highly meritorious character.

The judges were Mr. R. Dean and Mr. J. Roberts.

CRYSTAL PALACE FLOWER SHOW, MAY 20.

The flower show at the Crystal Palace on the above date was comparatively speaking a very small affair and much that was shown was decidedly second rate. Stove and greenhouse plants in bloom were fairly plentiful and comprised a goodly number of excellent specimens; azaleas were represented by numerous collections and made an attractive display of colour, but with the exception of three or four collections they were not good. Orchids, which have usually contributed materially to the May exhibitions at Sydenham, were limited to two collections, and in the classes for heaths there was the merest shadow of a competition. The collections of clematis exhibited by Messrs. Jackman and Son and Messrs. R. Smith and Co. were of exceptional excellence and produced a rich and pleasing effect.

Orchids were limited to two collections, one being shown in the trade class for nine by Mr. H. James, Castle Nursery, Lower Norwood, and the other in the corresponding class for amateurs by Mr. J. Salter, gardener to J. Southgate, Esq., Streatham. The first prize was awarded in each class. Mr. Salter staged capital examples of *Oncidium concolor*, *Cattleya Mossiae*, *Odontoglossum Roezli*, *Masdevallia Lindenii*, and *Oncidium Marshallianum*; and in the collection from Mr. James were good specimens of *Cypripedium*

niveum, *Masdevallia Veitchei*, *M. Lindenii*, *Oncidium Marshallianum*, and *O. concolor*.

STOVE AND GREENHOUSE PLANTS in bloom were shown in splendid style by Mr. B. Peed, gardener to Mrs. Tredwell, St. John's Lodge, Lower Norwood, who was first in the amateurs' class for nine. The specimens were large, well flowered, and splendidly finished, and they comprised *Erica ventricosa coccinea minor*, *E. ventricosa magnifica*, *E. Cavendishi*, *Clerodendron Balfouriana*, *Epacris Eclipse*, *Anthurium Scherzerianum*, *Azalea Roi Léopold*, *A. Murrayana*, and *Statice profusa*. Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugby, second, and Mr. Rand, gardener to J. Warren, Esq., Handcross Park, Crawley, was third. Mr. Chapman had a grand specimen of *Hedera tulipifera*, and Mr. Rand staged a nicely-flowered example of *Ixora regina*. In the trade class for nine Messrs. B. Peed and Sons, Norbury Nursery, were first with a good collection, in which were *Aphelexis macrantha rosea*, *A. macrantha purpurea*, *Erica Cavendishi*, *Anthurium Scherzerianum*, and *Azalea Iveryana*. Mr. James was awarded the second prize with a collection in which occurred two specimens of *Anthurium Scherzerianum*, although, according to the express stipulation of the schedule, the nine plants should have been distinct. The award of the prize was, under the circumstances, a grave error on the part of the judges, as it forms some kind of precedent for laxity on the part of exhibitors at future exhibitions at the Crystal Palace and elsewhere. As there were no other exhibitors in the class than Messrs. Peed and Mr. James no injustice was done to any competitor; but it is obvious that if rules are to be set at naught by both exhibitors and judges, as in this instance, the work of carrying out exhibitions will eventually be rendered extremely difficult.

FINE FOLIAGE PLANTS were shown in good style by Mr. Rann in the class for nine; the collection included *Anthurium crystallinum*, *Areca sapida*, a strong-growing species remarkable for its bold graceful appearance; *Pritchardia pacifica*, *Pandanus Veitchei*, *Croton interruptum*, and *C. Hendersoni*. Mr. Penfold, gardener to Canon Bridges, Beddington House, Beddington, second with an excellent group of medium-sized specimens, amongst which were *Areca lutescens*, *Carludovica Druedi*, and *Aralia monstrosa*, a handsome variegated form. Crotons were well staged by Mr. Bird, gardener to J. A. Causton, Esq., Dulwich, Mr. Rand and Mr. Penfold, who were first, second, and third respectively.

AZALEAS had five classes set apart for them, and arranged along the sides of the central transept they proved very effective. The finest collection of large specimens was that staged by Mr. Childs, gardener to Mrs. Torr, Garbrand Hall, Ewell. The collection consisted of immense and densely-flowered pyramidal specimens of *Duc de Nassau*, *Madame D. Vervaens*, *Coacinnum*, *Magnet*, *Criterion*, and *Iveryana*. Mr. Ratty, gardener to R. Thornton, Esq., Sydenham, was second for nine and first for six. The successful competitors in the trade class for nine were Messrs. B. Peed and Son, Mr. James, and Messrs. Peed and Sons, Lower Streatham, and the prizes were awarded in the order of their names. The class for eighteen in pots not exceeding nine inches in diameter contained a well-flowered and particularly bright collection from Mr. Charles Turner, Slough, who was awarded the first prize. The varieties represented were *Apollo*, *Comtesse de Flandres*, *Roi de Hollande*, *Grandis*, *Baron de Vriere*, *Mons. Thibaut*, *Charmier*, *Mlle. Marie Lefebvre*, and *Jean Vervaens*.

CAPE HEATHS were represented by good collections in the class for nine from Messrs. B. Peed and Son and Mr. James, and by a collection of medium-sized and nicely-finished examples from Mr. B. Peed.

SOFT-WOODED PLANTS in bloom comprised herbaceous calceolarias, show and fancy pelargoniums, and tuberous begonias. Pelargoniums were capitally shown by Mr. C. Turner and Mr. Griffin, Forest Hill, who were first and second respectively in the classes for nine show and for nine fancy varieties. An excellent group of tuberous begonias was staged by Mr. Childs, and collections of well-grown calceolarias were shown by Mr. Griffin, Mr. Satchell, and Mr. Bird.

ROSES in POTS were limited to a charming collection of eighteen from Mr. Turner.

CLEMATIS were represented by two magnificent collections of twelve each, which, arranged along the front of the orchestra, produced a striking effect. Messrs. Jackman and Son, Woking, were first, with large and grandly-bloomed specimens of *Mrs. G. Jackman*, white; *Excelsior*, blue; *Countess of Lovelace*, blue, one of the finest of the double varieties; *Madame Van Houtte*, blue, very large; *Blue Gem*, blue, a medium-sized flower of superb form; *Duchess of Edinburgh*, *Lady Caroline Neville*, *William Kennett*, blue, large and fine; *Henryi*, white; *Duke of Norfolk*, blue, large; *Sensation*, blue, large and fine. Messrs. Richard Smith and Co. were second with rather smaller specimens, which were superbly flowered. Chief amongst the varieties were *Gloire de St-Julien*, *Grand Duchess*, and *Lawsoniana*.

GROUPS ARRANGED FOR EFFECT.—In the class for groups Messrs. J. Laing and Co., Forest Hill, were first with a charming arrangement, which placed in the tent fitted up in front of the great stage for the exhibition of the Fyfe-Main light, attracted, and deservedly so, much attention.

MISCELLANEOUS CONTRIBUTIONS included an attractive and interesting group of hardy plants from Messrs. J. Carter and Co., High Holborn; a beautiful exhibition of cut blooms of show, ivy-leaved, and other pelargoniums, and of petunias, from Messrs. H. Cannell and Sons, Swanley; and several new begonias of much merit from Messrs. J. Laing and Co.

NEW PLANTS were not numerous, but they included several of considerable importance, and the following first-class certificates were granted:—To Messrs. J. Laing and Co., Forest Hill, for *Pelargonium Mrs. Miller*, a remarkably fine silver tricolor, with broad high-coloured zone; *Begonia Arthur G. Soames* and *B. Marquis of Bute*, two superb single varieties; *Caladium Ibis Rose* and *C. albo luteum*, distinct and beautiful forms, and *Asparagus plumosus nanus*. To Messrs. Kelway and Son, Langport, for *Scelopendrium vulgare Kelwayi densum*, a charming variety of dwarf growth; and to Mr. Hooper, Bath, for *Pansy Mrs. Laing*, a fine fancy variety.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. Glycerine, in these agreeable confections, being in proximity to the glands at the moment they are excited by the act of sucking, becomes actively healing. Sold only in boxes, 7s. 6d. and 1s. 11d., labelled, "JAMES EPPS AND CO., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice.—Yours faithfully, GORDON HOLMES, L.R.C.P.E., Senior Physician to the Municipal Throat and Ear Infirmary."—[ADVT.]

ROYAL HORTICULTURAL SOCIETY.—GREAT SUMMER EXHIBITION, MAY 23 TO 25.

The exhibition of the Royal Horticultural Society held during the past week, if hardly so strong in a few features as some of the more recent shows at South Kensington, was a splendid affair, and in every way worthy of the society. In some respects it was one of the most satisfactory shows held by the society during several years past; for, instead of its consisting largely of miscellaneous collections from nurserymen, it was formed almost exclusively of the productions staged in competition for the prizes offered in the schedule classes. Stove and greenhouse plants in bloom and azaleas were staged in immense numbers, and generally speaking in splendid condition; but ornamental-leaved plants, which on some occasions have unduly predominated, were so sparingly represented as to be insufficient to form a proper relief to the glowing colours of the flowering plants. Roses were staged in larger numbers and in finer condition than at any show of the current season. Show and fancy pelargoniums also evinced a marked advance upon those previously exhibited this year, and orchids sufficed to form a most attractive and important feature. There was, for so early in the season, a capital display of fruit, and the collections of cut flowers, the collections of ivies and hollies, and the groups arranged for effect contributed their full share to the interest and attractions of the gathering. The usual order of arrangement was followed: the fruit, vegetables, orchids, pelargoniums, and cut flowers were staged in the long marquee which is employed to connect the council room and vestibule with the large tent, and in the latter were disposed the collections of stove and greenhouse plants, azaleas, roses, clematis, which, by the way, were of great excellence; fine-foliage plants, ferns, and groups. That the materials at disposal were made the most of by Mr. Barron may be taken for granted, but it must be stated that, although a few large palms judiciously placed on the western side would have been a considerable improvement, on no previous occasion has the large tent presented a more tasteful or attractive appearance. The exhibition of garden structures, implements, and appliances is extensive and comprehensive, and forms an adjunct of great interest. This remains until after the rose show in July next, and is well worthy of careful inspection.

STOVE AND GREENHOUSE PLANTS were presented in grand style in the several classes provided for them, and tastefully grouped, they produced a striking effect. In the great open class for twelve Mr. Tudgey, gardener to J. F. G. Williams, Esq., Henwicke Grange, Worcester, occupied the post of honour with splendidly-flowered and highly-finished specimens. Messrs. Peed and Son, Lower Streatham, were a good second, and Messrs. T. Jackson and Son were a close third. The first place in the trade class for eight was occupied by Messrs. T. Jackson and Son with a collection consisting of large, fresh, and grandly-flowered specimens. Messrs. Peed and Son were second, and Mr. H. James, Castle Nursery, Lower Norwood, third. In the corresponding class for amateurs Mr. Tudgey, Mr. J. Child, gardener to Mrs. Torr, Garbrand Hall, Ewell, and Mr. Rand, gardener to J. Warren, Esq., Handcross Park, Crawley, were the prizetakers in the order of their names. The subjects of which the several collections consisted were exclusively the same as those shown at previous exhibitions and enumerated in the reports that have appeared in these pages.

ORCHIDS were plentiful and good, and proved as usual a source of great attraction. The finest collections were those contributed to the great open class for fifteen. Here Mr. J. Child was first with a well-balanced group, comprising fine specimens of *Saccolabium retusum* and *Aerides Fieldingi* with five grandly-developed spikes each, *Masdevallia ignea aurantiaca*, an effective variety with bright orange-red flowers, *Dendrobium Farmeri*, and other good things. Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, and Mr. H. James were placed equal second for attractive groups. The collection from Mr. James included *Cattleya Mendeli*, *C. Mossiae*, *Odontoglossum Alexandrae*, *Dendrobium formosum*, and *Oncidium concolor*. Mr. Douglas contributed, amongst other things, a fine example of *Dendrobium Wardianum*, a large specimen of *Cypripedium villosum*, and a glorious mass of the old but exceedingly beautiful *Dendrobium nobile*. The first prize in the amateurs' class for ten was awarded to Mr. J. Salter, gardener to J. Southgate, Esq., Leigham Court Road, Streatham, for a group of well-grown specimens; and in the corresponding class for nurserymen Mr. James and Messrs. T. Jackson and Son were first and second respectively with attractive collections differing but little in relative merit.

NEW PLANTS.—In the class for twelve plants not in commerce Mr. W. Bull, King's Road, Chelsea, was first with a collection consisting of well-developed examples of *Dieffenbachia regina* and *D. rex*, two well-marked and handsome forms of these free-growing aroids; *Dracena australis variegata*, a distinct variety, the leaves marked with longitudinal bands of yellow; *D. aureolus*, a handsome form, with leaves somewhat broader than those of the preceding, and marked with yellow bands in a similar manner; *Laurus camphora variegata*, a fine form of the camphor laurel, the leaves broadly margined with white; *Wallichia nana*, a handsome plant with dark green leafage; *Sarracenia erythrops*, a beautiful species, with tall light green pitchers; *Spiraea aruncus astilboides*, an elegant variety of immense value, which was figured in these pages two years since; *Selaginella involvens variegata*, a prettily-marked variety, with white variegation; *Anthurium digitatum*, a distinct species, with large distinctly-lobed leaves; *A. nitheroensis*, a distinct species with cordate leaves of a dull olive-green; and *Illicium religiosum variegatum*, a beautiful variety, in which the leaves are broadly margined with white.

AZALEAS were highly meritorious and presented a bright and attractive appearance. The prizes open to nurserymen only for eight specimens were keenly contested, and in the result were awarded to Mr. Charles Turner, Slough, Messrs. T. Jackson and Son, and Messrs. Peed and Son in the order of their names. In the corresponding class limited to private growers Mr. Child and Mr. G. Wheeler were first and second respectively. Mr. C. Turner also occupied the first place in the open class for fifteen plants in pots not exceeding twelve inches in diameter, and had a particularly bright and attractive group. Especially noteworthy in the group were *M. Thibaut*, *Reine des Pays-Bas*, *Cordon Bleu*, an effective variety with flowers of a rich purplish rose colour; *Stella*, *Etendard de Flandre*, *Eugène Mazel*, *Bernhard Andreas alba*, a beautiful pure white semi-double variety; *Duchesse Adelaide de Nassau*, and *Ferdinand Kegefan*. The most important specimens in Mr. Turner's group of eight were *Stella*, *Comtesse de Flandre*, and *Cheloni*.

FINE-FOLIAGE PLANTS comprised collections of splendid specimens

from Mr. Rann and Mr. Tudgey, who were first and second in the class provided for them.

ERICAS were represented by excellent collections from Messrs. T. Jackson and Son and other exhibitors. Messrs. Jackson were first in the class for eight with large and especially well-bloomed specimens of *E. Massoni* major, *E. ventricosa coccinea minor*, *E. Cavendishi*, *E. ventricosa magnifica*, *E. mutabilis*, *E. affinis*, *E. ventricosa*, *E. tricolor speciosa*, and *exposita obbata*. The last-mentioned is a fine and comparatively new variety with large blush-coloured flowers, quite free from gum, and the specimen exhibited by Messrs. Jackson is probably the largest in the United Kingdom. Mr. Tudgey and Messrs. Peed and Son were second and third respectively.

GROUPS OF PLANTS had two classes provided for them, and in that for a collection occupying a space not less than three hundred feet square, Messrs. W. Cutbush and Son, Highgate and Barnet, and Mr. J. Aldous, Gloucester Road, South Kensington, had arrangements of exceptional excellence. Messrs. Cutbush, who were awarded the first prize, employed with much effect several of the more important and beautiful of the heaths, which form an important feature of their Barnet nursery. The group arranged by Mr. Aldous was so good that it may be regarded as one of his greatest successes.

SHOW AND FANCY PELARGONIUMS consisted exclusively of specimens of a high-class character, and produced a brilliant and attractive display. For nine show varieties Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, was first with immense and superbly-bloomed specimens of *Mary Hoyle*, *Jeannette*, *Princess of Denmark*, *Isabella*, *Prince Leopold*, a valuable exhibition flower, second only in brilliancy to *Illuminator*; *Snowflake*, *Pericles*, *Sultana*, and *Kingston Beauty*. Mr. C. Turner, second with specimens a size smaller than those staged by Mr. Wiggins, but splendidly flowered and finished. The varieties, all of which are of much value for exhibition, were *Illuminator*, the most brilliantly coloured of all the show flowers known to make good specimens; *Charlemagne*, *Kingston Beauty*, *Prince Leopold*, *Maid of Honour*, *Patroness*, *Viscount*, *Despot*, a splendid dark flower, and *Claribel*. For nine fancies Mr. Wiggins was also first, and staged, as in the preceding class, specimens somewhat larger than those shown by Mr. Turner, who was first. The varieties forming Mr. Wiggins's group were *Mrs. Porter*, *Goliath*, *Lucy*, *Princess of Teck*, *Duchess of Edinburgh*, *Mrs. Alfred Wigan*, *Miss Goddard*, *Roi des Fantaisies*, and *Mrs. Hart*. Mr. Turner's varieties were *Ellen Beck*, *Princess of Teck*, *East Lynne*, *The Shah*, *Mrs. Porter*, *Mrs. Hart*, *Thomas Ring*, *Fanny Gair*, and *Roi des Fantaisies*.

TUBEROUS BEGONIAS were shown by Mr. H. Coppin, Shirley, Croydon, whose collection of thirty consisted of neat well-flowered plants, and fully justified the award of the first prize.

FERNS, although not equal to those shown at some previous exhibitions, were very good. The prizetakers in the amateurs' class for six were Mr. J. Child, Mr. Rann, and Mr. J. Douglas, in the order of their names; and in the class for nurserymen Mr. H. James and Mr. Aldous were first and second respectively.

ROSES IN POTS were of a high degree of excellence, and proved one of the most attractive features in the great tent. In the trade class for nine Messrs. Paul and Son, Cheshunt, were first with enormous and grandly-flowered specimens of *Madame Margottin*, *Duchesse de Valombrosa*, *Victor Verdier*, *Madame Victor Verdier*, *Centifolia rosea*, *Céline Forestier*, *Charles Lawton*, *La France*, *Beauty of Waltham*, and *Madame Lacharme*. Mr. C. Turner, who was second, staged large superbly-bloomed specimens of *Camille Bernardin*, *Mlle. Thérèse Levet*, *Sir Garnet Wolseley*, *Edouard Morren*, *J. S. Mill*, *Madame Lacharme*, and *Madame Victor Verdier*. The only competitors in the trade class for twenty in pots, not exceeding ten inches in diameter, were Messrs. Paul and Son, who had medium-sized examples, exceedingly well flowered and perfect in finish. The varieties were *Juno*, *Perfection de Monplaisir*, *Céline Forestier*, and *Madame de Montchâteau*, a fine variety, with large pink flowers of grand form; *J. S. Mill*, *Comtesse de Serenye*, *Mrs. Laxton*, a high-coloured flower when in perfection; *Innocenta Pirola*, which improves on acquaintance; *Madame Margottin*, *François Michelon*, *President*, *Cheshunt*, *Hybrid*, *La France*, and *Madame Victor Verdier*. There were two competitors in the class for amateurs, and Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston-on-Thames, was awarded the first prize for capital bushes with ample leafage and excellent blooms; Mr. Wiggins second with well bloomed but smaller plants.

HARDY HERBACEOUS PLANTS in pots, if less showy than some other subjects, were not wanting in interest or attractiveness. For a collection of thirty Mr. Douglas was first with capital specimens of *Phlox setacea* *Model*, *Cypripedium acaule*, one of the most beautiful of the hardy lady's slippers; *Anthericum liliastrum*, *Lychnis dioica fl. pl.*, *Centaurea montana alba*, *Lilium tenuifolium*, *Saxifraga nepalensis*, *Primula japonica*, *Aquilegia corulea hybrida*, and *A. vulgaris alba*, pure white and of great beauty. Messrs. Hooper and Co., Covent Garden, were second with an excellent collection, in which *Armeria alpina coccinea*, *Geum coccineum*, *Statice pseudo-armeria*, *Delphinium nudicaule*, and *Spiraea palmata* were presented in capital condition.

CUT FLOWERS comprised *ixias*, *sparaxis*, fancy pansies, and miscellaneous collections in addition to the contributions not for competition. Fancy pansies were admirably shown in collections of sixty blooms by Messrs. J. Cocker and Son, Aberdeen, Mr. W. Meddick, 7, Hampton Row, Bath, and Mr. J. Lawrence, Caversham, who were awarded the prizes in the order of their names. The premier awards in the classes for *ixias* and *sparaxis* and group of hardy flowers were made in favour of Messrs. Barr and Sugden, Covent Garden, who staged large and representative collections in their well-known style, the *pyrethrums* being particularly good in the last-mentioned of the two classes.

IVIES AND HOLLIES were not so numerous as might have been expected, but the collections staged were of great merit. For twelve ivies Mr. Charles Turner and Messrs. H. Lane and Son, Great Berkhamstead, were first and second respectively with large well-furnished specimens, those forming the first prize group including a richly-coloured example of the golden tree ivy. In the corresponding class for hollies the premier award was made in favour of Messrs. Cutbush and Son, who had grand pyramids of *Ilex aquifolium feox argentea*, *I. a. Silver Queen*, *I. a. argentea marginata*, *I. a. medio-pictum*, *I. a. Handsworthensis*, *I. a. scoticum*, *I. a. Wateriana*, *I. a. angustifolia*, and *I. canadensis*.

FRUIT was remarkably good for so early in the season, and as usual proved very attractive. The only exhibitor of two pines was Mr. Miles, gardener to Lord Carington, Wycombe Abbey, Bucks, who had capital Queens. For a single pine, any variety other than the Queen, Mr. Bates, Paulett Lodge, Twickenham, was first with a capital Charlotte Rothschild; Mr. C. Ross, Welford Park, Newbury, was a good second with Smooth Cayenne, and Mr. Maher, Stoke Court, Slough, was third with the same variety. In competition for the prizes for three bunches of black grapes, Mr. J. Loudon, gardener to T. Barnes, Esq., The Quinta, Chirk, was first with fine bunches, large in the berry and beautifully coloured. Mr. W. Johnston, gardener to the Marchioness of Camden, Bayham Abbey, Lamberhurst, second with excellent examples, and Mr. Aslett, Warren Wood, Hatfield, third. For a dish of black grapes, any variety other than the Black Hamburgh, Mr. G. Holliday, Castle Hill, Bletchingley, was first with good bunches of Black Prince; Mr. Loudon second with Madresfield Court; and the third was awarded to Mr. J. Wallis, Keele Hall, Newcastle, Staffordshire, for nice bunches of Black Alicante of last year's crop that were cut and bottled in December last. The competition for a dish of Muscat of Alexandria was not very spirited, and the first and second prizes were awarded to Mr. Loudon and Mr. Maher, who had excellent well-coloured examples. For a dish of any other white grape Mr. Johnston was first with Buckland Sweetwater, richly coloured, and Mr. Aslett and Mr. Fry, Haydon Hall, Pinner, were second and third with Foster's Seedling. Peaches and nectarines were rather limited in numbers, but good in quality. In the class for a dish of nectarines Mr. Holliday was first with Lord Napier; Mr. Nash, New Shoreham, second with Violette Hâtive, and Mr. Maher third with Hunt's Tawny. For peaches Mr. H. Clarke, Blenheim Gardens, Woodstock, and Mr. J. Kenning, Worth Park, Crawley, were first and second with splendid fruits of Grosse Mignonne, and Mr. Miles third with Stirling Castle. The only competitor in the class for three dishes of strawberries was Mr. Norman, Hatfield House, Hatfield, who presented President, Sir Joseph Paxton, and Sir Charles Napier in capital style. In the class for a single dish the competition was more spirited, and Mr. Norman, Mr. Mortimer, Purley Park, Reading, and Mr. Worthing, Chadwell Heath, were first, second, and third respectively with excellent dishes of President. Cherries were as usual exhibited well by Mr. Miles, who was first for two dishes with Black Circassian and Governor Wood, and for a single dish with Black Circassian. Melons were largely shown, and on the whole were of good quality. Mr. Miles was first with Hero of Lockinge; Mr. C. Howe, Benham Park, Newbury, second, with William I., a scarlet-fleshed fruit of high quality, and Mr. Austen third with Carter's Blenheim Orange.

MESSRS. J. CARTER AND CO.'S PRIZES for the best fruit of Blenheim Orange Melon were very keenly contested. Twelve fruits of this splendid melon were staged, and the prizes were awarded to Mr. J. Austen, Mr. G. Williams, Mr. J. May, Barnet, Mr. J. Atkins, and Mr. T. Taylor, gardener to J. McIntosh, Esq., Duncon, Weybridge, in the order of their names.

VEGETABLES were of capital quality. In competition for the prizes for a collection of ten kinds, Mr. Miles was first with Lady Paget potato, James's Intermediate carrot, the Stamfordian tomato, the Queen onion, Tender and True cucumber, Veitch's Extra Early Forcing cauliflower, Laxton's Unique pea, Prince Albert vegetable marrow, Globe artichokes and asparagus; Mr. J. Austen second, and Mr. Ward third. The first prize for a dish of tomatoes was awarded to Mr. McIndoe, Hutton Hall, Guisborough, for a splendid sample of the Stamfordian, and Mr. Douglas was second. The first prize for a brace of Daniels' Defiance cucumber was awarded to Mr. Chutleborough, Westead Hall, Norwich; and the Messrs. Daniels exhibited about twenty fine brace of this useful cucumber. There was a fairly good competition in all but one of the classes for asparagus, and some excellent produce was exhibited. The first prizes for bundles of eighty and fifty heads were awarded to Mr. Allan, gardener to Lord Suffield, Gunton Park, Norwich, and the other prizes were taken by Mr. J. Stewart, Langford Park, Maldon, Mr. Cole, Colchester, and Mr. H. Foster, Ashford, Kent. For three bundles, the competition limited to market growers, Mr. H. Harwood, Colchester, was first, and Messrs. W. J. Lobjoit and Son, Putney, and Mr. G. R. Simpson, Colchester, were equal second.

MESSRS. SUTTON AND SONS' PRIZES for four dishes of peas were contested by two exhibitors only, and the premier award was made in favour of Mr. Ward, who had Emerald Gem, Lingleader, Day's Early Sunrise, and William I.

FLORAL COMMITTEE.—A considerable number of novelties were submitted to the committee, and the following first-class certificates were granted: To Messrs. J. Laing and Co., Forest Hill, for *Begonia Ball of Fire*, a splendid single variety, the flowers of immense size, and a brilliant orange scarlet-colour. To Mr. J. Smith, Eltham Road, Lee, for *Adiantum Bourni*, a very beautiful form with medium-sized fronds, on which the pinnules are so closely set as to give the plant a very dense moss-like appearance. To Mr. J. Douglas for *Veronica Hulkeana*, a beautiful shrubby species, with large branched spikes of pale blue flowers. To Mr. Coningsby, The Firs, for *Masdevallia Veitchi grandiflora*, a large-flowered form of this brilliantly-coloured species, and *Oncidium tamettigerum*, a handsome species with large brownish yellow flowers. To R. Warner, Esq., Chelmsford, for *Odontoglossum Alexandra giganteum*, a superb variety, bearing flowers of immense size. To Mr. Smith, Sydney Park, Gloucester, for *Lavatera arborea variegata*, a striking variety with creamy variegation. To Messrs. Cannell and Sons for *Pelargonium Eurydice*, a beautiful double ivy-leaf with large double flowers of a soft rosy pink colour. To Mr. E. Dean, Ealing, for *Spergula pilifera aurca*, a distinct variety of a rich golden yellow. To Messrs. R. Veitch and Son, Exeter, for *Rose Reine Marie Henriette*, a now well known tea-scented variety bearing large pink flowers. To Messrs. Veitch for *Sclaginella platyphylla*, a very elegant species with broad fronds. To Messrs. C. Leo and Son, Hammersmith, for *Stalicia floribunda*, a splendid form bearing immense heads of violet-blue flowers, and likely to prove of value for exhibition purposes; *Hydrangea japonica tricolor*, a beautiful variety, the leaves margined with pure white and yellow. To Mr. S. Williams for *Adiantum dolabriforme*, an elegant little species with pinnate fronds.

FRUIT COMMITTEE.—Amongst the subjects brought before this committee were a half-dozen very fine heads of Veitch's Model broccoli, one of the most valuable spring varieties. A first class certificate was granted to Mr. C. Howe for *Melon William I.*, a remarkably fine scarlet-fleshed variety; the fruit is globular in form, has a yellow finely-netted skin and a thick flesh, which is bright in colour and exceptionally rich in flavour.

It is unquestionably a valuable addition to the scarlet-fleshed melons, for it combines the important qualities of handsome appearance and high quality.

MISCELLANEOUS COLLECTIONS, although less numerous than usual, were of considerable importance. The silver Banksian medal was awarded to Messrs. J. Carter and Co. for a charming group of plants, to Messrs. Cannell and Sons for an extensive collection of cut pelargoniums, to Messrs. Kelway and Son for cut pyrethrums and pæonies, and to Messrs. Osborn and Sons, Fulham, for a beautiful collection of hardy plants. The silver gilt Flora medal to Mr. J. Aldous for a group of decorative plants, to Messrs. Jackman and Son for specimen clematis, to Mr. Turner for azaleas and roses, and to Messrs. H. Lane and Son for rhododendrons. The silver Flora medal to Mr. Noble for clematis, and to Mr. B. S. Williams and Messrs. Laing and Co. for collections of plants.

Replies to Queries.

Crickets, Cockroaches, &c.—"Constant Reader" will have no further trouble with these pests if he will adopt the same means I did. My cucumber houses were infested with them. I could not keep a plant from being nipped off, until I got a packet of powder from Townson and Co., Altrineham, which in a single night killed thousands. I never see or hear one now, and I always have a little in use as a preventive. It is perfectly harmless to animals, but will kill slugs, snails, &c.

Cool Orchids.—Amateur.—A beginning in orchid culture may be made at any season of the year, but it is preferable to commence during the summer season, as the plants can then be obtained from the nurseries without any risk of their being injured by frost or cold. A very good collection of cool kinds may be grown in a span-roof house 25 ft. in length by 12 ft. in width. The side walls should be about 4 ft. 6 in. high, and the height from the path to the apex of the roof from 8 ft. to 9 ft. The only inside fittings required will be a stage of open lattice work on each side of the walk. The stages should be 4 ft. wide, which will give a 4-ft. path along the centre of the house. Two rows of 4 in. pipes on each side of the house will suffice to maintain a suitable degree of warmth in the severest weather. Openings in the roof and along the side walls opposite the hot-water pipes will be required for ventilation, but the air must be admitted chiefly by the roof ventilators. The cattleyas and *Lælias* and other genera thriving in the intermediate house are so exceedingly beautiful that we would advise you to erect a house 40 ft. in length, and divide it into two compartments, one for cool and the other for kinds requiring a temperature intermediate between that of the cool and the East India houses. The stages should be the same in both compartments, but for the more efficient heating of the part devoted to the intermediate kinds three rows of 4-in. pipes should be fixed on each side.

Scotch Firs in Danger.—"W. J." describes his plantation of 20,000 firs, planted last autumn, as in danger of destruction by a weevil that pierces the wood and eats bark and buds voraciously. The plantation is on ground formerly occupied with firs that were destroyed by fire. The tree sent to show the nature of the mischief, and the beetles accompanying it in a tin box, enable us to understand the case completely. The enemy is an old acquaintance: his name is *Hylobius abietis*, the pine weevil, and there is a chapter devoted to him in Miss Ormerod's "Manual of Injurious Insects," published by Swan Sonnenschein and Allen. In this case we have enforced by a new experience a law that should never be forgotten: it is that when ground is cleared the crop should be changed. To plant firs after firs is to invite the enemy, for the rubbish forms his breeding ground, and the young trees offer him succulent food. Three or four years should have passed before the plantation was renewed, by which time the beetles would have died out through lack of food. The first step towards the destruction of the pest consists in clearing the ground of all the debris of the former plantation, and this should be burned as quickly as possible. The next proceeding should consist in systematically trapping and killing the weevils. Just as the debris of the former trees has been the breeding ground of the insects, so pieces of bark laid inner side downwards will serve as traps. These traps should be marked, and should be laid in regular order, because they must be examined every morning at an early hour, and also at any time during dull or rainy weather. Traps may also be made of pine or spruce twigs tied in bundles, from which the beetles can be shaken. We say nothing of hand picking, for although it is the most direct and effectual mode of dealing with the pest, it is generally speaking too costly. In every case of planting coniferous trees to follow coniferous trees, the ground should be cleared of all coniferous waste, and be kept open as grazing or potato land for two or three years, so as to eradicate completely this pest, which is usually attracted in the first instance by the smell of turpentine.

WHITE-SPINED CUCUMBERS are reckoned less handsome than those with black spines, more especially when these last are dusted with a glaucous bloom. But white-spined cucumbers have their claims to admiration, as we are reminded by Mr. Castle, who has forwarded a brace that are as near perfection as we can expect to see. They measure 22 inches in length and 7½ inches in girth, the yellow flower remaining at the point, and the form so regular that one might say they had been cast in a mould.

FRENCH SCHOOL OF INSECTOLOGY.—The Municipality of Paris has granted about an acre (4,000 square mètres) of ground in the Park of Montsouris to the Société d'Apiculture et d'Insectologie for a school of practical insectology. Demonstrations in practical bee-keeping have commenced; those on sericulture will shortly follow. The courses relating to auxiliary insects and noxious insects, and methods of dealing with them, await the erection of a building to serve as an insectarium, a grant to defray the cost of which has been applied for to the municipality.

No Toilet Soap ever introduced to the public has met with such deserved success as WRIGHT'S COAL TAR SOAP. It cleanses the skin, frees it from impurities, promotes its healthy action, and immunity from infectious disease, and last, and not least, washing with it is a luxury. Purchasers, to avoid disappointment, should refuse all imitations, which are not only useless but are positively dangerous.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
4	S	Trinity Sunday.	3 50	1 59	8 7	10 21	6 26	3 17	3 49	0 23	0 42	59.2	Allamanda grandiflora, S.	Yellow.	155
5	M	Sir Joseph Paxton died, 1835.	3 49	1 49	8 8	10 55	7 41	4 0	4 23	1 5	1 25	59.1	Anemone sylvestris, H.	White.	156
6	Tu	Trinity Law Sittings begin.	3 48	1 38	8 9	11 21	8 59	4 45	5 10	1 43	2 10	59.6	Armeria alpina grandiflora, H.	Rose.	157
7	W	Reform Bill passed, 1832.	3 47	1 27	8 10	11 47	10 19	5 31	6 0	2 35	2 54	59.7	Gardonia radicans major, S.	White.	154
8	Th	Corpus Christi. (Last Quarter, 5h. 9m. after.	3 47	1 16	8 11	Morn.	11 37	6 27	6 55	3 25	3 52	59.9	Imatophyllum miniatum, S.	Scarlet.	159
9	F	Charles Dickens died, 1870.	3 46	1 5	8 11	0 9	After.	7 25	7 55	4 20	4 50	60.0	Ixora coccinea superba, S.	Scarlet.	160
10	S	Crystal Palace opened, 1854.	3 46	0 53	8 12	0 34	2 15	8 25	9 0	5 20	5 50	60.1	Rhynchospermum jasmnoides, G. ...	White.	161

The Gardeners' Magazine.

SATURDAY, JUNE 3, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Auction Sales for the Ensuing Week.

MONDAY, JUNE 5, at 12.0 noon.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse Yard, E.C.; Imported Orchids.

TUESDAY, JUNE 6, at 12.0 noon.—Messrs. Protheroe and Morris, at The Nursery, Thurlow Park, West Dulwich; Nursery Stock.

THE FORMS IN WHICH PLANTS ARE PRUNED AND TRAINED should be governed by reason rather than caprice, and yet we see almost daily evidence that in this matter caprice and custom bear the upper hand. When, some years since, we disturbed the equanimity of our friends by protesting against the reckless use of the pruning knife, we propounded the plain doctrine that, for all ordinary purposes and occasions, the natural form of a plant is the best form, both for the display of its beauty and its full development. We hold to that doctrine still, and, from what we see and hear, many have adopted it who, until quite recently, were alarmed by its reasonableness and simplicity. Why is pruning practised? Chiefly for the restriction of growth, but also in some cases with a view to promote fruitfulness, and in others to give to the subject of the operation a form it would never have except under such compulsion. The use of stakes and ties, of wires and trellises, is justified in a similar manner; to condemn them *in toto* would be absurd, but it is nevertheless the fact that they are often used for the purpose of enhancing the beauty of a plant, while, as a matter of fact, they conceal or annihilate its beauty, and cause it to present a ridiculous appearance. Many plants require artificial support when under cultivation; many plants may be with advantage restricted in growth, and many may be trained to geometric outlines without any serious sacrifice of their original characters. But when all this is admitted, it must be further admitted that the knife, the shears, the sticks, the ties, the wires, and trellises are very commonly employed to disfigure rather than to reveal the various beauties and distinctive characters of plants. The natural form is the best form, and all training intended for ornamental purposes should be as far as possible adapted to the natural form, so that while needful support is given, much of the original grace of the subject shall remain; for we no more desire to see all plants cast in the same mould than to find all men of the same opinions and the same tastes. The natural form is the best form; you cannot improve upon *that*. If, therefore, it is not convenient to permit the plant to assume its natural form, the prudent course will be to effect a reasonable compromise between the ways of nature and the needs of art. We allow, on the score of taste, the use of sticks and ties in the formation of specimen plants, because they are often absolutely necessary; but the "art that conceals art" is wanted in the performance, that somewhat of the truth of nature may remain when the work is accomplished.

Some few years since the training of azaleas had attained to such a pitch of savago formality that the plants were mere lumps of colour cast in sharp moulds, sometimes square, sometimes round, mostly conical, but occasionally of no shape at all. Against that harsh uniformity of colour a reaction in favour of what may be

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tormed a shadow of nature set in, and the world was refreshed with the sight of specimens a little negligent in training, and with a few sprigs of green mingled with the floral colouring to afford relief. Some progress has been made in this direction, as we were glad to notice, in the specimens shown at Regent's Park on the 17th. Messrs. Downie and Laird, of Edinburgh, have given some special attention to this matter, and in their nurseries may now be seen a fine lot of specimens so trained as to interfere the least possible with the natural forms of the plants, while at the same time ensuring them sufficient support and keeping them to a certain uniformity of character. We shall hope to see specimen roses so treated some day. The ruling fashion favours hard outlines and the distribution of the flowers with such outrageous regularity that, with all their delicate beauty and freshness, they put us in mind of the wall-paper patterns that nervous people trace this way and that way, until the repeated dots and blotches bewilder them into a state approaching madness. There were at Regent's Park on the 17th some huge faced rose trees, marvellously grown, perfect in leaf and bloom—mountains of floral splendour, but outrageously ugly, and the very kind of specimen plants that a tasteful grower would be careful never to produce.

It is customary to see at exhibitions, and even sometimes on the home stage, such plants as allamandas, dipladenias, and clerodendrons, tied down to wire balloons like criminals ordained to punishment. The executioners appear to be entirely unaware that these are not criminals, but plants of the most exquisite grace of growth, when allowed to grow somewhat naturally. In the face of such examples one may say with emphasis, the natural form is the best form, and to that declaration may be added another to the effect that a considerable display of the natural form is consistent with severe training. Plants that are to be carried from place to place must be made secure; but Nature is always accommodating to those who understand her. These balloon specimens would often present a beautiful instead of an obnoxious appearance if they were trained in good time, and encouraged to make some amount of growth subsequently, as well as to adapt their leafage to the concealment of their supports. We have lately presented a few figures of pot specimens of climbing plants that are often troublesome because of their delightful irregularity of growth. These figures have been prepared from specimens trained in an extremely simple manner, the needful support being secured without any severe reduction of the plant to a specific form or restricted compass. Young gardeners may study these figures to advantage, keeping in mind that while they compel their plants to certain lines and configurations, they may yet allow them a certain degree of freedom for the display of graces we cannot improve upon, but may very easily diminish or destroy. The natural form is the best form, and if we cannot always have the natural form, we shall do well to be always convinced that we cannot possibly invent a better.

SOUTH SHIELDS CHRYSANTHEMUM SHOW will take place in the Library Hall, November 29 and 30.

"PAXTON'S FLOWER GARDEN," Part 22, just published, contains figures of the Ceylon Rhododendron (*R. Rolissoni*) and the Sessile Oncid (*O. sessile*).

MESSRS. CASSELL AND Co.'s free exhibition of pictures by modern artists was opened at Belle Sauvage Yard, Ludgate Hill, on Thursday last, and will continue to the end of this month.

MISS MARIANNE NORTH'S GALLERY OF BOTANICAL PICTURES having been given to the nation, and deposited for public use in the Royal Gardens, Kew, will be open at all hours when the gardens are open, on and after the 8th of June. The private view will take place on Wednesday next, June 7th.

RHODODENDRONS are now flowering freely wherever they are to be found, and, as a matter of course, are in full force at Woking, Bagshot, and other of the districts that are famous for them. The exhibition of Messrs. A. Waterer, in Regent's Park Botanic Gardens, is in perfect order, and tickets of admission may be obtained on application to the firm, addressed Knap Hill, Woking.

VAN GEERT'S ICONOGRAPHY OF INDIAN AZALEAS has already reached the 8th part, which contains portraits of Dame Mathilde, one of the finest exhibition varieties, which will be put into commerce in September next; Frau Johanna Andrea Winkler, a pretty striped flower; and Souvenir du Prince Albert, a showy decorative variety brilliantly coloured rose carmine and white.

THE BATH AND WEST OF ENGLAND SHOW AT CARDIFF is considered the best show known in the history of the society. The entries of live stock number 717. In the department of seeds and roots Messrs. Sutton and Sons, of Reading, make a great display of dried grasses, seeds, roots, and models. Messrs. Webb and Sons, of Wordsley, and Messrs. A. and C. Wheeler, of Gloucester, also exhibit samples of farm seeds and produce.

GRAFTING MONOCOTYLEDONS.—At a recent meeting of the Linnean Society a communication was read "On New Varieties of the Sugar Cane produced by Planting in Apportion," by the Baron de Villa Franca and Dr. Glass, of Rio de Janeiro. In correspondence which had passed between the authors and Mr. C. Darwin, the latter had expressed doubts as to whether two varieties could affect the character of the buds produced by either, it appearing more probable to him that the so-called new variety was due to bud variation. The Baron de Villa Franca thereupon forwarded a document, signed by eight distinguished Brazilians, testifying to the fact that valuable varieties have been raised by the process in question. Dr. Glass furthermore describes in detail his early but fruitless attempts to graft two varieties of the sugar cane, though he succeeded with another monocotyledon, viz., *dracæna*.

THE WHITSUN HOLIDAY has been characterized by better weather than has occurred at the same season for many years past. The records of the Manchester Botanical Society will strikingly illustrate the subject, for it is long since the holiday crowds had so bright a day in the cotton city. It is worth recalling the fact we made mention of at Easter in connexion with the proposal to make fixtures of the movable feasts. Were these removed from lunar influence, and made agreeable to fixed dates, the dates for all future time would be the same as in this year of grace 1882, because the actual date of the Crucifixion of our Lord can be determined without difficulty. When these celebrations fall early the weather is usually unfavourable, and the disappointments that ensue are in the nature of national disasters. The brilliant weather made the railways busy, and parks and gardens were in high favour. The visitors to Kew on Monday numbered 95,000. The gardens of the R.H.S., South Kensington, had 11,158 visitors. Tuesday was a great day at Leicester, the opening of the Abbey Park by the Prince and Princess of Wales attracting vast crowds to that important centre of the Midland excursion system. It is long since the old town presented such a gay appearance.

HORTICULTURAL BUILDINGS AND IMPLEMENTS AT SOUTH KENSINGTON.

THE exhibition of horticultural buildings and implements now being held in the gardens of the Royal Horticultural Society at South Kensington will compare most favourably with that of last year, and contribute in no small degree to the interest of the series of great summer shows which terminate with that on July 4. The buildings are exhibited in considerable numbers, and they comprise almost every form of structure that has a place in English gardens, from the elaborate conservatory to the plain two-light box, and admirably illustrate the systems of glazing which at the present day are held in the highest esteem. Very numerous also are the boilers and other matters belonging to the heating of glass structures by means of hot water, and nearly if not all the mowing machines in general use are represented. Garden pottery, seats, and tools, and horticultural elegancies are contributed in sufficient numbers to form of themselves an important exhibition. To practical horticulturists the exhibition is of special importance, and the opportunity it affords for becoming acquainted with the most approved forms of plant and fruit houses, boilers, and mowing machines, and the other accessories of the garden should, as far as practicable, be taken advantage of.

HORTICULTURAL BUILDINGS AND GARDEN FRAMES constitute a very important part of the exhibition, and should have special attention. The class for a plant house, vinery, or orchard house, not exceeding fifty feet, is a strong one, and there are eight or nine competitors. The silver medal was awarded to Messrs. Foster and Pearson, Beeston, Notts, for a span-roof remarkable for its substantial and elegant appearance and the efficiency of its ventilating gear. Messrs. Boulton and Paul, Norwich, were awarded the bronze medal for a structure which fully sustains the reputation enjoyed by that firm, combining as it does lightness, great strength, and arrangements of the most perfect character for regulating the ventilation. Mr. B. W. Warhurst, Highgate Road, exhibits several very excellent houses of various descriptions, and has been awarded a silver medal for a new form of glazing which appears to possess much practical value. In this system of glazing, which is exceedingly simple, the glass is supported by grooved bars of lead, which can be used independently or in conjunction with purlins of wood. When the lead bars are fixed in position the glass is readily inserted in the groove by turning the top side up, and it is securely fixed by pressing the two edges to the glass with the hand. When wooden purlins are employed for giving increased strength to large roofs the lead grooves are laid on the top of them, but the structure exhibited shows that for roofs of medium size the lead bars afford of themselves a sufficient degree of stability. Messrs. W. E. Rendle and Co., Westminster Chambers, exhibit their now well-known system of glazing, in which zinc bars are employed for holding the glass; and Messrs. Messenger and Co., Loughborough, have a very excellent three-quarter span vinery or plant house thirty feet in length, which appeared to find much favour with the practicals during the three days of the flower show, and a small span-roof house of admirable design and workmanship, which serves to show that the firm are not unmindful of the wants of the amateur. Mr. W. Parham, Bath, has a spacious span-roof glazed by his

patent system of glazing, and a curvilinear conservatory glazed by Cranston's patent system. Messrs. Johnson Brothers, Pall Mall, exhibit an excellent arrangement for the protection of wall trees, and they show their imperishable system of glazing by a well-constructed peach case. Messrs. Horley, of Toddington, Beds, exhibited their Premier and Paragon greenhouses, which have long since been recognized as of much value for gardens of small size.

The movable plant pits and frames are especially interesting, as they are largely exhibited by Messrs. Foster and Pearson, Messrs. Boulton and Paul, Messrs. Messenger and Co., and others, and include the best forms that are now made. Messrs. Foster and Pearson have been awarded the silver medal for their well-known and excellent span-roof frame, and Messrs. Boulton and Paul the bronze medal for their admirable span and three-quarter span frames, which are in use in all parts of the kingdom. Messrs. Messenger's frames are so neat in appearance and substantial in workmanship that it would be no easy task to overpraise them. Some of the frames manufactured by the last-mentioned firm have sides of glass three-quarters of an inch in thickness, and are particularly suited for plants requiring the maximum of light. The portable frames exhibited by Messrs. Horley and Mr. Parham are also well worthy of attention.

BOILERS AND HEATING APPARATUS form a very important and instructive feature of the exhibition, as nearly all the most important forms of boilers for heating horticultural structures are exhibited, and, in addition to the fittings of the usual apparatus, there are several excellent arrangements for heating houses of small size, with which amateurs would do well to make themselves acquainted. The silver medal for a boiler to heat upwards of five hundred feet of four-inch piping was awarded to Mr. Warhurst for Ben's Boiler, thus confirming the high opinion we expressed of the invention in our report of the implement exhibition last year. This, it may be stated, is a ribbed and flued saddle with crossbridge and waterway at the back. Messrs. Foster and Pearson were awarded the bronze medal for their Monarch boiler, which, briefly described, consists of a series of upright tubes enclosed in a cylindrical water jacket, with which they are connected at both ends. It can be employed with or without brickwork setting, and is said to be powerful in working. Messrs. Kinnell and Co., Bankside, Southwark, exhibit Rochford's horizontal tubular boiler, which is in much favour with the market growers for its rapidity of action, power, and economical working. The same firm also have their independent horse-shoe boiler, Acme slow combustion coil boiler, and a terminal end saddle boiler. Messrs. Jenkins and Co., Masbro' Works, Rotherham, exhibit a large number of welded boilers, all of their own manufacture, amongst which the dome-top cylinder boilers and cruciform saddle boiler are particularly noteworthy. Messrs. Green and Co. exhibit, but not for competition, their excellent tubular saddle boiler, for which they received the premier award last year. Mr. J. Keith, Edinburgh exhibits several of his Challenge boilers, which require no brickwork setting.

There are seven exhibitors in the class for apparatus for heating a small conservatory attached to a dwelling, and the silver medal has been awarded to Messrs. Messenger and Co. for an excellent arrangement which will find much favour with amateurs. Mr. Keith has received the bronze medal with an apparatus possessing much merit. The silver medal for the best means of fixing hot-water pipes was awarded to Messrs. Messenger, and the bronze medal to Messrs. Appleby and Co., Chesterfield. A certificate was awarded to Messrs. Foster and Pearson for a new throttle valve.

CONSERVATORY DECORATIONS include many objects of great beauty and interest. A silver medal was awarded to Messrs. Rosher and Co., King's Road, Chelsea, for a large and excellent display of fountains, vases, statuary, &c., in Rosher's artificial stone. Messrs. Lipscombe and Co., 44, Victoria Street, E.C., were awarded a medal of like value for statuary, vases, &c., in terra cotta; and the Coalbrook Dale Iron Company, Shropshire, of which Mr. J. C. Fox is the agent, have been awarded a silver medal for flower stands, seats, and other accessories in iron, which show much taste. Messrs. Kessell and Son, 11, Southwark Street, S.E., have received the bronze medal for self-acting fountains and aquaria.

LAWN MOWERS have two classes provided for them, one for hand machines, and the other for those of large size and requiring horse-power. In the first of the two classes Messrs. J. Crowley and Co., Sheffield, and Messrs. Deane and Co., were awarded silver medals: to the first mentioned for their Invincible, and to Messrs. Deane and Co. for the Excelsior, both machines of great excellence. Bronze medals were awarded to Messrs. J. G. Rollins and Co., Old Swan Wharf, London Bridge, for the well-known Archimedeian, and Messrs. T. M. McKenzie and Sons, High Holborn, for the President, a machine possessing much merit. The silver medal for mowers requiring horse-power was awarded to Messrs. Crowley for a machine of the same make as that for which they obtained the silver medal for hand mowers, and equally satisfactory in every particular.

GARDEN POTTERY comprised a large, important, and highly attractive collection from Mr. Matthews, Royal Potteries, Weston-super-Mare, who was awarded the silver medal in the class. A special certificate was also awarded Mr. Matthews for a propagating pot, provided with a grooved rim to receive the glass used for the protection of the cuttings. Messrs. Stiff and Sons, Lambeth, were awarded the bronze medal for various manufactures in terra cotta.

WIREWORE AND GARDEN SEATS were very largely shown, and chief amongst the exhibitors were Messrs. J. J. Thomas and Co., 285 and 362, Edgware Road, who were awarded silver medals for wirework and seats, a bronze medal for tenting, a special certificate for a flower stand, and a gold medal for the most general display in the exhibition. The bronze medal for wirework was awarded to Mr. Holliday, Beaufort Street, Chelsea.

GARDEN ENGINES AND SYRINGES were represented by an especially large and good collection from Messrs. J. Warner and Sons, 27, Jewin Crescent, E.C., who were awarded the silver medal in the class.

MISCELLANEOUS.—In addition to the awards enumerated above, it may be mentioned that silver medals were awarded to Mr. Edgington for founts, to Mr. Parham for lawn tennis apparatus, to Messrs. Nettelford for a collection of garden tools, a bronze medal to the Pall Mall Lawn Edger Company for the well-known Adie's Lawn Edger, and a certificate to Mr. Wells, Reigate, for a spray distributor, which has the appearance of being useful in the application of liquid insecticides. Mr. Charlton, Royal Parade, Tunbridge Wells, exhibited the patent tree-lifter, for which he is agent. This is a powerful implement, and of immense value in transplanting trees and shrubs of moderate size.

THE TUBEROUS INDIAN CRESS.

(Tropaeolum tuberosum.)

THE plant here figured is at present but little known, for it is somewhat troublesome to manage, because it grows best in the open ground, but flowers so late that the display is sometimes marred by frost. As regards its attractive qualities it is simply magnificent, and therefore it is worth a little trouble, more especially as its glittering semi-tubular flowers, which are almost equally coloured red and yellow, may be had in profusion from September far on towards the winter. It was introduced from Texas to the Glasgow Botanic Garden by Mr. Drummond in the year 1834, but was probably not

appear before the frosts are over they should be sheltered as occasion may require. The growth in the open ground is so vigorous that the plants should be at least six feet apart, and should be supported with pea stakes five feet high. If planted next a wall they may be trained to it, or, better still, to a wire trellis. By planting early and sheltering as needful a glorious display of flowers may be ensured during September and October, and a frost of five or six degrees will do no harm. As a pot plant it will, under generous treatment, prove particularly valuable by reason of its lateness in flowering. But starvation treatment will never bring out its qualities. It must have plenty of pot room and good living, and the only reason for putting it in a pot should be the facility afforded for giving protection in the later days of autumn, when the conservatory will be the proper place for it.



TROPAEOLUM TUBEROSUM.

seen in flower until 1837, when Mr. Young, of Epsom, tried it as a hardy plant and obtained a prodigious growth and an abundant bloom; but the beauty of the plant was spoiled by an early frost.

The lesson of nature appears to be that this plant is not well adapted for pot culture; but that lesson must not be severely heeded, because, of all the plants that are customarily grown in pots, about nine-tenths (perhaps more) are also not well adapted for such treatment. Witness the camellia. When well done as a pot plant it is a grand thing, but where it can be grown in the open ground it is grander in a degree that language cannot express.

To grow *Tropaeolum tuberosum* well, it is advisable to plant the tubers in a rich, light, well-drained soil early in April, and if the shoots

The tubers of this plant are good eating when cooked as potatoes, but to enjoy them needs what we usually term an educated palate. Perhaps, also, we need an educated cook, for at the best the cooked tubers have a taste of acidity, and it is a nice question if this can be removed by any particular management of the cook. As a "substitute for the potato" this tropaeolum has at least one claim—it is immensely productive of tubers, and the tubers are thoroughly wholesome. We would gladly say they are nice, but facts stand in the way. It is a fact of some importance, however, that in Peru, where the potato is indigenous, the tubers of this beautiful plant are commonly used by the people, and are regarded as affording a wholesome and palatable food.

TOM MELLOR.

THE LAST OF A LANCASHIRE FLORIST.

IN our issue for May 13 (p. 248) we have recorded under "Obituary" the death of Thomas Mellor. In the *Manchester City News* of the same date appeared an account of the funeral and a sketch of his career, from the pen of Mr. Brockbank, both so interesting that we feel bound to transfer them to our columns. Here Mr. Brockbank's record will serve as a permanent memorial, and will have the sympathetic attention of many florists who do not see the paper, to which we are indebted for what follows: On Friday afternoon, the fifth of May, a procession of about fifty persons, mostly florists, and wearing flowers in their buttonholes, and a few women, relatives, who carried two wreaths of white flowers interspersed with fine trusses of auriculas and polyanthus, followed the remains of Tom Mellor to the graveyard at Christ's Church, Ashton-under-Lyne. After an impressive funeral service, the coffin was lowered into its resting place, and the flowers were strewn upon it by loving hands, quite covering it over. Such was a florist's funeral. Tom Mellor was respected by everyone, and beloved by many; he may be said to have died amongst his flowers. He had long been ailing, and the physicians wished him to go into the Infirmary a fortnight before he died, as they hoped his life might be prolonged by an operation; but Tom declined to follow their advice. He felt sure he would never leave the Infirmary alive if once he entered it. The Auricula Show was at hand. He had a lot of pet plants in preparation for it; and amongst these a fine John Simonite, which he hoped might win the premier prize, and he said: "If I die I shall die amongst my flowers; if I live I mean to be at the show; and it's no use trying to persuade me until after the show." So he remained at home, visited his garden daily as long as he was able, and gave a trusted friend instructions for the show, in case he was unable to attend it himself. The show was on the Tuesday, but poor Mellor passed away early on the Monday. His plants were staged and won. Thus passed from us a good old florist, one of a class of which Lancashire had reason to be proud, and of whom there are now but very few remaining.

Thomas Mellor was born in Ashton-under-Lyne, in 1826. His father was a barber. When a child Tom worked as a piecer in a mill, and was afterwards apprenticed to a shoemaker, and thus learnt the trade which he followed nearly up to his decease. He had a fair education for a working man, being able to read and write well. He was a keen politician. His early ambition was to become a voter, and for this his earnings were carefully saved until he was able to buy a chief rent which qualified him as a county voter.

His taste for flowers was acquired in early life through an acquaintance with S. Fish, a noted auricula grower; and he was encouraged to begin on his own account by the late W. Chadwick, of Dukinfield, who started him with a lot of auriculas, amongst which were six or seven good sorts. His garden was on the Moor, about a mile distant from his home in England Street, Ashton-under-Lyne, and here he gradually extended his operations, by preparing home-made frames and simple erections for wintering his plants. These florists' gardens are quaint places, some of which would form capital subjects for a painter, and Mellor's was of this class.

Mr. Prescott, of Leigh, advised him never to buy plants but what he could win with. "Have none of their second-rate stuff, Tom," he used to say. "Have summat that'll win, or it will be o' no use to thee." This advice Mellor followed, and to obtain a good plant he would travel far and wait patiently. One of his favourite auriculas was Walker's John Simonite, and for this plant he went to the raiser's house at Sheffield many times. Mr. Walker had promised him a plant a long while before he got it, as this famous auricula passed through its vicissitudes and was for a time nearly lost by its raiser. At last, however, Tom got his plant, and was so successful in its culture that he was able to raise and sell a good many from it. It was this very auricula that he was so anxious to show at Manchester, and if he had been in good health it would in all probability have carried off to its owner the premier prize for the second time. He won the premier prize in 1880 with a grand plant of "Alexander Meiklejohn." He was so proud of this that he had a beautiful water-colour drawing of it made by a pattern designer, and it formed the chief ornament of his parlour. He was very successful in raising new varieties. His seedling Lord Salisbury, a splendid maroon self, received a first-class certificate in London in 1880; his white-edged Reliance received a first-class certificate at Manchester the same year, and is one of the very best of its class. He has left behind him a large number of splendid seedlings, which have not yet been shown, but which are of the highest quality, and it was for these he was so anxious to attend the Manchester Show.

As a tulip grower Mellor was quite as famous. He acquired his early knowledge of tulips from S. Cook, who started him with a few bulbs, and taught him how to manage them. The late Benjamin Haigh, another leading tulip grower, lent him a friendly help, and he was thus trained in a good school, and soon made his mark. He won his maiden prize in 1856, and thenceforward became a regular and very successful exhibitor.

In pinks and carnations he also was a noted grower. His maiden prize for pinks was won in 1852, at the great South Lancashire Pink Show, and from that time he became an ardent supporter and exhibitor at all our local shows, very frequently acting as steward, and old exhibitors testify that no one was better able to fill that tedious office, as he was always known to be straightforward and honest. He was a successful raiser of seedling pinks, his Reliance (purple laced) and Bertha (red laced) being especially good. In July, 1855 he was first at Macclesfield with Black-Eyed Suson (purple laced). Pinks were very good that year. He had a special liking for this simple flower, and told many good anecdotes about it. One of his axioms was, that if his pinks were good others would be good also, and if his were poor, it might be the same with his competitors, and he used to illustrate this by practical instances. One year when the shows were coming on he could only find thirteen decent flowers upon the whole of his stock of pinks. He took them home to dress them, and had no sooner begun than he thought the whole lot not worth taking to the show, and so he threw them in the window bottom and left them there lying in full sunlight for about three hours. Happening again to cast his eyes upon them, whilst busy at shoemaking, he thought, "Well, if I dunnut tak 'em to th' show I've miss an out." So he took them up again, and was surprised to find them improved by their rough treatment. He dressed them, and took them to the Rochdale show, where they won three prizes. Next day he took the same despised

flowers to the Oldham show, where they won six prizes out of the thirteen.

In polyanthus also Mellor was a capital judge and grower. He had some excellent seedlings, amongst which his red ground Prince Rupert received a first prize in 1880 at Manchester, and a black ground seedling won in its class at the show this year. Several other seedlings left behind are of sterling quality. The secret of that lost polyanthus Kingfisher is lost with Mellor, as he alone knew where this famous old flower was to be found, and this knowledge he does not seem to have imparted to any of his friends.

Some curious old hardy plants were amongst his treasures. He had the old double-white Rocket, the white variety of the American cowslip, a lovely grey-blue fritillary, a grand lot of narcissus horsfieldii, obtained from old John Horsfield himself, a huge variety of the common dandelion, which grew nearly 2 ft. high, and which was indeed a glorious flower, and lots of old-fashioned plants of every sort. His garden was a meeting ground for florists in the blooming season, and in it his happiest hours were spent. There is no purer enjoyment on earth than this simple hobby of the florist. Mellor used to say he hoped there would be auriculas in heaven, and his guileless life may, we hope, have led him there. It was his last wish that the Rev. F. D. Horner, that true florist and friend of simple florists, should visit him at the last, and administer the sacrament. On hearing of this wish, Mr. Horner left by the very next train from Ripon, but on arriving at Mellor's humble home he found it too late—the soul had departed a few hours previously.

STATELY PLANTS FOR TOWN GARDENS.

THE so-called "subtropical garden" is far away from my view in the present endeavour to enrich the urban enclosure with a few stately plants. There are many plants of noble character, some of which are of a high botanical and historical importance, that may be employed in the embellishment of a garden during the summer without necessitating any such extravagance as the filling of beds with palms and tree ferns, or turning the contents of a stove into a draughty border, to be blown away by unaccustomed breezes. We have but to make a prudent selection in order to ensure a sufficient distribution of curious, beautiful, and, indeed, majestic plants, differing greatly in character from the ordinary vegetation of a town garden, and, if wisely used, calculated to enhance rather than eclipse the splendours of the highly-coloured subjects that properly find favour with townsmen. In the subtropical garden we may see beds of caladiums; "dells" filled with Australian bird's-nest ferns; miniature marshes dotted with the papyrus, the arundo, and the wigandia, with mixtures here and there of alternantheras, iresines, rubber trees, oleanders, and cannas, colour and form taking us on either side to conduct us to some sweet captivity. Everything of this kind is out of place in a town garden. Instead of giving reasons for this definite declaration, I prefer to say that very many of the subjects that are of the highest importance to the subtropical gardener are, in their way, severally and separately, of some value to the owner of a London garden who is prepared to employ them in a tasteful manner. For example, the castor-oil plant, *Ricinus communis*, will attain complete perfection in a London garden, if fairly safe against the destructive draughts that too commonly assail such enclosures. It is a magnificent plant, and if it grows at all, grows "like a weed." And again, the *Canna*, in all its many and splendid varieties, is a first-rate town plant, but requires good cultivation, and should never be looked at by one who intends to subject it to rough usage. And again, the noble Indiarubber tree, *Ficus elastica*, may as well be in the open garden from June to September as in the window, where, when fresh air is in great demand, it is but too likely to be in the way. Thus, a few subtropicals are within our reach, but the present writer will not advise the adoption of subtropical gardening in any ordinary town enclosure. For the extraordinary plot he has no proposals to offer, because of necessity it will demand extraordinary management.

Now let us turn about for a larger consideration of this subject. I have, say, been somewhat of a prodigal son by wasting my substance in riotous gardening. Look at the glass outside, while I look at the glass inside. In the large cool house I have an assemblage of succulent and hard-leaved plants of immense beauty and some value, the prevailing characteristic of which is stateliness. *Circumpic*—the Dragon Tree, the Australian *Dracæna*, the Eucalyptus, the Chusan Palm, the Palmetto Palm, the American Agave, Yucca, Beaucarnea, Dasylirion, and Puya; the African Cycas, the New Zealand Dicksonia, and many more that are less stately perhaps, but not less interesting. Now, as this is a free country, I am at liberty to carry all these out into the garden if it suits me to do so, and as a matter both of taste and management I shall put out a few of them as noble ornaments, and to ensure to those that remain as much advantage as possible of the summer air I shall from the beginning of June to the middle of August have the door and windows of the cool conservatory left open night and day, but guarded against the entrance of cats, birds, and other unwelcome callers, by screens of wire netting made for the purpose. All such plants as are suitable for a great cool conservatory which is heated only to a sufficient degree to keep out frost are immensely benefited by exposure to the free air and unobstructed light for from two to three months of the summer. That very noble plant the narrow-leaved yucca, *Y. aloifolia quadricolor*, makes a fine summer growth and acquires a very fine colour if put out during the summer. The *Agave americana* in its green and striped forms is improved in like manner; and many of the smaller succulents, such as *Sempervivum arborescens*, *Aloe arborescens*, and others may be plunged in beds and borders, and will prove attractive for their quaintness in the midst of gay flowers. It would, I think, be out of taste to offer directions for the management out of doors of the stately plants that I have thus far suggested as suitable for the temporary decoration of a London garden. Whoever has to manage them when they are put out is likely to have obtained experience in the management under cover, and the fact of possessing such subjects implies the possession of knowledge and taste more than sufficient for this particular business. For those who make the experiment for the first time two words of advice may be useful. The hard-leaved and succulent plants will enjoy complete exposure, but tree ferns and palms will be somewhat benefited by partial shade. The second refers to the watering; all the plants will need liberal supplies, for however dry many of them may be with advantage during

winter, they will be thirsty when they taste the direct sunshine and unobstructed breezes, and if they are kept short for any length of time they will be likely to cast their lower leaves, or even to shrivel up and part with all their proper beauty. For a true lover of a garden who is perforce located in a town, I can think of no more delightful hobby than to start a substantial conservatory and furnish it with succulent and hard-leaved plants. They are never very showy, as may be the case with pelargoniums, calceolarias, and azaleas, but they make ample compensation in their nobleness of form, their geographical interest, and their long endurance, and striking periodical changes, as they make new growth at this time, and gigantic flower spikes at another time, and require years to reveal their characters, for the good reason that they are not the weeds of an hour.

THE CASTOR-OIL TREE, *Ricinus communis*, is a gigantic annual that with a rich soil and a warm summer will in growth overtop the tallest man, and present a magnificent appearance. The seed is sown in a hotbed or stove in February or March, and the plants are nursed under glass until June and are then planted out. The best way for a town garden will be to begin with strong plants ready made, and having planted them out in rich soil to give them regular watering to encourage rapid and complete development. Plants of this kind look well in groups of three if space can be afforded them.

CANNAS are fine subjects to group with *Gladiolus brenchleyensis*, *Tritoma uraria*, *Phormium tenax*, and *Arundo donax*. A bed filled with such things, with a few patches of colour to light it, would make a beautiful feature in a town garden of sufficient size to accommodate it, but in a little place would be like a man-milliner in a washhouse. Cannas are perhaps the most useful of all the subtropical plants, and moreover the easiest to manage. They may be raised from seed sown in heat in February, and being grown on under glass in a warm house or pit may be planted out in June. But a better way is to purchase dry roots and plant them in April, and better still to purchase old plants in a growing state in May or June, as these will be sure to flower and will give absolutely no trouble at all. They must have a rich deep soil and a sunny position, and plenty of water in dry weather. When the season is over the roots may be lifted and stored away in a cellar in boxes filled with dry earth, or if the garden is well drained they may be left in the ground, in which case it will be advisable to put about six inches of clean coal-ashes over the roots to protect them. In the month of April following the coal-ashes should be removed, and some fat dung should be spread in its place. It is better, in my opinion, to lift them and store them the same as dahlia roots, as this leaves the beds free for a show of spring flowers, the planting of which should take place directly the cannas are lifted. There are so many fine cannas in cultivation that to select a few of the best is not an easy task. However, I should advise that in any case the following six sorts should be grown, and they would make a fine group in beds of about six plants each, making thirty-six in all. *Gigantea major* is of the most robust habit, the leaves green, the flowers scarlet; *Ehemanni* is also a strong grower, averaging five to six feet, the leaves finely bronzed, the flowers deep purplish red; *Bihorelli*, a more moderate grower, richly bronzed, the flowers orange; *Annei rosea*, also a moderate grower, leaves bronzed, flowers rose coloured; *Sellowi* is of dwarf habit, the leaves green; *Nigricans* is also dwarf, the leaves very richly bronzed.

THE BAMBOO may be turned to account to make a stately clump of elegant vegetation. It requires a deep soil and a sheltered situation, and in dry weather abundance of water. At Kingston-on-Thames a "willow-pattern" garden has been formed as a feature of a very interesting place: the details comprise clumps of bamboos, a few caltrops, willows, and birches, narrow canals with grass banks, and fantastic bridges of the style seen in the willow-pattern plate. For a town garden two or three kinds will suffice, and they may be *Arundinaria falcata*, *Bambusa Metake*, and *Bambusa nigra*.

PALMS will not be extensively used in any ordinary town garden, but they are admissible. In the Regent's Park Botanic Garden a plant of the noble *Chamærops Fortunei* stood for many years, a singularly stately object, but it was much torn in early spring by the winds. Any soil will suit palms, a little shade will not hurt them, and shelter from cutting draughts they must have; in fact, they need a still, warm, moist air, and there is no place in which they do so well as in a roomy conservatory. The best for the purpose before us are *Chamærops humilis*, the one named above, which is now generally catalogued as *Trachycarpus excelsus*, and its near ally of the Himalayas, *Trachycarpus Grifithii*. In the event of a winter like that of 1879-80, or 1880-81, these palms, however well established and thriving, will be likely to perish. But they may survive a dozen winters, and become magnificent objects before such an event occurs, and when the sharp frost has sealed their fate others may be planted to succeed them, or more advisedly, perhaps, a change of scene may be effected. Another fine subject suited for plunging, but not for planting out, is the Australian fan palm, *Corypha australis*. It is less hardy than the chamærops, and belongs of right to the house wherein we keep the dragon tree and the variegated agaves and yuccas.

THE NEW ZEALAND FLAX, *Phormium tenax*, is a grand subject, suitable to be planted out to take care of itself. In the course of a few years it will attain to gigantic dimensions. So far as I can speak of it as a London plant, I should say that no frost we are likely ever to have will in the least degree harm it, for I planted some handsome specimens out of pots five years ago, and to this day they are in the most perfect condition.

THE WIGANDIA is not a good subject for our purpose, as it must have plenty of room, and it makes no show. But it has much beauty nevertheless, and may please many for its curious characters and vigorous growth. A damp deep soil is required for the growth of this plant—it is, in fact, a marsh plant. There are some half-dozen species known, but the only one adapted for planting out is *Wigandia caracasana*.

THE ABUTILON will be the last in the list. It requires shelter against cold winds during the summer, and must be taken up before winter and kept in the greenhouse, unless, as may happen, it may be allowed to perish. A few plants dotted about next the walks will afford interest, but in a small garden abutilons are likely to prove more plague than profit. There are many sorts available for those who want them, but the best for general purposes is the variegated *Thompsoni*.

Such things as *Dahlia imperialis*, *Hebeaulem giganteum*, *Onopordon cynaroides*, *Humea elegans*, the shrubby *Solanums*, &c., are of such questionable value for town gardens that I will not incur the responsibility of recom-

mending them. It is well to study many tastes and circumstances, and it is also well to distinguish between the many things that are possible and the few that are desirable.

MOSES.

BEE-KEEPING.

THE mild winter and the bright sunshine of early spring have provided the always busy bee with its little loads of pollen and honey, the spring flowers and early fruit blossoms having yielded both in unusual abundance. Provision must be made for the brood with which the queens have for the last month or more been stocking the combs. In the well-regulated bee kingdom the queen does not commence egg-laying until honey and pollen, for the sustenance of her numerous family, are coming in regularly; thus the careful and hopeful bee-master commences to stimulate his bees by gentle feeding and the provision of artificial pollen so soon as March comes in, or even earlier, should he care to run the risk of severe weather interfering with and stopping the too early activity induced by him. The old-fashioned straw skep, the picturesque addition, at least by artists, to every cottage, is rapidly becoming a thing of the past with bee-keepers. Great advances have been made during the last few years in the knowledge of the habits of the industrious little creatures, and now bee-keeping has become a science, and there are men attached to the British Bee-keepers' and County Associations as experts, putting apiaries into order, and advising on all questions of bee-culture; and there are also improved hive makers in nearly every county town. Altogether there is a large amount of interest taken and a considerable amount of capital invested in bee-keeping at the present time.

A few weeks since a clever young expert, enthusiastic in his business, read a paper before the British Bee-keepers' Association, describing his travels and adventures in Cyprus and the East in search of Cyprian and other queens for rearing these varieties in England. There are also regular breeders in Italy of the Ligurian or yellow-banded bee, much sought after by the bee-keepers of England, Scotland, and America for its known gentleness, prolificness, love of hard work, and for the fact that it is able by the length of its proboscis to work the red clover, a honey-yielding plant which our black English bee is compelled to neglect. Great numbers of these queens are distributed annually throughout the country; they travel from Italy, each packed in a small box, and accompanied by a small retinue of subjects. There is sufficient food enclosed to keep them in good condition to the journey's end, and they arrive not much the worse for their long travel. The present price of these choice queens ranges from ten shillings to a guinea each, the price varying more according to the particular dealer than the strain. In accordance with the new teaching, bees should be no longer kept in the straw skep, the inside of which remains so great a mystery to the wondering cottager, but in wooden hives, each one of which is fitted with a number of movable frames hanging parallel in the hive, and in which the bees are made to build their combs for the queen to deposit her many thousands of eggs and the worker bees to store their honey. The wax of which the comb is made is in reality honey changed in the body of the bee, when, after undergoing this digestive process, it exudes from pores in the sides, and on cooling forms into flaky scales, and is then worked by the little creatures, with beautiful and marvellous delicacy, into their comb. In the production of one pound of wax, the quantity used in building the combs of a moderate-sized hive, the bees consume about twenty pounds of honey; and it sometimes happens, to the disappointment and discomfiture of the bee-master, that, if honey is coming in but slowly, by the time his bees have fitted and furnished their home, the weather breaks up, the honey season is finished, and instead of reaping a surplus profit, the bees have to be fed to be kept from starvation.

The Americans, always foremost as agriculturists, invented comb foundation—that is, sheets of wax stamped on either side with the shape and size of the ordinary cell, and containing enough wax in substance for the bees to work out into a full comb. Thus, at a small expense the bees are furnished with the material of their combs. The usual size of hive will require about two pounds of these wax sheets, stamped with nearly 60,000 cells; and, being at once shaped out, they are ready, when a flow of honey sets in, to store that twenty pounds they would otherwise have expended in building their house. When stored and sealed up in the cells it is ready for the economical bee-farmer to extract, which he proceeds to do. First removing the frame and shaking the bees back into the hive, he uncaps the honey-cells, places the frame of a comb in a can or extracting machine, and by a series of rapid revolutions throws out the honey into the extractor by centrifugal force; afterwards returning the comb, which represents so much fixed capital, into the hive for the bees to fill again. Such doings as this, and the raising of young queens, regulating the production of worker and drone brood, of course were not possible with such hives as our respected and venerable friend, the straw hive. But the tenacity with which the rustic bee-keeper, or as he becomes in autumn, "bee-burner," clings to this harbour of mice and moth as well as the bee is astonishing. Talking will not change his respect for what, to him, is a sound and honoured institution; and so it is that the British Bee-keepers' Association offers prizes for the best-regulated and most economical and profitable apiary, which, commencing with a capital not exceeding two pounds, provides out of this bees, hives, and all the necessities for its success. The competition extends from May of this year until the close of the honey season in 1883. One condition of this competition is that the hives shall be kept in a cottager's garden, thus forming local centres of information, where knowledge of the habits of bees and the profits and advantages of the scientific manner of keeping bees can be acquired at the hands of the practical men engaged in the competition, by the cottager and his friends. This competition seems to attack the straw skep, with its vermin, dirt, and superstition in a business-like way.—*Pall Mall Gazette*.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOUTON and PAUL Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113 Holborn, London.—[ADVT.]

NEW NEPENTHES.

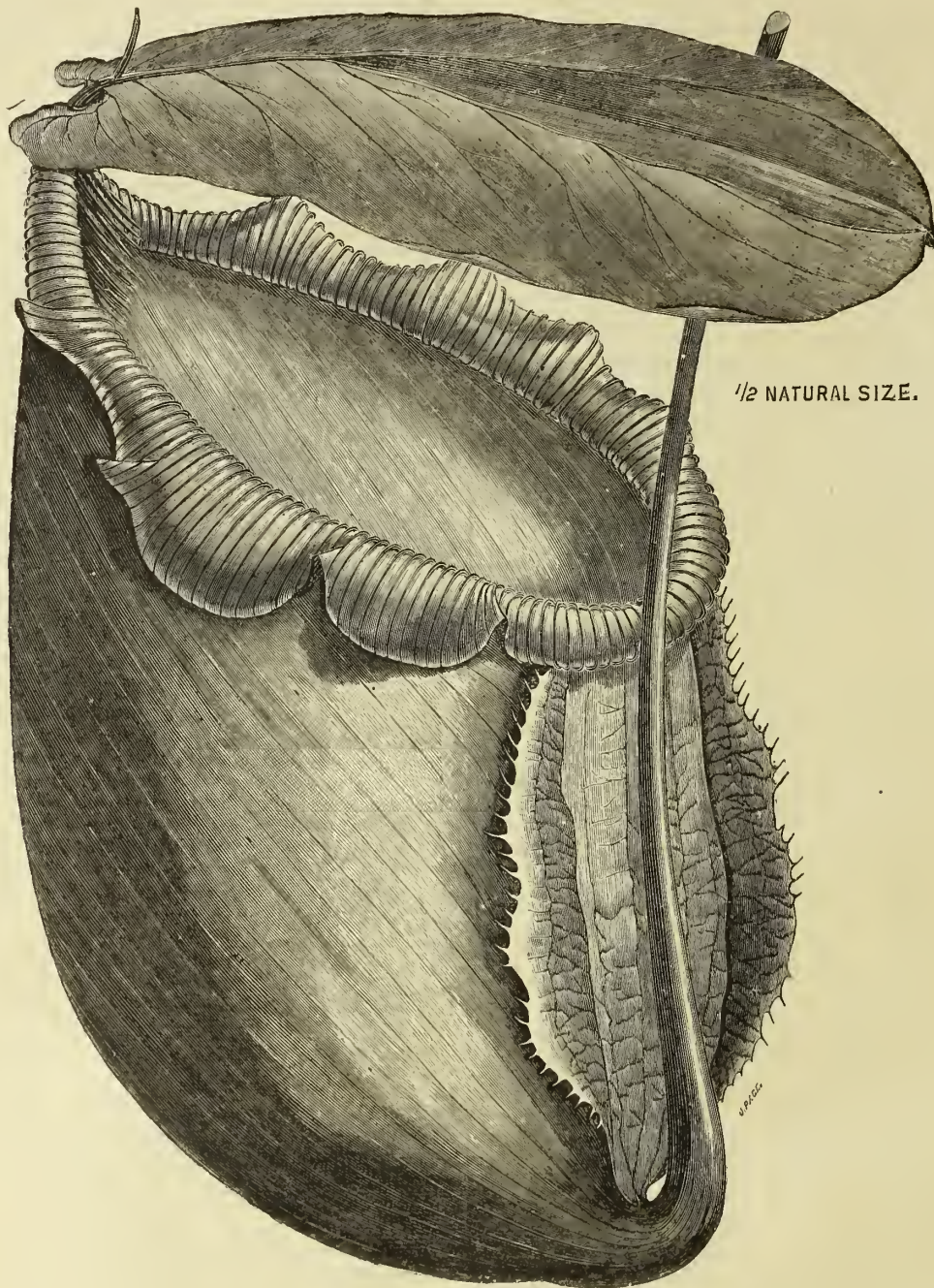
THE recent additions that have been made to the list of East Indian pitcher plants by Messrs. J. Veitch and Sons are all so highly attractive and thoroughly distinct in character that they form a most important group of themselves. The following are especially deserving the attention of cultivators, and of the nine enumerated six are hybrids, chiefly raised at Chelsea, and the remaining three are species of immense value that have been introduced by the Messrs. Veitch from Borneo and Madagascar.

Nepenthes bicalcarata is a remarkably distinct Bornean species. It is of strong growth, and produces pitchers six inches in length by four inches in diameter at the broadest end, and of a reddish crimson colour when fully developed. The pitchers are also distinguished by

inches in length, and of a proportionate breadth. In a young state the pitchers are mottled red and green, the urn becoming with age of a rich sanguineous red, the lid remaining pale green.

N. Rajah.—This species is a native of Mount Kaina Balu, Bornea, and is remarkable for the immense size of its pitchers. As shown by the dried specimen exhibited by Messrs. J. Veitch and Sons at South Kensington in October last, the pitchers attain when fully developed a length of twelve inches and a diameter of six inches. It is without question one of the most important of the East Indian pitcher plants, and is not likely to be overlooked by cultivators.

N. Ratcliffiana.—An attractive and elegant hybrid, raised from a cross effected between *N. phyllamphora* and *N. Hookeri*. The pitchers are of large size, flask-like in form, and richly marked with sanguineous red on a yellowish-green ground. It produces its pitchers very freely and at an early stage.



1/2 NATURAL SIZE.

NEPENTHES RAJAH.

the prominence of the wings and the two formidable spurs with which they are furnished at the base of the lid.

N. madagascariensis.—A very elegant species, evidently of moderate growth, and whilst possessing characteristics which entitle it to a place in large collections, it is of especial value to those who from a want of space can only cultivate a few kinds, because of the small amount of room required. The leaves range from five to seven inches in length, and are about one and a half inches in breadth, and the pitchers attain a length varying from six to eight inches, and are of a bright crimson colour.

N. Morganie.—This is a fine hybrid, which originated in the United States, whence it was introduced by Messrs. Veitch. It has a compact habit, and produces pitchers ranging from six to eight

N. rubro-maculata.—This is a beautiful hybrid, raised from a cross between *N. hybrida* and an unnamed species. The long sub-cylindrical pitchers are freely produced, and attractively spotted with claret on a pale green ground.

N. Stewarti.—A fine hybrid, having the same parentage as the last mentioned. It is of free growth, and produces in abundance its pitchers, which are of medium size and profusely spotted with crimson on a deep green ground.

N. Wrigleyana.—A fine hybrid, between *N. phyllamphora* and *N. Hookeri*, with the dwarf growth of the first mentioned, and pitchers closely approaching in colour and form those of the latter. The pitchers are attractively coloured, and borne freely even at an early period.

CHEAP AND SHOWY FLOWERS FOR SPRING BEDDING.

By J. C. CLARKE.

IN raising stocks of plants blooming in spring for the embellishment of the flower garden, it is necessary to make a beginning early in the summer, to afford the several subjects sufficient time to become strong by the autumn. A few classes of plants which can be employed with much effect in spring arrangements may be raised from seed sown in July, but the greater proportion must be taken in hand earlier to ensure a full measure of success. Especially is it necessary to sow wallflower seed at the commencement of the summer, for unless the plants are strong and the growth firm by the autumn, they will bloom indifferently, and the results will be decidedly unsatisfactory. I am very glad to observe that the taste for spring flowers is still gradually increasing, and that the owners of small gardens are taking them in hand. I shall not dwell upon the attractions of a garden in spring that is liberally decorated with plants blooming at that season, but I would say that those who engage with some spirit in the cultivation of spring-blooming plants will have good cause to be much gratified with the results. With the hope that I may be able to assist those who have not had much experience, I purpose giving a few directions for the propagation and preparation of a few of the more important subjects.

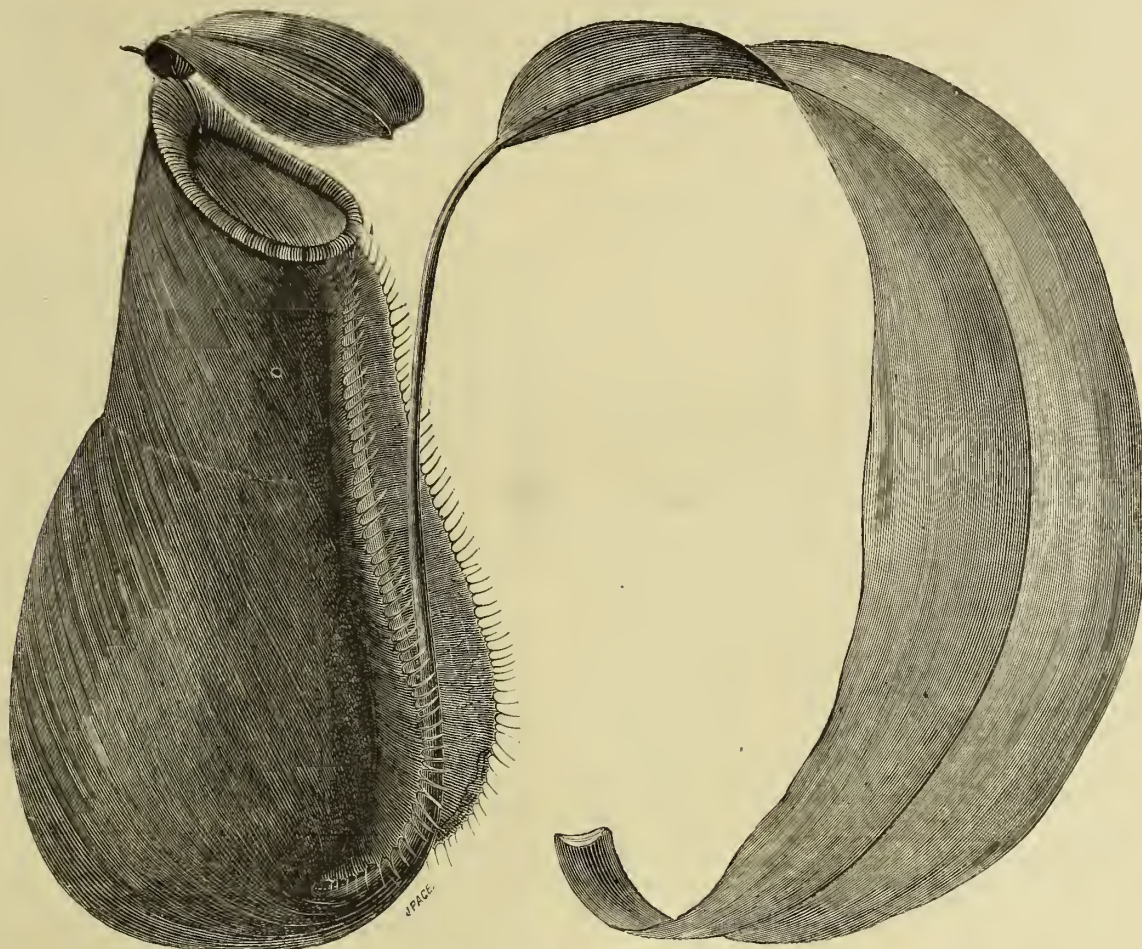
SINGLE WALLFLOWERS.

The single wallflowers are very easily raised from seed, and the earlier the seed is sown in May the better. The best dark varieties

air for a week previous to transplanting to harden them. The best summer quarters for them is under the shade of a wall or fence. A piece of ground should be specially prepared by having the surface sifted if at all lumpy, and receiving a moderate dressing of manure. It is impossible to grow any of these hardy flowers satisfactorily in a poor soil. Where the soil is known to be poor, it is a good plan to mix up sufficient good rich stuff to cover the surface to a depth of six inches, and put the young plants in it as soon as they are large enough. If they are put out six inches apart they will have plenty of room. In dry weather they must be watered often enough to maintain the soil in a nice moist state to a depth of four or five inches.

ALYSSUM SAXATILE COMPACTA.

This attractive subject may be raised either from seed or cuttings, but propagation by means of cuttings is the best. Cuttings made of the young side shoots, and inserted at once in pots filled with sandy soil will soon strike. If the pots can be placed on a mild hotbed and kept rather close they strike very quickly, but if there is not this convenience the pots may be put in a close pit or frame. In any case they must be watered and shaded in the ordinary way until they are furnished with roots. After the young plants are hardened off they must be planted out on a warm border where the soil is rich, and care must be taken that they do not suffer from the want of water. In fact, every encouragement must be given them to grow freely, or they will be very small at the end of the summer. If taken proper care of the same plants will be more valuable in the second year than they



NEPENTHES MADAGASCARIENSIS.

are Saunders's Dark Red, or Laing's Blood Red, and the best yellow sorts are Belvoir Castle Yellow and Yellow Tom Thumb. The seed should be sown in drills half an inch deep and covered with some fine soil, and the surface of the seed bed kept moist by frequent waterings when the weather is dry. In about eight weeks from the time the seed is sown the plants must be transplanted into another piece of ground, which must be moderately fine and fairly rich to promote a quick growth. The plants should, if possible, be transplanted when the weather is dull and showery. But if they are removed in dry weather they must be watered and shaded until they have recovered. When planted out they should be nine inches apart each way.

POLYANTHUSES AND PRIMROSES.

The seeds of these should be sown in April to produce plants of large size by the autumn, but there is time enough yet to obtain fair sized plants for flowering next year. The seed must be sown at once, and have very careful management. It should be sown in pans six inches deep, and the pans should be placed in a warm frame or pit where they can be shaded during bright sunshine. The pans should remain in the pit or frame, and the watering and shading be carefully attended to until the seedlings are large enough to prick off. Very little air will be required at first; but they should be exposed to more

are in the first, as they will be larger and produce a finer display of bloom. To preserve the plants for another year they must be taken up as soon as they go out of flower and be replanted in a shady place. In the autumn they will come in again for use in the flower beds. To obtain plants from seed that will be large enough to flower the following spring the seed must be sown in heat in March, and the seedlings be grown on quickly. Seed sown now in the open ground and transplanted next spring will make fine plants for filling the flower beds in the autumn of 1883.

MYOSOTIS DISSITIFLORA.

This forget-me-not is very easy to propagate both from seed and cuttings. The way we manage our stock may be briefly described. When we clear the beds at the end of the spring, we lift carefully two or three dozen old plants, just as they are, without cutting off any of the flowers, and replant them in a border in the kitchen garden. Here they ripen their seed, which they are allowed to sow in their own way. A little sprinkling of fine soil over the surface a fortnight after they have been put in the border is all the care they have. In the months of July and August we are able to obtain the desired number of self-sown seedlings, which we plant out in another part of the garden. If we want seed we cut over the plants when we are re-arranging the beds, and lay the flower spikes on a cloth in one of the houses for the

seed to ripen. The seed is sown as soon as it is ripe. It must, in fact, be sown in the month of June to ensure strong plants. This myosotis also strikes readily from cuttings made from the young side shoots. They should be taken and put in as soon as the cuttings can be had after Midsummer Day. I would, however, as soon have plants raised from seed, for, according to my experience, it comes remarkably true from seed. If a white myosotis is wanted, there is none better than *M. sylvatica alba*, which should be grown in the same way as *M. dissitiflora*.

RED AND WHITE DAISIES.

Where these have to be transplanted it should be done if possible in dull showery weather, and they must be planted in the shade. The shade of a wall is better than the shade of a hedge or trees, because of the soil near shrubs and trees being full of roots, and in consequence much drier. Daisies must have a damp cool soil to maintain them in a growing state during the summer months. The soil must also be fairly rich near the surface, as they do not root deeply. Large tufts may be divided into three or four portions if it is necessary to increase the number. Plenty of water must be given them in dry weather, and the leaves as well as the roots like plenty of moisture. The most hardy varieties to grow are the Double White and Double Pink. With me the beautiful crimson varieties are the least satisfactory growers.

AUBRIETIAS.

These cannot be satisfactorily moved about in hot dry weather unless very great care is taken, as they suffer from removal more than most plants. At the same time, if it is necessary to remove the plants with a view to increase the stock, it should be done forthwith. In dividing the tufts take care that every piece has roots attached to it, or it will not grow, and after planting supply with water as often as appears to be necessary. Aubrietias should have a shady position. Some growers are successful in propagating aubrietias from cuttings of the young growth, but great care and much skill are required. I find the easiest way to keep up the stock is to divide in October a few old plants into small pieces, with just a bit of root attached, and put them in nursery beds. These make excellent plants by the following autumn. There are several varieties, but I am not acquainted with any better than *A. deltoidea* and *A. Campbelli*. The last-named is a neat grower, and I believe the darkest of all the old kinds.

FRENCH EXPERIMENTS IN THE ELECTRIC LIGHTING OF CONSERVATORIES.*

THE following particulars of the experiments made at the Palais d'Industrie with the electric light in plant houses are condensed from a paper which lately appeared in *L'Electricien*, from the pen of M. Déhérain, by whom the experiments were carried out. The conservatory used for the purpose was expressly constructed for the Electric Exhibition by M. Sohier, and was about 20 ft. long and 10 ft. wide. It was divided into two compartments, in one of which the glass was darkened and afterwards whited outside, so as to exclude the daylight entirely, while the other was glazed in the ordinary way with common colourless glass. The sides of each compartment were fitted with three stages, on which were ranged the plants to be experimented upon. Illumination was produced by electric lamps connected with Gramme machines, driven by a 4 h.-p. Otto motor, an arrangement which worked with the greatest regularity. The light was estimated to be equal to that of 4,000 wax candles, and shone continuously day and night on the plants in the darkened compartment, and during the hours of darkness each night on those in the other half of the house. The plants consisted of maize, stocks, flax, barley, lilacs, rose trees, pelargoniums, camellias, azaleas, deutzias, astilbes, rhododendrons, ficus, &c. They were divided into five sets, so as to afford accurate means of comparison. One set was in the darkened compartment, and illuminated continuously, night and day, by the electric light; a second was in the other compartment, and exposed to the daylight in the daytime, and the electric light all night; a third was exposed to the electric light in the daytime, and placed in the dark at night; a fourth set passed the day in the open air in the flower beds of the Champs Elysées, or on the margin of the grand basin of the Exhibition, and at night was brought in and exposed to the electric light; while a fifth was left out in the open day and night.

The electric lighting began on August 30 last, and within eight days the ill effects were shown unmistakably by the plants in the darkened compartment. Not only had the roses and pelargoniums there continuously exposed to the electric light lost their leaves, but the azaleas, deutzias, bamboos, and the lilacs more especially, had their foliage blackened at the tips, where it had been struck directly by the electric rays. Leaves which were somewhat folded, like those of the azaleas, had the illuminated portions only blackened, and when one leaf partially covered another the exposed part of the latter was marked as in a photographic proof. Although these effects were most marked in the plants which had been exposed to the electric night day and night, the plants which received it at night only also exhibited the same blackening, which in some cases appeared after a single night's exposure to the light. Obviously, these results could only be attributed to the action of the light itself.

Following Dr. Siemens' example, globes of common transparent glass were placed to shade the lights, and the plants which had suffered most were replaced by fresh specimens.

On September 20 all the plants which had suffered most severely, such as the cannas, had been replaced, and the number of plants in the several sets was increased by the addition of kalmias, dracenas, pandanus, aspidistras, and aralias, and the observations began afresh. The plants withstood the light infinitely better; the pelargoniums made new leaves, which, however, opened at the ends of extraordinarily long petioles, a clear proof of defective illumination. Further proof of the feebleness of the electric light compared with sunlight was afforded by the impossibility of

obtaining a regular development of various seeds sown in the darkened compartment. Haricots, peas, barley, maize, melons, and radishes, thus sown in the electric light, came up pretty evenly, and their shoots turned green, but they speedily drew up out of proportion, and when this exaggerated growth had exhausted the nutriment in the seed they died down. The young blades of maize exhibited the fatal black spots noticed on leaves exposed to the unshaded light. Thus, the degree of illumination afforded by the electric light, although sufficient to keep azaleas, kalmias, rhododendrons, ficus, chamærops, aspidistras, and aralias, and even chrysanthemums, roses, and stocks, growing was inadequate to the needs of young plants requiring rapid powers of assimilation to enable them to elaborate substance for the development of their new organs.

When, on Sept. 20, the darkened compartment was supplied with fresh plants, pelargoniums and chrysanthemums in bud and linums in flower, the buds thus exposed to the electric light alone never opened; those of the pelargoniums shrivelled and dropped off; the chrysanthemum stalks dried up, and with them their terminal buds; fresh leaves formed on them and coloured well, but these were just at the bases. The flax never matured its seed capsules, and the seeds found therein were germless; the stalks were much drawn up, and although young shoots appeared, they died down like the older ones without maturing. Of all the seed-bearing plants the barley alone seeded. The ears were collected, and the grain from them germinated, producing very green-looking fragile stalks, which speedily bent down under their own weight and died off, without having exhibited any unusual rapidity of growth.

The electric light, as used in these experiments, was therefore, apparently powerful enough to develop herbaceous growth, but too feeble to induce those processes of maturation which result from exposure to a more powerful illuminating influence. It is a well-known fact that the rays most active in promoting the evaporating of moisture from leaf-surfaces are precisely those orange-yellow rays which induce the decomposition of carbonic acid, and consequently the fixation of the carbon. Now, these orange-yellow rays are very abundant in the electric light. The transmission of the elaborated principles essential to florification and maturation in herbaceous plants is intimately connected with evaporation; if evaporation proceeds imperfectly maturation is incomplete, as we see in wet seasons. The foregoing experiments tend to show that under the electric light the evaporative process is in like manner imperfect, and consequently maturation is defective.

Comparison between the plants which were kept in the electric light day and night and those which were illumined by the electric light in the daytime and put out in the dark at night, were in favour of the former: the lilacs did not open better in one case than in the other; in both the roses languished alike; but the pelargoniums, stocks, and azaleas were much better in the first than in the second case. Comparison between the plants which passed the day in the open beds of the Champs Elysées or on the margin of the Exhibition Basin, where they received more light than under glass, with sets of the same plants exposed to the electric light day and night, or to daylight under glass by day and the electric light by night, was in favour of the plants in the open.

The conclusions to be drawn from these last observations would seem to be: 1. That the electric light when shaded by ordinary colourless glass is no longer detrimental to plants in any appreciable degree; that, indeed, it is rather beneficial, as plants exposed to it night and day fared better than those receiving it in the daytime only. 2. That its powers are very mediocre, since the plants permanently exposed to it made but feeble progress, and most of them never accomplished the cycle of their vegetation.

It next remains to be seen whether the details of the experiments in question throw any new light on the supposed need of nocturnal rest in plants. Continuous illumination is clearly not in itself fatal, as it was borne by over thirty widely-differing species for more than two months. Nocturnal illumination, too, did not interfere with the growth. Indeed, the stalks of flax, the leaf-stalks of the pelargoniums, and the young sprouts of haricots and barley attained exaggerated dimensions under its influence. There is nothing in the experiments to encourage the belief that the vegetative functions proceed differently at night to what they do by day, or that a nocturnal rest is essential to allow of the assimilation of matters elaborated during the daytime. It would seem that both processes can proceed simultaneously.

But, if from these experiments no argument is deducible against nocturnal illumination, neither do they afford any conclusive proof of its utility, as plants kept in the open air by day and housed in the electric light by night were not a whit better than those kept in the open day and night.

The general results of the experiments at the Palais d'Industrie were not favourable to the horticultural use of the electric light, and the many who witnessed them had certainly no inducement to incur the cost of its application in practice. Dr. Siemens, we know, arrived at the opposite conclusion, and expressed his belief that at no remote period the electric light will render horticulturists independent of climate and the seasons. The causes of this difference of opinions depend, no doubt, in a great measure on the different conditions under which the observations were made. Dr. Siemens' plants were in a proper conservatory, where the temperature and ventilation were all that could be desired; they were exposed to daylight by day and merely subjected to the electric light by night. The plants at the Palais d'Industrie were housed under conditions where the temperature and ventilation could not be properly regulated, in an atmosphere filled with clouds of dust from the feet of thousands of visitors. That plants exposed by day and night continuously to the electric light alone lived under such conditions speaks well for the light; and had the latter been employed as Dr. Siemens employed it, merely to aid with its comparatively feeble powers in extending the action of the daylight, other conditions being favourable, instead of being treated as a substitute for solar radiation, the conclusions arrived at might have been different.

It would therefore be wrong to rashly conclude that the electric light is useless for horticultural purposes. The object should rather be to determine the particular circumstances under which it may be applied with advantage, bearing in mind that, as regards its effects on plants, the comparison is not with a few thousand candles or oil-lamps or gas-jets, but with the sun itself. Possibly some of the incandescent lamps giving a true yellow light might be found richer in the rays which favour vegetation than the forms of electric light heretofore tried. The type of lamp and the method of illumination both require further investigation.

* Dr. Siemens' paper on the same subject appeared in the *Gardeners' Magazine*, November 5, 1881.

The House, Garden, and Poultry Yard.

THE GARDEN TREES.

The garden trees are busy with the shower
That fell ere sunset: now methinks they talk
Lowly and sweetly as befits the hour,
One to another down the grassy walk.
Hark! the laburnum from his opening flower
This cherry creeper greets in whispers light,
While the grim fir, rejoicing in the night,
Hoarse mutters to the murmuring sycamore.
What shall I deem their converse? Would they hail
The wild gray light that fronts yon massive cloud,
Or the half-bow, rising like pillared fire?
Or are they sighing faintly for desire
That with May-dawn their leaves may be o'erflowed,
And dews about their feet may never fall?

ARTHUR HENRY HALLAM.

THE HOUSE.

At the present time, and for fully two months hence, the aquarium will be greatly influenced by solar light, and if too fully exposed will suffer seriously. A strong light causes the excessive growth of minute algae to which the term "pea-soupiness" is commonly applied, and when this occurs a general break up of the affair may be expected. To prevent it screen the vessels from the full midday light. If no ready means are at hand use green calico or green paper. As everything should be in nice trim now, it would be well to cleanse the front glass with a soft sponge. When water plants have been collected from ponds and rivers they should be used very sparingly in well-kept tanks, and should be well washed before they are put in. For the study of these it is advisable to have a few large bell glasses mounted on cheap stands, for when put into tanks that are kept for decorative purposes they often cause a collapse of the entire affair by the mischievous things that come with them and that are quite unfit to associate with handsome fishes that are made pets of.

THE GARDEN.

ALYSSUMS, Evergreen Candytufts, Pansies, Wallflowers, and a few other subjects of a similar character may now be propagated in quantity by means of cuttings. The cuttings should be put in beds of sandy soil made up in frames or on a shady border and be covered with handlights or sashes.

BALSAMS should not be allowed to become pot-bound until they are put in the pots in which they are to bloom, as a check to the roots throws them into bloom prematurely and stops all growth. Therefore, as fast as they fill their pots with roots shift on in rich light soil, if large specimens are required. Plants in six-inch pots are the most suitable for the conservatory. Do not let them suffer for want of water, and keep well aired and in a good greenhouse temperature.

BEDDING PLANTS to have as little water as possible, as it tends to prevent their rooting deep. Pick over the beds between the plants, and pay scrupulous attention to pinching and pegging as required, as on this will depend the beauty of the display as the plants come into full bloom.

BULBS.—As the leaves decay, all those that are usually taken up should be lifted and laid aside in a shady dry place, with earth over them, to ripen. They should then be cleared and stowed away.

CONSERVATORY AND STOVE CLIMBERS require an occasional thinning, regulating, and stopping.

GREENHOUSE AND CONSERVATORY PLANTS must have constant attention now. Turn out for the summer those that require to be in the open air for the completion of their growth and the ripening of their wood. Take care in all cases to guard against worms finding entrance to the pots.

KITCHEN GARDEN ground will be now, for the most part, covered, and everything in full growth. The hoe must never be idle: weeds grow faster than the crops, and exhaust the soil rapidly, and, if allowed to seed, make the mischief worse. Cucumbers, Gourds, Tomatoes, and Capsicums should be put out at once; the soil should be rich; and for tomatoes a sunny aspect must be chosen. Liquid manure should be freely used to all crops in full growth, and especially to strawberries, but there should be two or three waterings with plain water to one with liquid manure. Sow early Horn Carrots, Scarlet Runners and French Beans, Turnips, Lettuces, Radishes, Cabbages, Spinach, Endive, Cauliflower, and Peas and Beans.

MELONS need no shade if the hillocks are of good sound turfy loam and the plants have water when shut up at night. Scorching seldom happens except through mismanagement. The general causes of ill-health are watering with cold hard water, planting in rich light soil, or keeping them too dry while growing. To ripen the fruit dryness is essential, but while the plants are growing they require plenty of tepid water, and the soil should be tough turfy loam.

PINES must have atmospheric moisture, to prevent exhaustion by hot bright weather. Shut up early and syringe lightly, and pour water on the floor of the house early every morning. Give a little air at night about two hours after shutting up to water. The temperature may go up to 95 deg. for a maximum.

ROSES.—Gardens newly made may be furnished with roses now as well as at any time of the year. Dwarf plants in small pots, if turned out with care, in ground well dug and liberally manured, will grow with vigour and bloom well in the autumn. A plantation of dwarf roses may be formed as successfully now as at any time of the year.

TOMATOES will bear more abundantly and occasion less trouble if constantly stopped just beyond the fruit. Give them plenty of water and mulch the surface with rotten manure.

WATERING AND WEEDING are the principal labours of this month, and both must be pursued with diligence. Where systematic irrigation with sewage can be carried on, the most wonderful results may be expected, but ordinary watering is often injurious rather than beneficial, for the simple reason that it is only half done. In such cases we should advise the culti-

vator to abstain from giving water as long as possible, and then to give it in abundance, watering only a small plot every day in order to saturate the ground, and taking a week or more to go over a piece which would be done in a day by mere surface dribblings.

THE POULTRY YARD.

In well-stocked yards it will be necessary to devote attention to the storage of eggs for use during the season of scarcity. The work of storing may be delayed for a short time to tide over the hot weather and carry on the supply as far towards winter as possible, but it must be commenced before there is any material diminution in the daily supply. No general rule can be given, because upon the time poultry begin to lay depends the time when they will leave off, and there is no breed that will lay the whole year round without a rest. A cool place, not thoroughly dry, will keep eggs better than a place dust dry; therefore the bottom of the house is better than the top for egg preserving, and in packing it is a decided advantage to place them large end upwards. As to the various dressings adopted, they are not of much use; and we have found eggs keep as well without any of these preparations as with them: we know of no better way to keep them than to pack them large end upwards in fine charecoal, covering each layer completely, and a small tea chest or any old box, not very large, will come in useful for a lot. Several small boxes filled will prove more useful than one large one, and of course the date when filled should be written on each, so as to ensure the using of the stalest first.

TASTEFUL BEDS OF SPRING FLOWERS.

It occurred to me the other day when, as a matter of business, I called upon several gardeners, and had the opportunity of looking over the gardens under their charge, that I might make a few notes of the best and prettiest flower beds which I met with on my journey. I cannot stay to give the names of the gardens in which I saw the several beds. I have only time to copy out the numbers and brief notes just as they were dotted down in my pocket-book. These notes I send you, with the hope that they will be of service to some of your many readers.

No. 1.—The centre of the bed was filled with the Scarlet Turban ranunculus; next to it was a band of the Tory viola, a variety producing light purplish flowers in abundance, with an edging of Cliveden Yellow pansy. It is right to say that this bed was in a warm position, which accounted for the plants with which it was filled being so early in flower.

No. 2.—This was a large oval bed. In the centre was the Saponaria calabrica, with a broad band, as an edging, of Silene pendula compacta alba. The contrast in colour, and the neat habit and even growth of the plants, gave this bed the most pleasing appearance of any that I have seen. It was indeed a most successful example of spring bedding, obtained, as the gardener told me, at a small outlay of either time or money.

No. 3.—This was a round bed that had for its centre Waverley viola, a fine purple variety, with a broad edging of double white daisies. It was a very pretty bed.

No. 4.—This was a companion bed to No. 3. In the centre was Myosotis dissitiflora, edged with Cliveden Yellow pansy. This old pansy is still one of the earliest to flower, and I know of none that blooms so freely and continuously.

No. 5.—A rather large octagon, with a mass of Holyrood viola in the middle, enclosed with a band of Sovereign viola—a splendid yellow variety—and an edging of Rob Roy daisy, a fine double red variety. I was much struck with this bed, and I consider it worthy to be imitated.

No. 6.—This bed occupied a position in the front garden of a large villa residence, and was very striking. The groundwork of the middle of the bed was formed with Myosotis dissitiflora, and the wide outer band with double white daisies. Between the myosotis was planted the brilliant red Tulipa Gesneriana, and between the daisies double rose tulips.

No. 7.—This was an oblong bed. In the centre was a large mass of Vestal viola, a free-blooming white variety. Next, a broad band of Aubrietia deltoidea, with a wide edging of the golden variegated thyme.

No. 8.—In another bed in the same garden Cliveden Blue pansy, and the purple variety of the same name, were very pretty.

No. 9.—This was in a very pretty forecourt, evidently occupying a warm position. It contained four very pretty diamond-shaped beds, and the first bed of this set was filled with Aubrietia Hendersoni, with an edging of Golden Feather, which consisted of old plants that had stood the winter. The second bed was filled with Waverley viola, and had an edging of double white daisies. The third bed contained a mass of Alyssum saxatile compactum, and had an edging of Rob Roy daisy. The fourth bed had white pansies in the middle, and an edging of Blue Bell viola. Between this garden and the next one adjoining there seems to have been a race for spring flowers, for I noticed the gardener at No. 1 took particular care that I should see the garden next door, and further he was anxious to learn my opinion of the merits of the two places.

But, as an independent witness, I had no difficulty in giving the blue ribbon to No. 1. But I will briefly describe two beds I saw in garden No. 2 to illustrate the way in which different people use the same kind of materials for decorating their flower beds. The first of these two beds contained alternate rings of purple and yellow violas, and the other had alternate rings of red and white daisies. Both beds on a close inspection were very pretty, but the colouring was not bold enough for any other than a forecourt garden.

For large gardens the single wallflowers are very effective. In the gardens of a ducal residence that I visited I saw some splendid beds. There are two distinct varieties of single yellow wallflowers, and the best is unquestionably the Belvoir Castle variety, which grows from twelve to fifteen inches high. The golden Tom Thumb, as its name implies, is much dwarfier. In the garden I just mentioned there was a large bed of each variety, which in the distance were very striking. To afford variety other beds had in the centre large masses of a single dark variety named Saunders's Dark Red and broad bands of one of the yellow kinds. The contrast of the dark and yellow colours was very striking.

In the same garden the pretty little Silene pendula compacta was used freely. The white and pink varieties in contrast with each other made a nice change.

NURSERY TRAVELLER.

Exhibitions and Meetings.

MANCHESTER WHITSUN EXHIBITION, MAY 26 TO JUNE 2.

THE sixteenth Whitsun exhibition by the Royal Botanical and Horticultural Society of Manchester, which was closed yesterday, proved to be the most complete and beautiful, and moreover the most meritorious, in a horticultural sense, of any of the successful series of sixteen "grand national" shows that have been held in the Botanical Gardens at Old Trafford. There was no lack of anything proper to the season; the classes, though many, were well filled, and in several departments there was more than an average of strength, so that, in the agreeable walk round, the men who have attended these Whitsun meetings for sixteen years unanimously declared that all former displays were outdone in splendour by the present. The liberal prize list will perhaps in part account for this, but only in part. Continuous and consistent good management; a council agreeing in all vital points and working earnestly; a curator commanding confidence, and a constituency always appreciative of well-directed efforts,—these are great aids to a liberal schedule when an exhibition is the business in hand.

The arrangements were as in former years, but with improvements in matters of detail. The exhibition comprised the usual show of orchids and stove and greenhouse plants in the old exhibition house, the picturesque display in the great pavilion, and the mixture of miscellanies in the tent adjoining the exhibition house. The show of orchids was surprisingly fine, and there were so many that they very nearly filled the front row of the house all round, only a smallish portion of the front line near the entrance being occupied with greenhouse plants; and as regards the stove and greenhouse plants we see no decline from the time when the plants of Mr. Micholls and Messrs. Cole, and subsequently of Mr. Shuttleworth, were the subjects of severe competition. The "elephants" were in grand condition, the clerodendrons, azaleas, ixoras, the tree ferns, crotons, and ericas were glorious in colour, and as finely finished as ever they were, declaring *these* to be the palmy days of plant growing in Lancashire. The pavilion, or great tent, though always presenting a beautiful spectacle, probably never looked so well before. There was not a single interruption to the view from end to end; hitherto, groups of tree ferns and trophies of azaleas have been placed to break the vista; but this time there was nothing in the central space, and we think the exceeding simplicity of the arrangements may be properly commended. Looking down, the view terminated with the bank of rhododendrons from Mr. John Waterer, of Bagshot, with one great circular group in front piled high with the rosy bloom of some great specimen rhododendrons. Looking up, the ornamental groups on either hand, forming a succession of "banks" of the most sumptuous vegetation, were enough for the picture, that was completed by the remarkable sheet of blue, that made a finish at the bend of the tent as a happy thought and a veritable novelty. This sheet of blue was produced by a bank of specimen clematis from Messrs. Jackman, of Woking, and it was assisted in the harmony of the picture by the circular group of rhododendrons in front of it, at the point where we pass from the pavilion to the exhibition house. The great novelty of the blue band as a terminal feature was justified by its exceeding beauty: it had the same harmonizing effect as the blue sky in a rich landscape, enhancing and relieving the stronger colouring of the foreground. The matters of special interest in this truly magnificent display were the orchids, the clematis, the hardy herbaceous and alpine plants, and the specimen ferns in both the tender and hardy classes.

EXOTIC ORCHIDS made a very strong feature both in the number and the quality of the specimens exhibited. The most important class was that for fifteen, in which the first prize was awarded to George Hardy, Esq., of Timperley. In this group were grand examples of *Cattleya Mossiae*, with about fifty flowers; *Dendrobium densiflorum*, *Cypripedium niveum*, *Anguloa Clowesi*, *Dendrobium Wardianum*, *Cattleya Mendeli*, with twenty-three flowers; *Vanda tricolor*, *Dalzielii* variety; *Odontoglossum vexillarium* on a very large scale, and with perhaps too many flowers for the effective display of its beauty; *Masdevallia Harryana*, *Odontoglossum crispum*, *Dendrobium Jamesianum*, *Dendrobium clavatum*, *Cypripedium Lawrenceanum*, *Odontoglossum cirrhosum*, *Cattleya Warneri*, with nine exquisite flowers. The second prize in this class went to R. B. Dodgson, Esq., of Blackburn, who had *Dendrobium densiflorum*, *Masdevallia Harryana*, *Cattleya Mossiae*, *Aerides crispum*, *Cypripedium barbatum* superbum, *Cattleya Warneri*, *Cypripedium villosum*, fine; *Calanthe veratrifolia*, very fine; *Masdevallia Veitchiana*, extra fine; *Vanda suavis*, *Lælia purpurata*, *Odontoglossum vexillarium*, fine; *Dendrobium Ainsworthii*, a very distinct and beautiful orchid, at present rare, but likely to be in great demand, and perhaps to outrun in popularity the useful *D. nobile*. The third prize fifteen came from Joseph Broome, Esq., of Didsbury, the plants smallish, but uniformly fresh, well grown, and staged with the best taste. Here we found *Dendrobium Wallichii*, *Cattleya Mendeli*, *Lælia purpurata*, *Cypripedium villosum*, *Masdevallia Harryana*, *Vanda suavis*, *Dendrobium nobile*, *Odontoglossum citrosimum*, *Aerides Fieldingi*, *Dendrobium Devonianum*, fine; *Lælia majalis*, *Odontoglossum vexillarium*, &c.

In the class for nine orchids there was a good competition, and Mr. Hardy, of Timperley, again took the lead. In this first prize group were *Dendrobium Bensoniae*, *Cattleya Mossiae*, *Ada aurantiaca*, *Odontoglossum vexillarium*, *Anguloa Clowesi*, *Odontoglossum crispum*, *Cattleya Mendeli* superba, rather poor; *Dendrobium suavisimum*, and *Thunia Marshallii*. The second nine came from O. Schneider, Esq., of Fallowfield. Here were good examples of *Oncidium crispum grandiflorum*, with three fine racemes; *Odontoglossum cirrhosum*, not satisfactory; *Epidendrum vitellinum majus*, *Cypripedium barbatum superbum*, *Odontoglossum vexillarium*, *Oncidium sphacelatum majus*, *Aerides Fieldingi*, *Cattleya Mossiae*, and *Dendrobium Falconeri*. The third prize went to Mr. R. B. Dodgson, who had *Odontoglossum vexillarium*, *Masdevallia Lindeni*, *Oncidium Marshallianum*, *Dendrobium Wardianum*, *Dendrobium nobile*, poor; *Odontoglossum cirrhosum*, *Masdevallia Harryana cœrulescens*, *Dendrobium densiflorum*, and a *Cypripedium*.

In the class for six the first prize was awarded to R. B. Percival, Esq., Southport. In this lot we noticed a beautiful *Cattleya Mendeli*, with sixteen flowers; *Dendrobium thyrsofolium*, very fine; *Cattleya Mossiae*, with fifty

flowers, and a fine *Cypripedium Lawrenceanum*. The second six came from M. Sparke, Esq., of Huyton; third, C. Walker, Esq., of Milnthorpe.

There were classes for *Cattleyas* and *Vandas*, but in the first of these only was there an entry. To Mr. Hardy was awarded a first for six *Cattleyas*, comprising *Mendeli*, with six flowers, and another of the same, but a paler variety, also with six flowers; *Warneri*, a high-coloured variety, with six flowers; *Warneri superba*, with three flowers; *Mossiae*, in typical colouring, with five flowers, and *Mossiae marmorata*, with twenty-one flowers. It will be seen that this part of the programme was not the most successful, but it may yet prove to be so; for collections of *cattleyas* and *vandas* contain surprisingly splendid varieties, and it is well they should be brought before the public in competitive groups.

In the trade class for sixteen orchids Mr. James, of Castle Nursery, Lower Norwood, put up a fine lot of medium-size, but bright and fresh and cleverly arranged. They were *Cypripedium niveum*, *Masdevallia Lindeni*, *Oncidium macranthum*, richly coloured; *Odontoglossum vexillarium*, *Dendrobium Jamesianum*, *Masdevallia Harryana*, *Lælia purpurata*, *Oncidium Marshallianum*, *Dendrobium nobile*, *Oncidium concolor*, *Odontoglossum Alexandræ*, *Odontoglossum cirrhosum*, *Epidendrum vitellinum majus*, and *Masdevallia Harryana*. The second sixteen in the trade class came from Mr. James Cypher, of Cheltenham. This was a good lot, and comprised a good *Dendrobium suavisimum*, *Cypripedium villosum*, and the pretty little *Mesospinidium sanguineum*. In the trade class for ten the winners were the same, and in the same order. Mr. James put up a fine *Cattleya Mossiae*, *Odontoglossum citrosimum*, *Orchis foliosa*, *Oncidium macranthum maximum*, *Cattleya Mendeli*, *Oncidium Wentworthiana*, and *Dendrobium nobile*. Mr. Cypher had a smallish *Cypripedium niveum* and *Cypripedium Hookeri*.

STOVE AND GREENHOUSE PLANTS presented no special or novel features, but, as remarked above, they were well up to the standard of former years. At the entrance to the exhibition house there stood on either hand the two great groups of ten each from Mr. Cypher, of Cheltenham, first, and Mrs. E. Cole and Sons, of Withington, second. These made an exhibition in themselves, as they were equally remarkable for size and colour. The groups from S. Schloss, Esq., of Bowdon; A. Birley, Esq., of Pendlebury; and J. Rylands, Esq., of Stretford, who were winners in the classes for amateurs, made a fine feature at the other end of the house. In other classes for plants the amateur exhibitors were Messrs. Dodgson, Hodgkinson, J. Broome, Lord Hill, and Mrs. Leech. The tender ferns from Mr. Schloss, of Bowdon, were equal to anything of the kind we have seen for many a long time past.

CLEMATIS were shown by many besides Messrs. Jackman, an indication this of the advancing popularity of this useful and somewhat peculiar flower. The prevailing warm tones of red, yellow, crimson, purple, and rose of the flowers proper to the season are delightfully varied by the cool grey, lavender, blue, and pearly white of the clematis, which also are as distinct in form and leafage as they are in colour. They are "everybody's" plants, and yet to grow them to such a condition of perfection as Messrs. Jackman have accomplished may be regarded as a great feat, for the very good reason that no one else has so thoroughly succeeded. It was remarked by Dr. Watts, at the judges' luncheon, that some of the flowers were larger than he could span, and very shortly after that declaration was made we measured a few, and found them to be from ten to twelve inches over, but appearing, as is commonly the way of flowers, to be considerably less than their actual measurement. Nor should the merit of the plants be determined by the size of the flowers merely. The two groups of twenty each put up by Messrs. Jackman, of Woking (first), and Messrs. R. Smith and Co., of Worcester (second), were in the very best style of specimen culture, each plant being a marvel of size and freshness, leafy to the bottom, and with a profusion of delicate flowers mingled with elegant sprays of free growth that removed all appearance of hard training. In these two groups the principal varieties were, *Duchess of Edinburgh*, double white, fragrant; *Blue Gem*, pale azure blue; *Lanuginosa candida*, pure white or slightly lilac tinted; *Mrs. Hope*, satiny mauve, with subdued crimson bar; *Alba magna*, a remarkably fine white flower, with broad sepals; *Lady Caroline Nevill*, French white, with bars of mauve; *Impératrice Eugénie*, pure white; *Robert Hanbury*, bluish lilac with a shade of red; *Duke of Edinburgh*, rich violet, very fine; *William Kennett*, deep lavender; *Mrs. Moore*, very large flowers, pearly white with faint mauve-tinted bar; *Gloire de St. Julien*, white flushed with mauve; *Gem*, full lavender-blue, very distinct and fine; *Princess of Wales*, deep bluish mauve, very fine; *Duke of Norfolk*, deep mauve with pale bar; *Duchess of Teck*, white with delicate mauve bar, fine form; *Hybrida perfecta*, white tinged with purple-lilac; *Victoria*, very distinct, deep reddish mauve, flowers profusely; *Grand Duchess*, white flushed with rose, very telling in a group; *Lord Nevill*, rich dark plum, distinct, peculiar, and fine; *Sensation*, rich satiny mauve; *Fairy Queen*, flowers very large, pale flesh, with pink bar shaded purple at the base; *Marie Lefebvre*, delicate mauve, with bar of deeper mauve; *Marie Desfosse*, pure white; *Madame Grange*, crimson-violet tinted with red, extremely beautiful.

HARDY HERBACEOUS AND ALPINE PLANTS were shown in plenty, and gave great delight to the visitors. In the trade class for eighty the first prize was awarded to Mr. W. Brownbill, Mayfield Nursery, Sale; the second prize went to Messrs. J. Dickson and Son, Newton Nurseries, Chester. In the amateur classes the first prize for thirty-six plants was awarded to Joseph Broome, Esq., Didsbury; second, Mr. W. Brockbank, Brocklehurst, Didsbury. Mr. Broome's lovely lot included *Hemerocallis fulva variegata*, *Pyræthrum roseum*, *Sempervivum arachnoideum*, *Dianthus plumosus*, *Funkia ovata* var., *Achillea tomentosa*, *Dianthus hybrida*, *Pæonia albiflora*, in two colours; *Verbascum phoeniceum*, in two colours; *Ranunculus acris plena*, *Caltha palustris plena*, *Hesperis matronalis* pl., *Lychnis Hangeana*, *Spiræa ulmaria* pl., *Lilium auratum*, *Narcissus poeticus* pl., *Saxifraga Wallacii*, *Saxifraga granulata* pl., *Lychnis coronaria*, *Gem coecineum*, *Trollius europæus*, *Orchis maculata*, *Armeria cephalotes*, *Aquilegia vulgaris pumila*, *Cypripedium parviflorum*, *Saxifraga pyramidalis*, *Lamium longiflorum*, *Funkia Sieboldii*, *Onosma taurica*, and *Coelocarya alpina*. Mr. Brockbank, as might be expected in such a case, presented many of the same plants. But we noted also in his lot beautiful examples of *Linaria pallida*, *Myosotis alpestris*, *Campanula thyrsoidea*, *Aquilegia glandulosa jucunda*, *Ramondia pyrenaica*, *Cistus algarvensis*, *Verbascum Malcombei*, *Allium piedmontanum*, *Orchis foliosa*, *Lithospermum prostratum*, *Saxifraga pyramidalis intermedia*, *Erinus alpinus*, *Audrosaco corouipolia*, *Campanula*

Warneri, *Leontopodium alpinum*, *Corydalis capnoides alba*, *Polygonatum multiflorum*, *Delphinium nudicaule*, *Iberis gibraltaria*, *Aquilegia californica hybrida*, *Saxifraga longifolia*, *Anthericum liliastrium*, *Globularia trichosanthes*, *Lychnis lagascea*, and *Phyteuma comosum*.

In addition to the mixtures of hardy plants there were attractive collections of pansies from Mrs. Sargeant, of Sale; Mr. Whitfield, of Bowdon; Mr. Joynton, of Ashfield; Mr. J. Broome, of Didsbury. Of violas from Mr. McClure, Heaton Mersey; Mr. J. Broome, of Didsbury, and Mr. W. Lumbers, of William Street, Heywood. The principal trade exhibitors in these classes were Mr. Hooper, of Widecombe Hill, Bath; Mr. Walkden, of Sale; Mr. Hayward, of Cheadle, and Mr. Brownbill.

GROUPS OF PLANTS arranged for effect were a very important part of this exhibition. The trade competitors were allotted each a space of 30 ft. by 15 ft., and there were many such groups in really magnificent style, and as a matter of course differing considerably in tone and detail. The winners were Messrs. R. P. Ker, first; Mrs. E. Cole and Son, second. To attempt to describe these groups would be waste of time, but we remember with much pleasure one to which no prize was awarded. It contained some massive plants, with a showy alocasia in the centre, and good clumps of *Odontoglossum vexillarium* in the colouring of the front line. As we saw this group at judging time, we did not book the name of the exhibitor, but when we saw it again afterwards we felt it was hard upon him, whoever he might be, to obtain no award whatever in recognition of the high merit of his group. The groups from amateurs were limited to 25 ft. by 12 ft., and the winners were John Rylands, Esq., first; Thomas Agnew, of Eccles, second; and S. Schloss, Esq., Bowdon, third.

DINNER TABLES DRESSED WITH FLOWERS were very attractive and various in styles. As usual in such cases, the judges preferred lightness and elegance to mere wealth of colour, and hence two or three very showy tables were passed by. There was not a shadow of difference of opinion as to the awarding of the first prize to Mr. James Cypher, of Cheltenham, for a table dressed in the best style of that successful operator. There were some touches in it truly wonderful in their simplicity and effectiveness. Miss Williams, of Upper Holloway, London, was placed second with a table a trifle richer in colour than Mr. Cypher's, but very light and strikingly elegant. The third place was assigned to Messrs. Jones and Son, of Shrewsbury; and Messrs. Bradshaw, of Bolton, and Mason, of Manchester, were equal fourth.

FRUIT comprised a remarkably fine collection of eight dishes, taking first in the class, from Mr. Miles, of Wycombe Abbey; grand black grapes, taking first place, from Mr. Barns; white grapes from Mr. Akers; pines from Mr. F. J. Sumner and Mr. C. Bailey; strawberries from Mr. Sumner and others. Of miscellanies there was any quantity, comprising pelargoniums, roses, rhododendrons, ferns, calceolarias, gloxinias, lilies, dracenas, table plants, pitcher plants, bouquets, &c., &c. To deal with these in detail would consume more space than we can afford, and therefore we now abruptly close our report of the most complete and brilliant Whitsun show at Manchester it has been our good fortune to attend.

The judges were:—Mrs. Schneider, of Fallowfield, and Mrs. Cussons, of Southport; Mr. Thomas Moore, Chelsea; Mr. J. F. Meston, London; Mr. James Anderson, Glasgow; Mr. W. Bardney, Liverpool; Mr. Shirley Hibberd, London; Mr. Richard Dean, London; Mr. D. T. Fish, Bury St. Edmunds; and Mr. W. Braham, Croxteth, near Liverpool.

ROYAL NATIONAL TULIP SHOW.—ANNUAL EXHIBITION, MAY 27.

The exhibition of the National Society was held, as in previous years, in the gardens of the Manchester Botanical Society, in connexion with the great horticultural fête. Tulips were not in such high trim as they have usually been at the National shows, the season being, apparently, unfavourable to their development. Moreover, what is known as the "tulip disease" has seriously damaged several collections. In many gardens the tulips flowered too early, and no artifice of man could check them. In these cases, as a matter of course, the owners were *hors de combat* as regards the annual exhibition. Nevertheless the display on Saturday last was large enough to satisfy moderate appetites, and there were many beautiful flowers to delight the critics. It is a matter of some interest that the leading exhibitor on this occasion had suffered from all the several causes that have prejudiced the tulips this season: his collection has been touched by the disease, many of his bulbs flowered prematurely, and all were weakened in some degree by the dryness of the spring.

RECTIFIED TULIPS.

In the section for twelve dissimilar tulips Mr. S. Barlow, of Stakehill, stood first with Heroine, feathered rose; Annie McGregor, flamed rose; Adonis, flamed byblomen; David Jackson, feathered byblomen; Sir Joseph Paxton, flamed; Dr. Hardy, flamed; Garibaldi, feathered bizarre; Talisman, flamed byblomen, and others. The second place was awarded to Mr. D. Woolley, of Stockport. Amongst his flowers were Madame St. Arnaud, fea. byb., very fine; Mabel, fea. ro.; Sir Joseph Paxton, feathered bizarre; Sovereign, fea. biz.; Dr. Hardy, flamed bizarre. The remaining flowers were undersized. To Mr. H. Travis, of Royleton, was awarded third place; fourth, Mr. R. Sharpley, of Wakefield.

In the section for six, one feathered and one flamed in each class, the first place was taken by Mr. John Parkinson, of Derby. It was at one time thought that this gentleman would have taken the leading prize in the class for twelve, but it happened that one of his flowers had seven petals, and therefore could not be shown, six being the proper number of petals in a show tulip. The best in Mr. Parkinson's six were feathered bizarre Sir Joseph Paxton, feathered rose Heroine, feathered byblomen Talisman, and flamed bizarre Dr. Hardy. The second place was assigned to Mr. S. Barlow; third, Mr. H. Travis; fourth, Mr. R. Sharpley; fifth, Mr. J. Thurstan, of Wolverhampton; sixth, Mr. D. Woolley; seventh, Mr. J. Wood, of Royleton.

In the section for six restricted to half-guinea subscribers, one flamed and one feathered in each class, the first place was taken by Mr. H. Housley, of Stockport. Here we saw good blooms of feathered bizarre Madame St. Arnaud, flamed rose Heroine, feathered rose Sir Joseph Paxton, flamed byblomen Duchess of Sutherland, feathered byblomen Violet Aimable. Second, Mr. E. Schofield, who had feathered bizarre Masterpiece, very fine.

In the section for feathered, one of each class, Mr. Housley first with fine blooms of Mr. Pickerill, byb.; Royal Sovereign, biz., and Mabel, rose. The second place was taken by Mr. T. Parkinson with Adonis, byb.; Heroine, rose, and Royal Sovereign, biz. Third, Mr. E. Schofield; fourth, Mr. H. Travis; fifth, Mr. D. Woolley; sixth, Mr. S. Barlow.

The corresponding section for three flamed was scarcely so good. Mr. D. Woolley was first, with Triomphe Royale, rose; Sir J. Paxton, biz., and Princess Royal, byb. Second, Mr. J. Thurstan with Sir Joseph Paxton, biz., very fine; Duchess of Sutherland, byb., and Lady Catherine, rose. Third, Mr. Housley; fourth, Mr. J. Martlew; fifth, Mr. S. Barlow; sixth, Mr. E. Schofield.

Two tulips, one feathered and one flamed in each: 1, Mr. H. Housley; 2, Mr. T. Parkinson; 3, Mr. J. Martlew; 4, Mr. H. Travis; 5, Mr. T. Baker Leigh; 6, Mr. E. H. Schofield.

Single blooms in each division, feathered bizarres: 1 and 2, Mr. T. Parkinson; 3, Mr. R. Sharpley; 4, Mr. T. Anson; 5, Mr. J. Morris, Belford Leigh; 6, Mr. B. Simonite, Sheffield; 7, Mr. J. Morris; 8, Mr. J. Morris; 9, Mr. T. Parkinson; 10, Mr. J. Morris. Single bloom feathered rose: 1, Mr. T. Parkinson; 2, Mr. B. Simonite; 3, Mr. H. Travis; 4, Mr. D. Woolley; 5, Mr. E. H. Schofield; 6, Mr. H. Housley; 7, Mr. E. Woolley; 8, Mr. J. Morris; 9, Mr. J. Murtlew. Single-feathered byblomens: 1, Mr. T. Parkinson; 2, Mr. H. Housley; 3, Mr. J. Morris; 4, Mr. H. Housley; 5, Mr. T. Baker; 6, Mr. H. Housley; 7, Mr. T. Parkinson; 8, Mr. H. Travis; 9, Mr. Schofield. Flamed bizarres: 1, Mr. H. Housley; 2, Mr. T. Parkinson; 3, Mr. J. Martlew; 4, Mr. S. Barlow; 5, Mr. E. H. Schofield; 6, Mr. D. Woolley; 7, Mr. E. H. Schofield; 8, Mr. S. Barlow; 9, Mr. H. Travis; 10, Mr. S. Barlow. Single bloom feathered roses: 1, Mr. J. Thurstan; 2, Mr. S. Barlow; 3 and 4, Mr. D. Woolley; 5, Mr. H. Travis; 6 and 7, Mr. S. Barlow; 8, Mr. T. Anson; 9 and 10, Mr. J. H. Wood. Flamed byblomens: 1 and 2, Mr. D. Woolley; 3, 4, 5, 6, 7, and 8, Mr. S. Barlow; 9, Mr. D. Woolley; 10, Mr. J. Hague, Stockport.

For best flamed tulip in the exhibition: Mr. T. Parkinson with Sir J. Paxton. For best feathered tulip: Mr. H. Housley with Royal Sovereign.

Six dissimilar: 1, Mr. S. Barlow; 2, Mr. J. H. Wood; 3, Mr. B. Simonite; 4, Mr. R. Sharpley; 5, Mr. J. Thurstan; 6, Mr. J. Morris.

BREEDER TULIPS.

CLASS 11.—Eight stands of six dissimilar tulips: 1, Mr. B. Simonite; 2, Mr. H. Housley; 3, Mr. S. Barlow; 4, Mr. J. H. Wood; 5, Mr. D. Woolley; 6, Mr. R. Sharpley; 7, Mr. E. H. Schofield; 8, Mr. J. Thurstan.

CLASS 12.—Single bloom bizarres: 1, Mr. J. H. Wood; 2 and 3, Mr. R. Sharpley; 4, Mr. D. Woolley; 5 and 6, Mr. H. Travis; 7, Mr. S. Barlow; 8, Mr. R. Sharpley. Single bloom roses: 1, 2, and 3, Mr. H. Housley; 4, Mr. J. H. Wood; 5, Mr. S. Barlow; 6, Mr. J. Martlew; 7 and 8, Mr. E. H. Schofield. Single bloom byblomens: 1, Mr. H. Housley; 2, Mr. S. Barlow; 3 and 4, Mr. E. Schofield; 5 and 6, Mr. S. Barlow; 7, Mr. E. H. Schofield; 8, Mr. S. Barlow.

CLASS 13.—The best breeder tulip in the whole exhibition: Mr. J. H. Wood. The flower shown was Sir Joseph Paxton.

KINGSTON AND SURBITON HORTICULTURAL SOCIETY, MAY 31 AND JUNE 1.

The eighteenth annual exhibition of this ably-managed and important society, of which the Duke of Albany is president, was held in the Drill Hall, Kingston, on Wednesday and Thursday last, and proved in every way a splendid success. Spacious as is the large building in which the show was held, it was literally filled to overflowing, for so severe was the competition in the leading classes that accommodation could not be found for the numerous miscellaneous collections and groups of which entries were sent in. Stove and greenhouse plants, soft-wooded plants in bloom, and ferns were shown in immense numbers and splendid style, fine-foliage plants were adequately represented, and of fruits and vegetables there was a large and excellent display. The prizes offered for miscellaneous groups arranged for effect were contested with much spirit, and the several arrangements, judiciously placed at the two ends of the building, produced a most pleasing effect. Dinner-table decorations and hand and buttonhole bouquets formed, as in previous years, a large and attractive feature. The general arrangements, which were under the direction of Mr. Puttock and Mr. Woodgate, were highly satisfactory, and the secretaries, W. Clay, Esq., and Mr. J. W. Moorman, are deserving of the highest praise for the ability with which the various duties belonging to their office were performed.

STOVE AND GREENHOUSE PLANTS were shown in grand style, and arranged on each side of the hall produced a striking effect. In the important class for nine Messrs. B. Peed and Son, Norbury Nursery, Norwood, were first with a grand group, closely followed by Mr. J. Childs, gardener to Mrs. Torr, Garbrand Hall, Ewell, and Mr. J. Hinnell, Surbiton, who were second and third respectively. For six Mr. Childs, Ewell, was first with large superbly-flowered and evenly-matched specimens. Messrs. J. Peed and Sons, Streatham, were second, and Mr. Hinnell a close third. The prizetakers in the class for four were Mr. Childs, Claygate, Mr. Croxford, Surbiton, and Mr. Attrill, Kingston, in the order of their names. The subjects in the several collections were the same as those enumerated in previous reports this season, and it is therefore not necessary to give the names. Mr. Childs exhibited well in the class for azaleas, and was also awarded the first prize for four fine-foliage plants.

GROUPS FOR EFFECT were numerous and evinced much taste, more especially those extending over a space of one hundred square feet. In this class Mr. Beckett, Sandown House, Esher, was a splendid first; Messrs. J. Peed and Sons a good second; and Mr. Stevens, Putney, who was third, had a group arranged in a remarkably tasteful manner. The first and second prizes for a group occupying a space of fifty feet superficial were awarded to Mr. Brand, gardener to W. Clay, Esq., Grove Road, Kingston, and Mr. Croxford, for groups very tastefully arranged.

SOFT-WOODED PLANTS in bloom included show and fancy pelargoniums, fuchsias, tuberous begonias, gloxinias, achimenes, and other subjects. Fuchsias were presented in splendid condition, the majority of the specimens being rather above medium size, densely furnished with leafage, and superbly flowered. Mr. Beckett was first in the class for specimens bearing the impress of the highest skill: the varieties were Enchantress, Forget-me-not, Rose of Castile, Wave of Life, Charming, and Fairest of the Fair. In the class for three Mr. J. Childs, Claygate, occupied the first place with

specimens of the highest excellence, and Mr. Otley, Surbiton, and Mr. J. Watson, Norbury House, Kingston, were second and third with capital examples. Not less satisfactory were the achimenes and gloxinias, which are seldom presented in so fine a condition as on this occasion. In the class for four achimenes, Mr. J. Sallows, gardener to J. J. Flack, Esq., Twickenham, and Mr. Beckett were first and second with specimens between two and three feet in diameter, and as dense and well flowered as could be desired. Mr. Gregory, Teddington, who was second, also staged a good collection. Gloxinias, in collections of six, were shown in superb style by Mr. Brand, Mr. Sallows, and Mr. Waite, Esher, who were first, second, and third; and capital collections were contributed by several other exhibitors. Mr. Beckett was successful in taking the premier awards in the classes for six show and six fancy pelargoniums with specimens of medium size, neat, and well bloomed. Tuberous begonias were admirably shown by Mr. Childs, Ewell, Mr. Child, Claygate, and Mr. Sallows. Herbaceous calceolarias were considerably above the average, and the collections from Mr. Beckett, Mr. Buss, Ewell, and Mr. McPherson, Surbiton, reflected much credit upon the exhibitors. Hydrangeas were admirably represented by collections from Mr. Attrill and Mr. Slade, Esher.

Roses, both in pots and in a cut state, were admirably represented. The first prize for twenty-four cut blooms was awarded to Mr. Moorman for a box of blooms possessing much merit for so early in the season. In competition for the prizes for roses in pots Mr. C. Orchard, gardener to J. Galsworthy, Esq., Coombe Leigh, Kingston, was placed first with large specimens of high merit; and Mr. Otley, who occupied the second place, both examples of medium size and superbly bloomed.

FERNS and SELAGINELLAS were plentiful and generally good. Mr. Hinnell, who was first for six ferns, staged large well-grown specimens of *Adiantum scutum*, *A. tenerum*, *Davallia Mooreana*, and other well-known kinds. For six selaginellas Mr. J. Watson was first with exceptionally good specimens, and Mr. Waite and Mr. Otley, who were second and third, also exhibited well.

TABLE PLANTS had two classes provided for them, and in that for nine Mr. Buss was first with a collection in which every example was admirably adapted for the embellishment of the dinner table: the subjects of which it consisted were, *Dracena salmonea*, *D. superba*, *Croton Lady Zetland*, *C. Warreni*, *Aralia gracillima*, *Geonoma gracilis*, *Pandanus Veitchii*, and *Saxifraga nepalensis*; Mr. Brand second. For six table plants Mr. Hiehle, Twickenham, Mr. Gregory, and Mr. Buss were first, second, and third respectively.

TABLE DECORATIONS were especially good, and in the class for three stands Mrs. Clay and Mrs. Russell Knap were first and second with exceedingly elegant arrangements, differing but little in relative merit.

VEGETABLES sufficed to fill a table extending the whole length of the hall, and were of high class quality; the collections of six were remarkably good, especially those from the prizetakers, Messrs. Beckett, Waite, and Starr. The first prize for cucumbers was awarded to Mr. Waite, who had a capital brace of Tender and True; Mr. Sallows second with Telegraph.

FRUITS comprised productions from Mr. Fyfe, Thomas Ditton, Mr. Bates, Mr. Waite, Mr. Hiehle, Mr. Gregory, and other exhibitors.

Replies to Queries.

Cucumber Disease.—H. Y. H.—We are afraid your plants are attacked by the cucumber disease, for which there does not appear to be any really efficient remedy. Sometimes the fruits do not swell freely, owing to an unhealthy condition of the roots, caused by the bed being too cold and wet. Probably an increase in the bottom heat would be beneficial, and is well worth trying.

Names of Plants.—S. F. M.—Your blue-flowered shrub is *Ceanothus dentatus*. L. Wilks.—Your shrub is probably a *Leucodendron*, but we cannot name it from the leaves only. M. T.—1, Bird Cherry, *Prunus padus*; 2, Winter Savory; 3, *Veronica repens*; 4, shrivelled up and indeterminable; 5, *Sedum dasyphyllum*. R. Roberts.—1, *Homeria lineata*; 2, *Narcissus bulbocodium* (corbularia); 3, *Arbutus pilosa*; 4, *Salix herbacea*.

Unhealthy Pelargoniums.—C. H. N.—The unhealthy condition of the pelargoniums is caused by a sour state of the soil. The only satisfactory course to take will be to shake them entirely out of the soil, and after cutting away any decayed roots to repot, using clean well-drained pots and a compost consisting of friable loam, well-rotted manure, leaf-mould, and sand. The leaf-mould and manure should be used in small proportions. The shoots may also be pruned slightly if considered necessary.

Pelargoniums after Flowering.—C. H. N.—On the plants being removed from the conservatory as they go out of bloom, place them in a shady position for a fortnight or so to ripen their wood. Then prune the young shoots back to within two or three buds of their base, and give but little water until they commence to make new growth. In the meantime syringe them occasionally overhead. When the new growth is about an inch in length turn the plants out of the soil, divest the roots of the great proportion of the old soil, shorten a few of the longest shoots, and put them in pots one size smaller than those previously occupied. After they are potted put them in a cold frame and ventilate freely. The lights may indeed be drawn off altogether during the greater part of the time, provided care is taken to put them on during heavy rains.

Water-cress.—W. K., Clitheroe.—In converting the stream flowing through your garden into a water-cress bed you must in some degree be guided by the quantity of water. The width of the bed should, for the greater convenience of gathering the produce, be from six to eight feet, but if the body of water is small a width of from four to five feet will be more suitable. The sides of the bed should be cut down straight and the bottom be made level to ensure an equal depth of water. When this has been done plant the cresses about twelve inches apart each way. The water should be headed back at the outlet sufficiently to ensure a depth of six or eight inches, and to maintain the water in a pure state during the summer season it is an excellent plan to put at intervals of three or four weeks a bushel of quicklime into the water at the upper end of the bed. The estimates for which you ask would not possess any value, as so much depends upon local circumstances.

Notes of Observation.

MESSRS. KELWAY AND SON'S PYRETHRUMS AT BATH SHOW.

WITH the exception of the boxes of roses, there were but few subjects exhibited at Bath Floral Fête that arrested the public attention so much as the four hundred of double and single pyrethrums staged by Messrs. Kelway and Son, of Langport, which secured to that firm a "first-class cultural certificate." As the blooms had been produced under glass, the colours were most pure, and many were the questions asked respecting them. Having ourselves felt pleasure in beholding the great beauty displayed, we jotted down the names and colours under the belief that there are few border flowers which approach them for massing or lines. We selected those which appeared to us to have especially good qualities. Commencing with the single flowers, the varieties are as follows:—*Vistula*, bright pink; *Melon*, rosy lilac; *Valeria*, white; *Pestus*, flesh; *Perilla*, cherry; *Ophir*, cherry-rose; *Romulus*, mottled rose and lilac; *Dacius*, bright pink; *Dyris*, white; *Rusticus*, flesh; *Themis*, cerise; *Eusepus*, deep rose; *Dubis*, dark rose; and *Salonis*: while among the newest of the double forms were *Hobart Pasha*, maroon; *Sefton*, purple, and *Jeanette*, pure white, a most perfect flower. The older varieties, many of which have been raised at Langport, comprised *Vance*, cream shaded flesh; *Titians*, rosy lilac; *Mont Blanc*, white; *Hermann Stenger*, mauve; *Chamois*, light buff; *Captain Boyton*, crimson-scarlet; *Dr. Livingstone*, flesh; *Flore*, purple-lilac; *Galopin*, crimson, shaded white; *Ne Plus Ultra*, blush, white; *Mrs. Dix*, blush, purple shade; *Rev. J. Dix*, rosy lilac; *Progress*, crimson, brown centre; *J. M. Tweedy*, dark maroon; *Rubens*, rose-lilac; *Via Lactea*, white suffused pink; *Wilhelm Krumper*, lilac-rose; *Placida*, peach; *Spectabile*, clear pink; *Mdlle. Benary*, deep carmine; *Madame Billiard*, white, edged rose; *Le Dante*, bright rose, shaded orange; *Minerva*, deep rose; *Duchesse de Brabant*, rosy lilac; *Duchess of Edinburgh*, mauve; *Floribunda plena*, rose; *Gloire d'Italie*, rosy red; *Niveum plenum*, quilled white; *Mons. Barrell*, purplish crimson; *Iveryana*, bright rose; *Panorama*, pale sulphur; *Madame Munier*, rose-lilac, and *Princess Charlotte*, pale flesh. As the varieties were staged in fives and threes, a fair estimate could be readily formed of their general character and usefulness either for pot culture or the herbaceous border.

Oxford.

WILLIAM GREENAWAY.

THE SALWAY PEACH FOR EARLY FORCING.

In answer to "W. M.," permit me to say that I have not grown the Salway peach in an early house, but I have had it in a late house for several years past, and from what I know of its character I think it will probably do better in an early house than in a late one. By forcing it early it will have a longer season of growth, and I believe it will be much superior under such conditions than when grown as a late kind in cool temperature. I have not seen this peach in such good condition as in some gardens in South Devon, a fact which shows that it requires a warm climate and a long season of growth to bring out its best qualities. When well grown it is a grand peach. J. C. C.

CONSERVATORY CLIMBERS.

The remarks of "A Nursery Traveller" at page 246 on conservatory climbers are not very complimentary to gardeners, and I may perhaps be pardoned for referring to them. I do not dispute his knowledge of plants in general, but I do say that his knowledge of what to grow as conservatory climbers is not more complete than it ought to be. His remarks would have been much more weighty had he stated that there are but few conservatories in which the *Lapagerias* could be grown, and not have left the reader to suppose that all the plants he enumerates could be grown as climbers. The writer should also have stated whether he intended the plants to be trained on the roof or on pillars or low back walls only. No one would wish to dispute the beauty of the *Lapagerias*, but their adaptability to cover the interior roofs of large conservatories is another matter altogether. I grant that there are a very few such structures in which they are grown in a satisfactory manner, but then they have just the conditions that suit them. They have a snug warm corner, where they are screened from strong sunshine and sheltered from cold draughts. They must have suitable root space and a kindly soil, but even then they are not suitable for covering a large space on the roof. In a few cases I have seen the *Lapageria* and *Bougainvillea* doing beautifully on back walls where plenty of light has been admitted. But in eight cases out of ten such conditions are not to be had, and if they were the growth would be inadequate to cover the space. The borders for conservatory climbers are more often than not altogether insufficient to support a vigorous growth and to maintain the plants in health for any length of time. I do not say that this could be avoided at all times, as the interior arrangements do not admit of borders being made of a suitable size. Because of this restriction the gardener ought not to be blamed for not doing impossibilities; moreover, I think the gardeners are as a rule pretty well informed as to the value of the *Taesonias* as creepers, for I very often find them in the conservatories of the gardens I visit, and in the best possible condition. Just one more word and I have done. "A Nursery Traveller" is evidently not experienced in the management of conservatories, or he would know that many of them are most unsuitable places in which to grow plants. To point out a suitable list of climbers is one thing, but to grow them is another, and so he would find if he had to deal with them in some of the dark lofty structures with only a bushel or two of soil for the support of the plants.

A PRACTICAL GARDENER.

TRADE CATALOGUES.

CRANSTON'S NURSERY COMPANY, KING'S ACRE, NEAR HEREFORD.—*Descriptive Catalogue of New Roses, Bedding Plants, &c.*

RICHARD SMITH AND CO., WORCESTER.—*Herbaceous and Alpine Plants.*

J. CHEAL AND SONS, CRAWLEY, SUSSEX.—*List of Hardy Perennial Plants, Florists' Flowers, &c.*

"SPRING'S DELIGHTS" can only be actually realized by those who live in healthy houses, and who combine known sanitary measures for the prevention of such infectious diseases as smallpox, scarlet fever, and measles. The remedy actually becomes a luxury when the washing of Toilet, Bath, and Nursery is conducted with WRIGHT'S COAL TAR SOAP. Refuse all imitations, which are but dangerous counterfeits.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Sonths before Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
11	S	1st Sunday after Trinity.	3 45	0 41	8 13	0 50	3 33	9 35	10 10	6 25	7 0	60.2	Blandfordia nobilis, G.	Orange.	162
12	M	Length of Day, 16h. 29m.	3 45	0 29	8 14	1 29	4 48	10 40	11 15	7 35	8 5	60.4	Cattleya Mendell, S.	Rose-pink.	163
13	Tu	Corsica taken, 1767.	3 45	0 16	8 15	2 4	5 58	11 48	—	8 40	9 13	60.5	Cypripedium niveum, S.	White.	164
14	W	Battle of Marston, 1800.	3 45	After	8 16	2 44	7 2	0 20	0 45	9 45	10 10	60.6	Iris xiphoides, H.	Various.	165
15	Th	New Moon, 6h. 33m. after.	3 44	0 9	8 16	3 34	7 56	1 10	1 35	10 35	11 0	60.7	Lælia purpurata, S.	Purple and White.	166
16	F	Pope Pius IX. elected, 1846.	3 44	0 22	8 16	4 31	8 39	2 0	2 20	11 25	11 45	60.9	Lilium candidum, H.	White.	167
17	S	Battle of Bunker's Hill, 1775.	3 44	0 35	8 16	5 33	9 16	2 45	3 5	—	0 10	61.1	„ davuricum, H.	Orange-scarlet.	168

The Gardeners' Magazine.

SATURDAY, JUNE 10, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, JUNE 13.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.; Evening Fête, 8 p.m.

WEDNESDAY, JUNE 14.—SOUTH ESSEX FLORICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, JUNE 14, to FRIDAY, JUNE 16.—YORK.—Floral Fête and Gala.

THURSDAY, JUNE 15.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Commemoration Show.

THURSDAY, JUNE 15.—LINNEAN SOCIETY.—General Meeting, at 8 p.m.

FRIDAY, JUNE 16.—ROYAL BOTANIC SOCIETY.—Botanical Lecture, at 4 p.m.

THE RAVAGES OF INSECTS have already made a dark mark on the vegetation of the present season, and will tell very seriously on the total value of the produce of farms and gardens. Attention is directed to the subject in a letter which appeared in the *Times* of Saturday last. In this letter we trace the hand of one known to our readers as a careful observer and accurate reporter, and peculiarly advantaged by circumstances for the study of this subject. He speaks more particularly of the injury to oak timber that must result from the destruction of the foliage by swarms of insects. The oaks in many places, and indeed we fear in most places, are in a deplorable plight, and it is impossible they should quickly recover, while it is probable a considerable number are really past recovery, through having suffered in the same way through three successive seasons. We can add to the observations of our friend that many orchards are as leafless as the oak woods. The gale of April 29 left a few leaves, but there came upon the trees countless swarms of caterpillars to complete the disleafing that the gale began, and in most instances this will entail the loss of two years' crops of fruit. Where the trees have been sorely punished this year's crop is disposed of; and as the trees are not likely to recover in time to mature fruit buds, it is not to be expected of them to produce fruit next year. All pomaceous trees, more or less, are, as the phrase is, "blighted," and apples, plums, and thorns appear to be the greatest sufferers. The case, as it stands, teaches two lessons, old enough and often taught by similar experiences, but needing to be enforced again and again. In districts that were much ravaged by the wind some orchards have escaped, because sufficiently sheltered, while others have been, as it were, blown away into empty space because there was nothing substantial between them and the blast. It is not unusual in laying out a new place in open country to plant the fruit trees and leave the subject of shelter for further consideration. This is a wasteful mode of procedure, for shelter is the very first requirement, not for fruit trees only, but for every kind of garden produce. The scheme of cropping should, as much as possible, be ordered on the principle of making the crops protect each other, as peas may be made to protect potatoes, and plums may be planted to assist in protecting pears and cherries. But systematic and permanent shelter should be sought in the very first instance, that the disappointments that will inevitably occur may be kept at a minimum.

The insect plagues that now prevail seem to be partly accounted for by the mildness of the past winter. We have had to say that as severe winters do not in any great degree affect insect life, so

mild winters cannot be in any special degree favourable to them. We see no reason to modify our faith in the capability of the insects to take care of themselves during the severest winters known in these parts, and therefore we cannot hold with those who attribute the present deplorable abundance of leaf-eaters to the comparatively high temperature of the past six months. But it seems that we ought to account in some way or other for the plague that has fallen on the woods and orchards, and we turn to the letter just now referred to for help in the matter.

The winters of 1879-80 and 1880-81 were unusually severe, and insect-eating birds were destroyed to an extent that may be characterized as enormous, if not immeasurable. The two most useful of our many useful birds are the starling and the rook; birds that mingle and feed together, and occasionally take toll of the crops, but are, upon the whole, the most industrious of our winged benefactors. The larks, tits, robins, blackbirds, and thrushes, all of them eminently beneficial in their ways, taking the whole year round, though appearing as marauders occasionally, have been grievously thinned in numbers, and the increase of insect life is one of the necessary results. In making these declarations we are well aware that they will not be generally accepted. There is yet a large residuum of actual and would-be bird destroyers, who commit themselves systematically to the determination of a large case by the aid of a few small particulars. It is true that the bullfinch eats the buds of gooseberry trees, that blackbirds have a taste for strawberries, and that sparrows will idle about a homestead to save the trouble of foraging, if there is anything to be got by the process. But the subject must be considered as a whole, and when the whole subject is impartially viewed it is seen that our native birds are greatly needed to keep down the insect hordes that repeat, in their several ways, the devastation of the locust and the palmer worm in their desolating march through the land.

As every little makes a mickle, so each one of us may contribute to the defence of the country against the army of "blights" by the protection of wild birds. Every nest taken, every bird shot, or trapped, or caged, represents so much of remedy for the general mischief lost for ever. There undoubtedly prevails a national (and perhaps natural) stubbornness on the subject, and people "jump" at any conclusion unfavourable to the birds on the instant of obtaining some trifling, and perhaps trustless, evidence against them. Hence it is that the legislation in aid of the protection of birds is almost a dead letter. We cannot wish for a general spread and prolongation of the insect plagues that prevail in certain districts for the convincing of the unbelievers; we would prefer to see them persuaded while there yet remains something worth saving by the exercise of prudence and reasonable belief in the adjustments of nature. Birds multiply rapidly, and the reduction of their numbers by one or two winters would be quickly made good in the ordinary course of events, if people would be content with fewer cats and would take active measures to secure to birds in gardens, and otherwise near to them, the safety and seclusion without which increase of their numbers is impossible. Of two things at this time all may be satisfied who are amenable to reason. One is, that there are more insects abroad than consists with our material welfare. The other is, that while we are powerless to cope with the insect plague we need only a sufficient number of wild birds to reduce the enemy and keep him within bounds for the future.

ABINGDON COTTAGERS' SHOW will be held in Mr. Trendell's grounds, Abbey Ruins, Thursday, July 14.

AN INTERNATIONAL CONGRESS OF ROSARIANS is in process of organization at Antwerp, to commence on August 13.

NUNEATON HORTICULTURAL EXHIBITION will be held on Wednesday, July 5.

POTATO DISEASE is reported as having made its appearance in the neighbourhood of Taunton, Somerset.

THE BEE PASTURES OF CALIFORNIA.—The *Century Magazine* for June has a freshly-written paper on this subject, charmingly illustrated, which may be commended to the notice of all bee-lovers.

THE PELARGONIUM SOCIETY'S CERTIFICATES may be competed for by non-members at South Kensington on Tuesday next. Intending exhibitors of seedling pelargoniums may obtain from Mr. Hibberd entry forms and any other aids that may be necessary towards the official adjudication on their plants.

MANCHESTER WHITSUN SHOW had the unusual advantage of fine weather this year, and the effect is seen in the official return of the number of visitors. The following were the numbers: May 26, 3,000; May 27, 4,000; May 29 (Whit Monday), 16,000; May 30, 6,500; May 31, 9,500; June 1, 6,300; June 2, 6,000. The total in 1881 was 44,000; in 1882, 51,300.

"THE FLORIST AND POMOLOGIST" for June contains two plates of fruits. The Dryden Nectarine, a very handsome variety, is described by Mr. Rivers as raised from a stone of the Dagmar Peach, and combining with other high qualities the flavour of the Stanwick Nectarine. The Beauty of Hants Apple we have long been acquainted with; it is the handsomest of the Blenheim Orange type, and no doubt a seedling of that famous variety. It will be valued for its high colour, in which it always surpasses the Blenheim.

MISS NORTH'S GALLERY of Botanical Pictures attracted many persons to Kew on Wednesday last, when, by invitation of Mr. Hemsley, the gallery was opened for a private view. The pictures are of great value, both as works of art and as illustrating the natural aspects of tropical plants as Miss North has studied them during eight years of travel. The collection is housed in a suitable manner in a red brick building near the Richmond Road, and is now open to the public daily.

"THE JOURNAL OF FORESTRY," which is now under the direction of Mr. G. F. Heath, appears in a certain sense refreshed, and may perhaps prove more useful to the practical men to whom, for the most part, it is addressed. The editor leads off with a lengthy and interesting paper on Epping Forest, in which he adopts and expounds views in regard to management which we think will prove to be unsound. So far as we understand the case, the forest is under management that will be amply vindicated in due time to the great advantage of posterity, and ungenerous criticism may tend to impose a check on a very useful work.

"THE ALPHABET OF GARDENING," announced in the new series of sixpenny books, is intended for the thousands who possess gardens and would fain make the best of them, but know not how. Horticultural papers are more especially useful to those who are somewhat advanced in experience, and whose interest in horticulture has become a habit, as well also for those who practise it as a matter of business. It appeared to us there was still something wanting in aid of the many who have yet to make a beginning in the best of all possible recreations, and it is our hope that the "Alphabet" will prove generally acceptable.

DOUBLE RANUNCULUSES are things now almost unknown to our gardens, although it is not long since they were grown and shown and were worth money. So recently as the year 1858 Mr. Hibberd, in his "Exhibition Flowers," made mention of current trade lists comprising three hundred varieties, that of Mr. Carey Tysoe being the most important at that date. But the double ranunculuses have not ceased to exist, for Mr. Cannell, of Swanley, has sent a glowing heap of them of all colours, and although they are not selected for "properties," but for their decorative beauty, they justify the declaration made in the work above referred to, that the ranunculus is the most perfect of all florists' flowers.

FUNGUS ON FRENCH BEANS.—M. Prillieux, who has devoted so much attention to the study of the parasitic fungi of garden plants, has reported to the Academy of Sciences that the early French beans raised in Algiers for the French market have of late been affected by a previously unknown disease. The beans rot rapidly in the baskets in which they are shipped, owing apparently to the inroads of a minute fungus, believed to be a *Sclerotium*, which has been observed in Germany on beet, in France on clover, and has done much harm in Russia to the hemp crops. The white flocculent mycelium, somewhat resembling "American blight," invades stems, leaves, and pods alike. The practical lesson is that the fungus is capable of doing extensive mischief, and to various species of plants; and therefore plants showing traces of it should be pulled up and burned at once. To allow them to lie on the ground for removal with other refuse is unconsciously to assist in propagating the pest, for which a change of crop is no sure cure.

THE LUNGS OF LONDON.—The last report of the Metropolitan Board of Works shows that the various metropolitan parks and recreation grounds under the Board's control comprise altogether an area of 1,676 acres, or a little over $2\frac{1}{2}$ square miles; and when it is remembered that what is known as the metropolitan area defined by the Metropolis Local Management Act, 1855, and under the jurisdiction of the Board, extends over 122 square miles, and has within its limits a population of more than three millions and a half, it will be acknowledged that the aggregate of these pleasure grounds is, after all, but small, and that were it not for the Royal parks, which happily may be regarded as assured public possessions, and for a few commons in and near the outskirts of the metropolis which are not under the Board's control, London would, in proportion to its size and population, be hardly so well provided with places of open-air resort as some other cities and towns. The places of recreation maintained by the Board are Finsbury Park, 115 acres; Southwark Park, 63a.; gardens on the Victoria, Albert, and Chelsea Embankments, and in Leicester Square, 14a.; Blackheath, 276a.; Hampstead Heath, 240a.; Shepherd's Bush Common, 8a.; London Fields, 27a.; Hackney Downs, 50a.; Well Street Common, 30a.; North Mill Field, 29a.; South Mill Field, 23a.; Clapton Common, 9a.; Stoke Newington Common, 5a.; waste land at Dalston Lane and Grove Street, Hackney, 1a.; Tooting Beck Common, 144a.; Tooting Graveney Common, 63a.; Clapham Common, 220a.; Bostall Heath, 55a.; Plumstead Common, 110a.; Shoulder-of-Mutton Green, 4a.; Wormwood Scrubs, 194a.; total, 1,676a. acres.

A FLOWER SERMON.

A SPECIAL service, bright and attractive in all respects, was held on the evening of May 30 in the church of St. Katherine Cree, Leadenhall Street, when, following a custom of some five-and-twenty years' standing, the Rev. W. Meynell Whittemore, rector of the united parishes of St. Katherine Cree and St. James's, Aldgate, preached the annual flower sermon. The children and young folks, of whom the congregation was largely made up, nearly all brought nosegays. Every seat in the building, it seemed, was occupied. Appropriate hymns were sung. Taking for a text part of the 5th verse in the 11th chapter of Numbers, "We remember the garlick," and speaking to his young hearers in a conversational tone, the rector, who preached without notes, held the attention of his congregation throughout an address which took half an hour in delivery. Having explained the circumstances in which the Israelites felt a longing for the gentle stimulant they had been accustomed to take with their food in Egypt, he shortly described the plant, of which we in England knew but little in these days, though, from the fact that a district by the riverside bore the name of Garlickhithe, it might be surmised that it was more in request in olden times, imported more largely, and that the ships in which it was brought unloaded there. With illustrations drawn from the characteristics of the garlick plant and its uses, he enforced the lessons that children spiritually need a light nourishing soil; that they might be other than they seemed, as the garlick belonged to the lily order while it differed from the lily in its qualities; that as the garlick cloves, the undeveloped buds, dropped off and produced new garlick plants, our words and smallest deeds had a power of reproducing themselves, the good producing of their kind and the bad after their kind; that if he would serve Christ we must be ready, as the hidden stem of the plant grew unseen in the ground, to do our work unknown to men; that as the wood-sage, which near Bristol was used to make a tea and in Jersey for a kind of beer, had the pleasant fragrance of hops, and would yet when bruised emit the strong odour of garlick, so little trials revealed our true character; and that as a skilful cook could by care, patience, and frequent repetitions prepare the garlick cloves in such a way as to make them mild and palatable, so, though we could not change our nature ourselves, God could change us, and make us gentle and Christ-like. He hoped that the children who had heard him would in future years be able to say, "We remember the garlick."

MR. MECCHI AND TIPTREE HALL.

IN a recent notice of Mr. Mechi a somewhat contemptuous reference was made to his "farming eccentricities." This elicited from his daughter, Isabella Mechi, a spirited and effective reply in the *Times*, which justifies the good name of her father as a promoter of "scientific farming." "Surely the leading features of my father's teaching and practice—viz., drainage of clay soils, deep cultivation, reduction of superfluous trees and hedgerows, enclosure of waste headlands, and concentration of capital—do not deserve to be swept away under the title of eccentricities. In reality they are precepts of equal soundness and simplicity, capable of reduction to practice either by the small farmer working on his own holding or by the landlord with larger capital and more extended opportunities. The next important point in my father's doctrine was the management of stock under cover on prepared food and with proper ventilation, thus securing their health and at the same time economizing their manure. Another matter my father hoped to live to see carried through was the utilization of sewage. In my belief, this will be done by-and-by, when the man turns up with talent to invent proper means of application and energy to turn it to account. Our descendants will then probably look back with astonishment at our prodigal waste of material, and disgust at the abominable pollution of our finest river. Alluding to the circumstances of my father's death and connecting them with his farming operations, Mr. Pell says, 'the result was a success,' I beg to state distinctly that my father's ruin was attributable solely and simply to the failure of the Unity Bank, in which, as a shareholder, he lost more than every shilling he possessed. To his successful farming, among other causes, he owed the delay of a catastrophe which had for some time been inevitable. It must remain a question of taste whether Mr. Pell has done wisely in affixing a stigma of 'agricultural loafers' to the many high-minded and honourable men who from all ranks of society have attended the Tiptree gatherings and witnessed the experiments conducted at them. In conclusion, I may add that during the last suffering days of my father's life his thoughts were not so much with himself or his troubles, not so much with family or friends, as with the cause he had long served faithfully and loved so well."

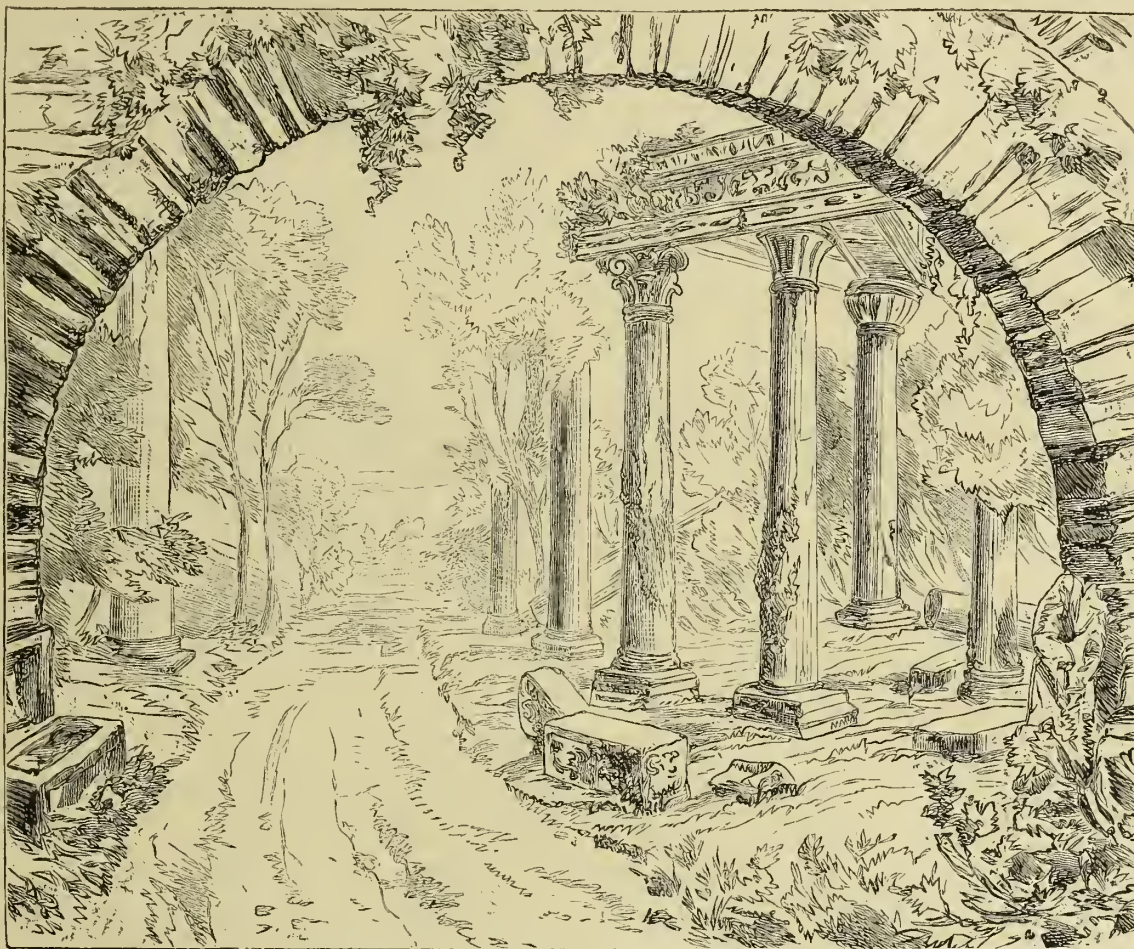
MARKET GARDENING.—"The Man of Mark Lane," writing in the *Mark Lane Express*, says that, although there are splendid crops of market garden produce this season, prices are so low that the returns are very small—so small, he is informed, that they are not sufficient to pay the expenses of cultivating the land on which they are grown and planting it with a fresh crop. An experienced market gardener, who occupies one of the best farms in the neighbourhood of London, at a moderate rent, declares that his losses during the last four years have been very heavy, and that the depression among market gardeners generally is even more extreme than among ordinary farmers. He has been brought up to the business, and understands how to sell as well as how to produce. At one time he realized large profits; but lately he has lost money rapidly, as already stated. Foreign growers send large quantities of vegetables and fruit to London a fortnight before the same kinds of home-grown produce are ready. They get high prices, while English growers find the market glutted when their produce is sent for sale. For instance, about a week ago, when English white peas were just ready in considerable quantity, they were quite neglected by buyers, as there was a large consignment of blue peas from the South of France, which every one preferred. It is not at all uncommon for early French vegetables and fruit to make four times as much as the earliest English produce of the same description will bring to the growers. The disadvantages under which English growers labour are increased by the preference rates charged by the railway companies.

A WALK AMONGST RUINS.

SEVERAL times in my life I have found something to interest me in looking through a builder's yard. It is not long since I met with the grave of an eccentric person who gave directions for the keeping of his last earthly resting-place in a certain orderly manner, one particular of which was that there should be at hand at all times a bell, that he might ring for help in case of awaking after consignment to the tomb. And this grave had gone to ruin in spite of all his care, and not only had the bell disappeared, but the walls of the melancholy monument were crumbling into the general waste of a builder's yard. Sometimes, in a thriving country town or London suburb, you may see a flowery builder's yard filled with the strangest things imaginable—bits of dilapidated statuary, handsome capitals without columns, and broken columns without capitals, with heaps of rubbish more or less picturesque, and perhaps a grand lot of climbing roses to harmonize by their unconscious beauty all the otherwise discordant elements.

I find in one of my sketch-books a rough picture, of which I send you a copy. It is a bit of garden scenery of a peculiar kind, suggestive of the builder's yard, and not without its uses, as I think, as a proposal to the garden architect. A few columns are scattered in such places as they might be found in were they the remains of some classic temple. One small scrap of ruin is made up by uniting the

own knowledge I can say that at Regent's Park, at the Crystal Palace, and at South Kensington the clematis were the general theme of conversation. Effective as they are in the exhibition tent, their greatest value consists in their adaptability for the decoration of the conservatory during the latter part of the spring and the early part of the summer. There are but few plants of greater effect in the conservatory, and they are so distinct in character and colouring from other subjects that their value is considerably enhanced by the great and pleasing variety they afford. Having thus briefly referred to the claims they have upon cultivators, it is necessary to state in the most distinct manner that both skill and patience are essential in the production of pot specimens. Large or even medium-sized examples well furnished with foliage and flowers cannot be obtained by a haphazard method or intermittent attention. Neither can they be produced in a few months, even when the highest skill is brought to bear upon them. From two to three years are required for the formation of handsome specimens, and I am anxious that the fact should be well known, for I am acquainted with more than one practical who abandoned them under the impression that they were very difficult of management, because they could not succeed in clothing large trellises with leaves and bloom within a year or so. If the clematis are not easily grown, there is nothing in the whole routine that is likely to unduly tax a cultivator with a fair amount of experience in plant growing, and it may be said with safety,



A WALK AMONGST RUINS.

columns with architrave and entablature, and fragments are scattered suggestive of the original extent and grandeur of the edifice. Suitable planting heightens the interest and adds to the reality, and thus, when the needful materials are at hand, as they often are, we obtain a fine feature and a decided novelty at a cost that is quite nominal.

SPECIMEN CLEMATIS.

THE magnificent collections of specimen clematis exhibited in London and Manchester during the past month by Messrs. Jackman and Son and Messrs. Richard Smith and Co. have again demonstrated in the most forcible manner possible the wonderful beauty and effectiveness of these climbers when skilfully cultivated, and they have given rise to many inquiries with reference to their requirements when grown in pots. The reports of the several exhibitions at which the collections figured so conspicuously have already informed your readers that clematis, when in specimen form, are quite unsurpassed for exhibition purposes, and it will suffice to say that even the orchids, however good, fail to receive more attention from the general body of visitors than the clematis when presented in first-class style. Exhibited in such splendid condition as they have been this season by the two firms mentioned, they excite an unusual degree of interest, and of my

that they will afford an ample return for the labour and attention bestowed upon them.

The most suitable month in the whole year in which to commence the culture of clematis is February, as the plants are then dormant and in the best possible condition for transit by rail or carrier, and if the precaution is taken to at once shift them into larger pots they begin their new growth with the advantage of extended root space. But a beginning may now be made, as in all the nurseries stocks of the leading varieties are kept in pots, and it will be much better to commence now than to wait until next winter. There must be no unnecessary delay, or the season will be too far advanced for the plants to derive the full benefit from the shift into larger pots. If they are in sixties when received, they should be put into six-inch pots; but if they are in the five-inch size, pots eight inches in diameter will be the most suitable. The drainage must be sufficient without being excessive, and care must be taken to so cover the crocks with the rougher portions of the compost that the fine soil cannot run down between them and check the escape of the superfluous moisture. The preparation of the compost is a matter of prime importance, as so much depends upon the mixture in which they are grown. There is not perhaps any better compost than fibrous loam three parts, well-rotted manure one part, and about half a part coarse sand. A rather calcareous soil is perhaps the most favourable to a free growth and an abundant pro-

duction of flowers, and where it can be conveniently obtained lime rubble may be added with considerable advantage in the same proportion as the sand; especially is the addition of the lime refuse desirable when the soil is rather strong. The loam should be broken up rather roughly previous to the manure and sand being added, and the mixture ought to be rather dry, so that it can be pressed firm without any danger of its being converted into a paste. The plants should receive sufficient water to well moisten the soil about their roots a few hours previous to repotting, and when turned out of the pots the crocks at the bottom of the ball should be carefully picked out from among the roots. As rather liberal supplies of water are necessary during the growing season, the six-inch pots should have a space of one inch and the larger sizes one and a half inches on the surface, so that sufficient water can without difficulty be applied to thoroughly moisten the ball. On the completion of the potting put a stake of a suitable length to each plant, and then plunge the pots to the rim in a bed of ashes or cocoa-nut fibre refuse, made up on a warm sheltered border. Throughout the summer they must be supplied with water according to their requirements, the supplies to be rather liberal than otherwise, and as they suffer severely when the soil is allowed to become dry and remain so for any length of time, they must be carefully examined at regular intervals. Above the middle of November remove the stakes, and cut each plant back to within one or two inches of the surface soil, or just above the second or third bud from the base. After the pruning they can be withdrawn from the plunge bed, and be placed in a cold pit or a cool peach or other fruit house for the winter months. But *elemtis* are quite hardy, and they can remain in the plunge bed with a covering, three or four inches in thickness of either coal-ashes, cocoa-nut fibre refuse, or leaves.

The plants must be grown during the second year in much the same way as advised for the first, and whether wintered under glass or in the plunge bed they should be taken in hand in February, as it is important the whole of the growth should be made in the open. No pruning beyond that done in November will be required, and the first step will be to repot. All but the weakly examples ought to have a shift into pots one size larger, and when turned out of the pots the ball reduced by about one-third, to give them as much fresh compost as possible. The plants that are weak should have the ball reduced by about one-half, and be returned to clean pots of the same size as those previously occupied. If any of them make such vigorous progress during the summer as to require more root space shift them into pots one size larger, and of course without any disturbance of the roots beyond what may be occasioned by the removal of the crocks. Occasionally some of the examples returned to pots of the same size start away with, comparatively speaking, great vigour, and are much benefited by an extension of root space. When the February potting is completed remove to a sheltered position and plunge as before in a bed of some suitable material at a distance of two feet or thirty inches apart each way. The best arrangement is perhaps to plunge them in beds four feet in width, two rows in each, and when two or more beds are parallel to each other to allow a three-feet space between them. In beds of this size the plants are placed under the conditions most favourable to the production of a strong well-ripened growth, and they can be readily attended to. Stakes ranging from six to eight feet in height must be put to them immediately they begin to make new growth, and to these the shoots should be secured as they increase in length. Where the wall space is available it is a capital plan to plunge the pots at the foot of the wall and train the growth to the surface. The supply of water must be abundant throughout the summer, and during July and August liquid manure of a moderate degree of strength should be used alternately with clear water. In no case must the shoots be trained to a trellis fixed in the pot until the season in which it is desired to have the specimens in bloom. As soon as they have shed their foliage in the autumn, remove them to a house in which they will not be subjected to artificial heat until after the end of February at the earliest, or the sticks may be removed and the plants be placed in a cold pit with the pots plunged in some loose material. The soil must be maintained in a nice moist state throughout the winter, and the growth freely exposed except in severe weather, when it will be well to close the ventilators or lights, as the case may be, and to protect those in frames with mats or litter.

In the third year the majority may be expected to bloom satisfactorily, and in February steps must be taken for putting them into proper shape for the decoration of the conservatory, or for forming part of competitive groups. The first matter requiring attention will be the pruning, which must be done with care and according to the section to which the varieties belong. Those forming the Patens and Florida types bloom from the shoots produced in the previous season, and the varieties belonging to the Lanuginosa group bear their flowers on short lateral shoots produced from wood of the previous summer. The Jackmanni and Viticella sections, which bloom late in the summer, bear their flowers on growths of the same season. The Florida, Patens, and Lanuginosa types are alone suitable for pot culture, and in pruning them it will suffice to remove very weakly shoots, and to shorten the others back to a point at which they are well ripened. When pruned remove two or three inches of the soil from the surface, and replace with turfy loam and well-rotted manure in about equal proportions, or with a mixture consisting of four parts loam and one part of Clay's Fertilizer. A balloon or cylindrical trellis is the most suitable, and for the first year one about twenty inches in height by twelve inches in diameter will be large enough. Each specimen should be provided with a trellis as soon as pruned, and the shoots be trained regularly. The third year they are to remain under glass until after they have bloomed, and unless they are wanted in

flower early they should be placed in a cool house, and as near the glass as practicable. Those required in bloom early in the season must have a light position, and be assisted with a little artificial heat. Whether in a cool or warm house, they must receive the assistance of stimulants very soon after they commence to make new growth, and as the buds make their appearance they should regularly receive liquid manure of a moderate degree of strength. It is quite useless to attempt the cultivation of *elemtis* in pots, unless it is practicable to feed them liberally. After they have flowered place them out of doors in a sunny position, and in the course of the summer shift into larger pots, plunging and supplying liberally with water as before.

The selection of varieties requires some care, because of the want of distinctness in so many that have a place in the catalogues. The following comprise the finest varieties in the three sections of special value for pot culture, and they have the great merit of distinctness.

PATENS SECTION comprises the earliest of the *elemtis*, and the following are the most noteworthy varieties:—*Edith Jackman*, white, delicately tinted with mauve; *Fair Rosamond*, blush-white, with red bar in the centre of each sepal; *Lady Lonsborough*, pale lavender; *Mrs. George Jackman*, silvery white with cream-coloured bar; *Sir Garnet Wolseley*, blue suffused bronze, and with red bar; *Stella*, violet with plum-coloured bar, and *Vesta*, pure white.

FLORIDA SECTION consists of double-flowered varieties blooming somewhat later than those in the preceding paragraph. *Countess of Lovelace*, pale blue tinted lilac, *Duchess of Edinburgh*, pure white, and *Mrs. G. Innes*, delicate lavender, are the most desirable.

LANUGINOSA SECTION.—In this group the varieties are later in producing their flowers than in the other two, and therefore require the aid of fire-heat when wanted in bloom at the same time. They are also distinguished by the large size and splendid form of their flowers. The best in the section are, *Alba Magna*, pure white, the flowers extra large, the sepals broad and overlapping; *Blue Gem*, pale blue tinted mauve, a medium-sized flower of superb quality; *Duke of Norfolk*, rich mauve; *Gloire de St-Julienne*, delicate French white; *Henry's*, creamy white; *Lawsoniana*, purplish mauve; *Madame Van Houtte*, white, delicately tinted mauve; *Princess of Wales*, deep blue suffused mauve; *Robert Hanbury*, lilac-tinted bronzy red; *Sensation*, pale blue with mauve shading, and *William Kennett*, lavender-blue. W. K.

NOTES ON VANDAS.

ATTRACTIVE as are the greater number of orchids requiring the temperature of the East India House, none can surpass in beauty and interest the vandas; and it may be added that when well grown there are but few which do the cultivator greater credit. They, indeed, contribute so materially to the attractions of the structure in question that in a collection of very moderate size at least six of the finest of the species and varieties should be grown. There is a rather general belief that vandas are more difficult to cultivate than many other of the important orchids, and their condition in some collections fully justifies it; but as a matter of fact they are not so. They are rather peculiar in their requirements, and when the cultivator has become well acquainted with the various details no great difficulty will be experienced in maintaining them in the most healthy condition. An abundance of light without exposure to sunshine is most essential to their welfare; yet it is denied them under the impression that a dense shade is required throughout the spring, summer, and autumn. The supply of moisture during the winter is another point on which mistaken views prevail, and although, unlike the cattleyas and dendrobies, they have no well-stored pseudo-bulbs to fall back upon for support, they are often subjected to a drying-off process, which it need hardly be said is followed by results anything but satisfactory. It is to an imperfect acquaintance with their peculiarities that the majority of failures may be attributed, and a brief recapitulation of the leading points in their culture will probably be of some service.

Growing naturally, with a few exceptions, in the hottest districts of East India, they require a high temperature throughout the year. It must of course vary according to the season, but at no time must it fall to any considerable extent below the temperature of the respective habitats in the corresponding seasons; for without a sufficient degree of warmth it is not possible to maintain them in a healthy state for any length of time. On the other hand, the temperature must not be in excess of their requirements, more particularly late in the autumn and during the winter; for by maintaining them in a growing state at a time when they should be at rest much injury is done. They should be kept as quiet as possible until the beginning of March, as the growth made when the light is sufficient to ensure its being firm and properly matured is the most satisfactory in every way. With the first week of March the growing season may be considered to commence, and between that time and the end of September, when it should terminate, the temperature must be brisk and the moisture, both in the atmosphere and at the roots, be fairly abundant. During March and April the temperature should range from 70 deg. to 75 deg. by day, and from 65 deg. to 70 deg. by night. In May and the three following months the most suitable day temperature will be from 70 deg. to 80 deg., with a rise of 5 deg. in bright sunny weather, and the night temperature from 70 deg. to 75 deg.; but except in very hot weather 70 deg. will be sufficient. In September and October the warmth, both day and night, should be about the same as during March and April, but the temperature must be reduced gradually to prevent any check being given to the growth, which must then be approaching completion. From the beginning of October to the end of February, a period which forms the resting season, the day and night temperature should be about 5 deg. lower than in March. With reference to the regulation of the temperature

during the winter, it may perhaps be useful to state that the growth made during the short dull days is invariably soft and weakly, and the leaves are liable to suffer from "spot" and other diseases.

The supply of moisture to the roots must, in a large measure, be regulated by the temperature, and to state the case briefly, yet clearly, the supply should be moderate during the two spring and the two autumn months, liberal during the summer season, and in the winter be just sufficient to maintain the material in a nice moist state. The changes must be effected in a gradual manner, and rather more moisture will be required in the spring than in the autumn. A light syringing overhead when the ventilators are closed in the afternoon will be beneficial during periods of hot weather, but heavy syringings then, and light ones in dull weather, are not desirable, although they will not be so injurious as to the cattleyas and lœlias. Atmospheric moisture should be maintained by pouring water on the floors and sprinkling the walls and stages. During the winter, when the severity of the frost renders it necessary to drive the fires rather hard to maintain the proper temperature, they derive much benefit from a light sponging of the leaves; the sponge to be just damp. From March until September the foliage must be screened from sunshine, but the shading material must be rather thin, and the blinds ought not to remain down longer than they are required for the protection of the plants.

The vandas may all be grown in baskets, on blocks of wood, and in pots, but they do better in pots, and should be invariably grown in them. The pots must be proportionate to the size of the examples, but they should not be too large, as a great quantity of material about their roots is rather injurious than otherwise. For a specimen with a single stem and about two feet in height, an eight-inch pot will suffice, whilst for a specimen of the same height, and having two or three stems, a ten-inch pot will suffice. Small plants should be put into five or six inch pots. A free drainage is essential, and as a rule the pots should be filled to rather over one-half their depth with crocks. Sphagnum moss, with the addition of a small proportion of small crocks and nodules of charcoal, is the most suitable material in which to grow them, and it is a good plan to scald it by immersing it in a vessel of hot water for half an hour or so previous to using if infested with small snails, which are found in considerable numbers in some sphagnums. So long as the plants grow freely and present a healthy appearance they will not require repotting. They must not remain until they are in a decidedly bad state; but their condition must be closely observed, and when a change is observed be taken in hand without delay. Every spring, just as they are commencing to make new growth, they must be examined, and if it is considered necessary to transfer them to fresh pots it should be done at once, but, if repotting is not considered desirable, they should have a top-dressing of new material. Previous to top-dressing remove as much of the old sour moss from the surface as can be taken away without injuring the roots, and in repotting nearly, if not quite, all the old moss should be picked out from among the roots. Stems that have become bare should have a portion of the base cut away, taking care, as a matter of course, to cut low enough to leave three or four healthy roots on the plant. Very often six inches or so of the base of the stem can be removed without materially interfering with the healthy roots. In all cases every scrap of root showing signs of decay must be removed, and in putting the roots in the pots, and in packing the material about them, the greatest care should be taken to avoid bruising or otherwise injuring them, for the roots are not so numerous that one can be spared. It will not often be necessary in repotting to increase the size of the pots, as after the plants are large enough to produce leaves of full size the change of the material about the roots will suffice. Of course, small examples obtained from the side stems will, as they increase in size, require larger pots, and in a like manner old stools with several stems must, as the latter acquire strength, be put into pots a size larger at each shift.

The time recommended for repotting will be the most favourable for making up exhibition specimens, which may be done by putting two or three strong plants into a pot just large enough to receive the roots without their being too crowded. The plants should be as evenly matched in height as practicable, and be showing signs of flowering satisfactorily and simultaneously. Excepting for exhibition purposes, or where several stems are produced from an old stool, one stem only should be grown in the same pot. Propagation is effected by means of the side shoots, which should have at least one root and be taken off in the spring.

The following comprise those of special value to the general body of cultivators:—

Vanda Bensoni.—A pretty Burmese species, producing long spikes of flowers which have greenish yellow sepals and petals marked with brown, the labellum white marked with purple.

V. caerulea.—An exquisitely beautiful species of comparatively dwarf growth, and producing during the autumn erect spikes of large flowers of a delicate blue colour. It is decidedly difficult of cultivation, but the great beauty of the flowers will fully repay any extra care that may be bestowed upon it. Coming from a high elevation, it must not be subjected to so much artificial heat as the other species, and the intermediate or cattleya house is the most suitable place for it.

V. cœrulescens.—This is an elegant blue-flowered species, producing long spikes of small flowers, and, although not equal to *V. caerulea*, is well worth growing.

V. Denisoniana.—A pleasing species with greenish white flowers, and well deserving of attention. In beauty it is not equal to many of the other kinds, and should be omitted from a very small collection.

V. Roxburghi.—A well-known and attractive species; the growth

bold, and the flowers large and beautifully spotted with reddish purple on a white ground.

V. suavis.—An exceedingly beautiful and valuable species, remarkable for its robust habit and freedom of flowering. The flowers, which are borne in magnificent spikes, are creamy white, profusely spotted on the inner side with bright crimson. It makes an effective exhibition specimen, and if only one kind can be grown it should have the preference.

V. tricolor.—Like the last-mentioned, this species blooms freely, and is of great beauty; the sepals and petals are creamy yellow, with crimson markings, the labellum white marked with purple. There are several excellent varieties, the most important being *V. tricolor insignis* and *V. tricolor superba*. ORCHIDOPHILIST.

NOTES ON POTATOES.

I WAS very pleased to see in a recent issue of the GARDENERS' MAGAZINE an article from the potato grower's friend, Mr. McKinlay. I had been looking for something of the sort for some weeks. We amateurs always appreciate articles by gentlemen of such experience, for about here we can learn nothing from our neighbours how to grow a potato to perfection; for, although there are a few planted anyhow and anywhere, advice from such is of no use to one who is in advance of the every-day culture; but if every first prize winner at the International Show would write an article explaining how they succeeded to bring the tubers to such a state of perfection, then we should have advice from those well qualified to impart it. I am always looking out for a bit of news on potato culture, as I try every year to grow better than previous ones. As Mr. McKinlay would perhaps be glad to hear the opinion of others, and after letting us have the benefit of his experience, it is only fair we should thank him, and show our appreciation by making remarks about our own crops.

I have now growing twenty-three varieties, some of each type, namely, White Kidney, White Round, Red Kidney, Red Round, Purple Kidney, Purple Round, and Particoloured; comprising: *International*, *Pride of America*, *Cosmopolitan*, *Edgecote Seedling*, *Woodstock Kidney*, *Schoolmaster*, *Excelsior*, *Early Cluster*, *White Emperor*, *Bedfont Prolific*, *Mr. Bresee*, *Bountiful*, *Trophy*, *Prizetaker*, *Queen of the Valley*, *Grampian*, *Reading Russet*, *Matchless*, *Adirondack*, *American Purple*, *Vicar of Laleham*, *Blanchard*, and *Radstock Beauty*.

I consider the above to be among the best for a selection, although many more are equally good. I should have tried a few more, but the smallness of my ground restricts me. I like to grow some new sorts every year, so as to become acquainted with all the best sorts as they are introduced.

I planted rather later than usual this year—began March 30 and finished April 10—and find that rather too early, as every year I have much trouble to keep frost from the tops in May, by covering with flower pots and sacks over them: I find flower pots alone are not sufficient to keep off frost. I think about the middle of April soon enough to plant (unless it takes a long time), for they take a month to come through. This brings us to the middle of May, when they can then have a little earth drawn over them, and in about ten days they are through again, but then frosts are over. If you have means of protecting the young shaws, and like to be at the trouble, then plant earlier if you like.

This year my potatoes are very forward, and have had one earthing up in case of frost; but it so happens on one night only (9th May) the thermometer registered 32, and only a few heads were touched here and there. The Bedfont Prolific were the first to come through, and I have noticed the leaves that were just pushing through the earth were black from the frost, while those well through the ground escaped. The frost has only touched the tips of the leaves here and there in the same row, and those nearest the ground have come the worst off; but still it is so trifling that I am thankful they have so well escaped.

I never noticed scab on my potatoes until the last two years, but have seen them on others at shows. Like others, I have been looking for a remedy or cause—some say one thing, and some another; and I think the dry weather or sudden change had something to do with it. Last year I put over the seed tubers at planting a mixture of sifted mould, cocoa-nut fibre, pounded charcoal, sand, and crushed horns and hoofs, all mixed and run through a sieve. This made a splendid compost, and was placed over the tubers in a trench four inches deep and twelve inches wide. My ground being clay, I have to resort to all kinds of experiments to grow the potato well. The tubers last years grown in this compost were small and sound, very clean, no washing required, but many scabs on them. Each year, the last three years, I have burnt the under spit of my clay, and worked the ballast thus produced into the ground, which makes it work much easier. Some friends remarked it was the burnt earth that caused the scab; but considering my potatoes were laid in compost prepared as above, and the ballast dug between the rows, I fail to see that was the cause. I do not remember scab on my potatoes in the wet year of 1879. With regard to the storm of Saturday, 29th April last, a row of early peas I have facing S.W., and showing for flower, looked as if they had been well thrashed on the windward side.

South Norwood, May 22, 1882.

WOODROFFE GOOCH.

DR. NEUBER'S "DEUTSCHES GARTEN-MAGAZIN" (Stuttgart) has treated some interesting subjects in recent issues. No. 35, now before us, contains a paper on Gentians, with illustrations of some rare species, and an important list of alpine plants.

NOTES ON FUCHSIAS.—No. XII.

FUCHSIA SPLENDENS.

FUCHSIA SPLENDENS is an important plant, having been found useful by the hybridizer, and is the parent consequently of some handsome varieties, besides being, in its original form, one of the handsomest of the species. Its native home is Mexico, where it has been met with

However, it is a showy plant, free in growth, with handsome ovate-cordate leaves and curiously-compressed flowers, which are of a deep red colour in the tube, and bright yellow in the corolla and tips of the petals. The rarity of yellow colouring in the fuchsia and its conspicuousness in the flowers of this plant render it peculiarly distinct and interesting.

The figures represent two forms of the plant, the more compact



FUCHSIA SPLENDENS, VAR. GRACILIS.

by Hartweg at an elevation of 10,000 feet. As a cultivated plant, its relative hardiness agrees with its geographical range, for it has often survived the winter in the open ground, and may in that respect be classed with the "Devonshire plants." As regards its attractiveness, we must agree with the remark in *B. M.*, under *t.* 4,032, to the effect that it is "not so striking as the name would lead one to infer."

and leafy specimen showing the normal form of the plant, as it is best known to explorers of Totontepeque, whereon it abounds. The slender form is a seedling of our own, of great beauty by reason of its light graceful growth, and requiring free space for the display of its characters. The best figure of the plant we have met with is in "*Flore des Serres*," *t.* 458.

MANAGEMENT OF DAHLIAS IN POTS.

DAHLIAS are not by any means the most suitable of flowering plants for cultivation in pots, and it may be said of them, as of the herbaceous phloxes, that although decidedly attractive when well grown, they are not worth the labour that must be bestowed upon them to produce good specimens. Some years since I had an idea that the best of the pompones that were then available would be of considerable value for the decoration of the conservatory, and for forming groups on promenade walks, and to fully test the matter I grew about fifty plants in pots in four consecutive seasons. We were not unsuccessful in the first and second seasons, but in the two last years the majority of the specimens were remarkably good, and bloomed freely and continuously. Better specimens could not well be had than the

prizes are offered for competition at the National Dahlia Show, in September next, for pot specimens, I have thought some reference to the matter might be useful. Five classes are provided for pot plants. In three collections of twelve are required, and in the other two four and three plants respectively are to be shown. I shall express no opinion upon the advisability or otherwise of providing the classes for plants, but I cannot avoid saying that the prizes are inadequate. In the classes for twelve plants, which are to be shown in pots twelve inches in diameter, there are only first and second prizes, and these are £3 and £2 respectively, or the same amounts as offered for twelve show flowers. In the other two classes the prizes are relatively of less value, and I fear very much that the competition for plants will be limited, as the highest of the awards for the twelves will barely suffice to recoup the cost of carriage if the plants have to be brought any



FUCHSIA SPLENDENS, TYPICAL FORM.

best of those forming our collection in the later years; but I did not like them in the conservatory, and those who saw them appeared to be of the same opinion as myself. They spoke highly of the way in which they had been grown, but not one expressed an opinion otherwise than adverse to their employment for the decoration of the conservatory. I was better pleased with their appearance in groups outside, especially when arranged at the foot of some broad flights of stone steps; but even here the effect produced was not in proportion to the time and trouble that had been spent upon them. Large specimen zonals of diverse colours are decidedly more effective, especially low standards, and they can be grown with less attention. From my experience I should not recommend dahlias for pot culture; but as

distance. The three leading plant classes should have contained prizes of not less than £5, £3 and £2, so that cultivators might have engaged in the production of the specimens with the assurance that, provided they obtained a first place, they would not be out of pocket for cartage.

Frequent repottings are not favourable to the production of first-class specimens, and if strong plants are available the best course will be to put them in the twelve-inch pots at once. But if they are small and in sixties the best course will be to shift them into six-inch pots, and from these transfer to the larger size as soon as they have filled them with roots. The drainage should be sufficient to prevent the water remaining in a stagnant condition in the soil, and with such

moisture-loving subjects as the dahlias very few crocks will suffice. The pots in which they are to bloom should have a two-inch layer of crocks covered with the rougher portion of the loam. A decidedly rich compost is essential, and one consisting of turfy loam, rather strong than otherwise, and fat manure from an old hotbed, in the proportion of two to one, will be the most suitable. Let the loam be broken up rather roughly, and in potting press the compost firmly. It should indeed be made as firm as in potting strawberries, and to prevent its being worked into a pasty state it must be used rather dry.

The selection of a situation for the plants during the summer season must have due attention, and care be taken to provide them with sufficient space for the proper development of the lateral growth. The main point is to select a position in which the plants will be fully exposed to the influence of the sun throughout the day, for if they are at all shaded the growth will be long jointed and the flowers less plentiful than could be desired. There is no objection to their being placed where they will receive a little shelter from the westerly winds which usually prevail early in the autumn, but they must be kept away from high trees. When the situation is decided upon mark out the space, which should be large enough to allow of the plants being placed three feet apart each way, and then form a six-inch layer of coal-ashes on which to stand the pots. The next step will be to stand the pots on the prepared bed at a distance of from thirty inches to three feet apart, the latter being preferable, and then fill in the space between them with ashes, leaf-mould, cocoa-nut fibre refuse, or other loose material of a suitable character. Sufficient will be required to reach to the rim of the pots when trodden. Where a bed exists it will of course suffice to plunge the pots to their rims in it, but care must be taken that the pots rest upon some hard material that will effectually prevent worms working through it and into the pot. Dahlias may have their pots plunged in a border in the kitchen garden where sufficient plunging material is not obtainable, provided the precaution is taken to make the hole deep enough for two bricks to be placed edgewise in the bottom in such a way that the pots will rest upon them, and have a little space underneath to allow the superfluous water to readily escape. When they are to be plunged in soil pots with holes in their sides ought not to be used, because of the facilities which will be afforded for the entry of worms.

As bushy well-flowered specimens are of more importance than a few blooms of extra quality, they should have their points nipped out as soon as they commence to grow freely after the repotting, to encourage the production of side shoots. No further stopping must be done, but as soon as the lateral growth begins to extend freely a beginning must be made in tying it out, for the purpose of giving the several shoots sufficient space, and preventing their being snapped off by the wind. The watering must be carefully attended to, and be liberal rather than otherwise. Until the pots are well filled with roots clear water will suffice, but afterwards liquid manure should be used. A liquid made by steeping cow manure in soft or other water will answer admirably. At first it should be given once a week, and afterwards be increased to twice a week; finally using it alternately with clear water. To keep the liquid clear, put the manure in a coarse bag, and drop it into the water. Horse and sheep's droppings may be used instead of the cow dung, and the drainings from the manure heap properly diluted will answer admirably. When it is not practicable or convenient to prepare liquid manure, the plants may be assisted by top dressings, applied every two or three weeks, of Clay's Fertilizer, or some other artificial of proved excellency. A few of the earlier buds must be removed, and where crowded the later ones should be carefully thinned, but it will not be necessary to practise severe thinning.

AN OLD DAHLIA FANCIER.

STUDIES OF PROTOPLASM.

SOME very remarkable researches made by Professor Reinke in the Botanic Laboratory of the University of Göttingen have lately been published in German under the title of "Studien über das Protoplasma" (Williams and Norgate, London, 1882). The results of these researches, extending over many years, show that protoplasm, the colourless jelly-like substance found in the cellular tissue of plants and animals, and heretofore regarded as the most rudimentary form of organic matter, is not merely albumen, as hitherto supposed, but a substance as complex, and, inferentially, as varied in its constitution as the highest organic structures. Mere expression, applied to sufficient quantities, suffices to resolve all protoplasm into two parts—the one solid, but soft and plastic, to which the professor gives the name of "structural matter;" the other fluid, which he calls "enchylema." The researches in question were made with *Elthium septium*, a species of mucor found on bark, and which consists simply of protoplasm. Here the "structural matter" was found to consist of *plastin*, a soft plastic mass; *cholesterin*, an important constituent of the nervous system in man; and *lecithin*, which occurs in urine. The "enchylema," which was squeezed out of the protoplasm "like water out of a sponge," consisted of 75 per cent. of water and 25 per cent. of a mixture of albumen, pepsin, sugar, phosphates, &c., &c. Professor Reinke believes that all protoplasm is made up of three classes of substances. Of these, the first class of substances is essential and constant. They are always present. The second class are also essential, but vary in individual cases. For instance, sugar, in some shape, appears to be an essential element of protoplasm, but in one case it may be *lævulose*, or yeast-sugar, as in the plastic contents of yeast-cells; in another it may be cane sugar, in a third dextrose, and so on. The substances of the third class Reinke regards as accidental. They are consequences of, and are elaborated by, the mutual and progressive reactions of the concurring substances of the two previous classes, in each individual case. Here, it scarcely need be said, opens before us a boundless range of possibilities, involving, in a finite sense, the great problem of life itself, and not this alone, but the endless diversity of forms of life inherent in different organic types.

UNDER PITCH HILL.

PITCH HILL is a sort of black mountain, of less elevation than Leith Hill, but of bulk and bravery enough to make a fine feature in the Surrey landscape. It is one of the peaks of the miniature mountain range that extends from near Farnham in the west to Knockholt in the east, and is dotted with such places as Albury, Box Hill, Deepdene, Red Hill, and Reigate. To reach Pitch Hill you must take train for Gomshall and then walk or ride over. You are then quite out of the London smoke, and in the midst of the "truly rural," with some grand prospects from the heights, and from some places grand prospects of the heights. I noted as we neared Pitch Hill, at a turn of the road where a gate terminates a slip of meadow, the entire face of the hill was spread out in strong scenic fashion, forming a very good reminder of a bit of genuine mountain, and demanding more than a moment's attention for its richness and strength of detail. Under Pitch Hill friends have pitched a tent and made a beginning in taming the wilderness, which it is intended shall blossom as the rose. It is indeed already blossoming, for there is a garden formed, and Nature is making a generous response to the skill and industry that have been bestowed upon the spot to make it fruitful, restful, and ever-inviting.

The friends who have invited me and, indeed, conducted me to the foot of Pitch Hill are Mr. John C. L. Sparkes, of the South Kensington, Lambeth, and Dulwich Schools of Art, and his good wife, who, in true sympathy with her husband, takes the deepest interest in the garden, the dairy, and the surrounding scenery, and all that belongs especially and of right to this new Tusculum, the growth of which to both must be a matter of the highest importance as regards health and happiness, and the æsthetic delights that are looked for by artists when they escape for an hour or a day from the busy town.

The soil of this district is sand or sandy loam, not well adapted for timber, fruit, or wheat perhaps, but peculiarly suitable for rhododendrons, alpenes, ferns, and not utterly unsuitable for trees and strong-growing herbaceous plants, as agreeable experiences have proved. The garden is nearly all "up hill and down dale;" but the lower kitchen garden is a proper flat for the purpose, and the grass walks around it are comfortable for that reason, and thus without climbing or sliding you may ramble and enjoy the flowers at your feet, and the glorious prospects that open on every hand around you. These prospects embrace woods, waters, hills, valleys, villages, noble houses, parks, and far-off ranges of indigo-tinted forests that produce no indigo, but may be made of oak, beech, fir, and gorse, and that occasionally mingle with the grey horizon so softly that they may be made of nothing. How many counties may be surveyed from this spot I know not, and as I am not a surveyor I will not question the statement that Evelyn has made in respect of Leith Hill, that a baker's dozen are at your call, and the more you call the more will they remain where they are to prove their immovable reality. I confess I never could discover any peculiar delight in a far-reaching view, and I would not pay an extra penny to see fifty-two counties instead of thirteen. But then I am near-sighted, and being no pedestrian, I protest now and for ever against Campbell's doctrine that "distance lends enchantment to the view."

To form a garden and recreative homestead on a poor sand much charged with moisture is a work of time, and it is fortunate that my friends at the foot of Pitch Hill have the requisite patience as well as the taste and the means. The thing desired is growing, and in any such case we may, I think, very properly praise God that it cannot be produced at once as by the magician's wand. The bower or banquet that comes into existence at a word or a touch is but a poor thing while it lasts, and it will disappear at a touch in agreement with the rule that the power capable to create is also capable to destroy. If you watch very closely, you will see that in a theatre scene where a dinner sprinkled with diamonds and gold-leaf jumps up through the floor at the sound of a gong, there is wanting either a flavour in the viands or an appetite in the actors; for they never eat a mouthful and only pretend to be feasting to hide their vexation at the mocking unreality. A rich man known to me made an ass of himself by putting his garden into competition with that of a poor amateur whose heart and head were for ever and ever swimming in the illimitable ocean of plant life. He was on friendly terms with the humble amateur, and condescended occasionally to look at his garden. Whatever he saw that pleased him he said within himself, "I can do it better because my purse is longer; as for him ah, ah, I could buy him up a thousand times." And the rich man went to work and fooled away a lot of money, and never understood or enjoyed a single thing his costly garden produced; while, as respects the very things he felt bound to have in better style than the humble amateur, he never had them at all: they did not agree with his system of trusting to the banker's book and his own personal pomposity.

But this is a doleful digression. It would be unpardonable were it not for what happened at the end of the story. When the rich man began to be convinced that money only helps one half-way in the journey of life, he asked his quiet neighbour to tell him the secret of his success. And the amateur was puzzled for a moment, but he said in a hesitating way, "Well, you see I love these things, and you really care nothing about them; then, you see, I know something about them and you do not, and your mind is otherwise perhaps more profitably occupied. Then again, you see, I work myself and I think that is the chief secret of the success of my humble endeavours. In fact, the real enjoyment of gardening rests on Love and Labour, and there, I think, is the end of the matter."

"Love and Labour" are bestowed upon the pretty place at the foot of Pitch Hill. The taste runs upon hardy plants, but there is a little of everything to be seen, and the specimen greenhouse plants are in a nice span-roofed house, supplemented by useful pits and shelters. When I dropped in, by the aid of a five-mile drive from Gomshall, under the kind guidance of Mrs. Sparkes, the tulips were in perfection, and there were plenty of them; the rhododendrons ditto, the primulas ditto; the tree pæonies nearly ditto, wanting ten days or so to be in their full splendour. As for the miscellaneous herbaceous and alpine plants to be looked for in such a place, there are plenty of them, and the situation is eminently favourable to their increase, and to the production of high colour.

The *utile cum dulci* notion is in healthy force here.

Exposition No. 1. A smallish tract of the original waste remains untouched, bounded by the road one way, the shrubby belts of the garden another, and the ordinary hedgerows and coppices elsewhere. Here the cows browse and grow sleek, and as we plod through the little relic of the

primeval wilderness the impression is that of an illimitable space interrupted and beautiful by gigantic gorse bushes, at one time like black bundles, and at another time like awfully gorgeous nuggets of the purest gold all ready burnished for purposes of exhibition. The reservation of a few acres of rough gorse is a capital notion; it gives one a taste of wilderness without danger; it conserves a bit of the local botany, and as the cows nibble the young growth at the bottom of the old stools the gorse is paid for, the reservation is paid for; the notion, as truly æsthetic, is beautifully balanced by advantages that bear such homely names as cream, butter, and beef. A bit of æsthetics in this way is worth more than a world clothed with sun-flowers.

Exposition No. 2. There is a little "home orchard" or fruit garden. All the fruits, including gooseberry, currant, raspberry, and blackberry, as well as apples, pears, and plums, are trained in close lines to rods and wires, like soldiers drawn up to salute on parade. It is an excellent notion, because there are clean walks between the trees, and the fruits can be gathered with ease and celerity, and all "varmints" can be dealt with by dusting, syringing, and so forth with much convenience and little waste of material. There are other plantations of free bushes, and standards, and pyramids, and so forth, but this little plot of neatly-trained trees is to the household invaluable.

On a lower plot, overlooking a grand tract of mixed woodland and pasture, Mr. Sparkes has laid down an orchard of unpruned trees of all the leading kinds of hardy fruits. These are doing fairly well, but not so well as to surprise one. The frequency of lichen on the stems indicates excess of moisture below, and the position appears—so far as could be judged by a casual glance—to be such that the surface drainage from the adjoining hills finds its way in a kind of stream or slow flowing film a few feet below the surface, perhaps over a hard subsoil, or what is known as a "pan" where ironstone prevails. Whatever the cause, there appears to be room for improvement, and the writer of this is insufficiently acquainted with the site to do more than venture a superficial guess. More shelter above is perhaps needed as well as more dryness below, but time probably will make the shelter sufficient, because of the plantations that are rising on the boundaries.

The growth of a place wherein and whereon the hands of the owner are everywhere visible is a thousandfold more interesting than the progress of "works" where the architect and landscapist are supreme in power, and the owner reserves to himself the sublime privilege of only providing the money. Our friends under Pitch Hill are enlarging their lives while gratifying their tastes and fancies, and we wish them much and more joy of the endeavour.

PASSER-BY.

WITH MR. BEDFORD TO WANSTEAD PARK.

(From the City Press.)

If the Corporation had presented the people of London with Wanstead Park, and nothing more, they would have made them a splendid gift, for the combination of woodland and water is more beautiful here than in any other part of the forest; but the park of Wanstead, looked at only as so many acres, is an insignificant fraction of the whole. The programme of the day, which happily nothing occurred to mar, was carried out most faithfully from the beginning to the end. Half an hour's run by train from Fenchurch Street brought the party to Snaresbrook, the picturesque village on the outskirts of the forest, where there were waiting a four-horse drag and three open carriages. A start was at once made for the park, but on reaching the region of meadow land, at a pile of long, low, whitewashed buildings, the carriages had to be abandoned, and, headed by Mr. Bedford and the venerable keeper, whom the Corporation have wisely and kindly taken over with the property, the whole party struck out for what was to them entirely new land. There was reached presently the first of three magnificent ponds, which lie close together within the park. "The perch pond," said the keeper, "is stocked with fish in such abundance that any one approaching it at night time and hearing the fish leap would think the water was full of persons bathing." It is a wild picturesque spot, on which as yet no "improver" has laid his hand. Five or seven minutes' walk from this is built a quaint and most interesting grotto, whose age no man in those parts knows, the walls of which are studded with a thousand curious and beautiful shells and stones. Through the windows of the grotto a view is obtained of the commencement of a large and winding lake, the waters of which, for want of a few ducks or swans, are all overgrown with duck-weed. A path stretches from the grotto right round the lake, a path of extraordinary beauty, bounded on one side by the placid waters (whose half-weird aspect suggests a scene in one of the most striking of Edgar Poe's imaginative stories), and on the other by a dense mass of trees, shrubs, and undergrowth. Blue-bells and the forget-me-not carpet the ground; and here and there is a bright patch of rhododendron, seeming to grow most luxuriantly—just where it is least cared for. The note of the cuckoo sounds from a miniature island in the lake. Rabbits feed in numbers out in the open path, and start from the underwood not five yards in advance of the foremost walkers. A bend in the path, which always follows the lake, discloses the river Roding, here not much more than a thread of shallow water, which forms the boundary of the park. A few yards more, and the heronry is reached, where more than 150 of the queer shy creatures which the cockney sportsman described as "beggars with long legs, long necks, and long beaks," have their dwelling-place amongst the thickly-growing trees. It was worth while at this point to pause and think that within six miles of Whitechapel there was situate the very largest heronry in England. From the stillness of the place, the sweetness of the air, the teaming luxuriance of nature, and the numbers of the long-legged birds, with the vocal music that resounded from every tree, bush, and fence, one might have accepted readily enough a statement that he was fifty leagues from London. The second part of the programme embraced a drive over six miles of forest road to Chingford; and part three included a dinner at the luxurious Forest Hotel.

"SPRING'S DELIGHTS" can only be actually realized by those who live in healthy houses, and who combine known sanitary measures for the prevention of such infectious diseases as smallpox, scarlet fever, and measles. The remedy actually becomes a luxury when the washing of Toilet, Bath, and Nursery is conducted with WRIGHT'S COAL TAR SOAP. Refuse all imitations, which are but dangerous counterfeits.—[ADVT.]

HARDY FLOWERS AT TOTTENHAM.

MR. WARE'S nurseries in the Hale, Tottenham, are now very gay with pyrethrums, silenes, single roses, pansies, irises, and the later-flowering Alpine plants, amongst which *Lithospermum prostratum* and *Veronica saxatilis* are conspicuous for the surprising beauty of their deep blue flowers, overspreading cushion-like masses of deep green leafage. The lily plantations have never looked better than now, the leafage being healthy, the stems stout, and the flowers of the earlier kinds already well out. In a brief space from the present time there will be a great feast of ilices for such as can be happy therein.

Onosma taurica, although in no sense a new plant, appears to be only now acquiring its proper position as a good subject for the hardy garden, as also for pot culture. It may be likened to a symphitum, and is related thereto, being a true borage-wort, but very distinct, by reason of its yellow flowers. A rockery is a better place for it than a border, both for the display of its characters and the saving of its life, winter damp being a danger to it.

Cistus florentinus is one of the loveliest of the rock roses, and may be likened to a pimpernel-leaved rose pressed down into a pancake, with its flowers unhurt, and if possible beautified by the process. It is very striking in its profuse display of flowers, gauzy white, with golden centres, and in a dry sunny place it spreads freely, and is a perfect model of neat growth.

Ramonda pyrenaica is an interesting solanaceous plant, which in general style may be likened to a primula with a good head of bloom of a soft purple colour, very suggestive of potato blossom. It is a real beauty, and essentially alpine in character, therefore requiring a sunny position and a deep gritty soil. It is a real beauty, and will be wanted everywhere.

Myosotis rupicola, also known as *M. alpestris*, is the finest of the forget-me-nots for the rockery. As one plant may have many names, so under one name we may have many plants. It is proper therefore to say that on Mr. Ware's rockery may be seen the true *M. rupicola*, forming a dense sheet of dark green leafage overspread with a delicious dotting of brilliant blue flowers, a very alpine all through, which the better known and less beautiful *M. alpestris* of gardens is not.

Rosa rugosa is regarded as a new plant, and in respect of its growing popularity, it is perhaps advantageous to speak of it as new, as we thereby obtain more attention for it than if we were to say plainly, it was described by Thunberg (*Jap.*, p. 213), and by Lindley (*Ros. mon.*, 1830, p. 3). It is beyond doubt one of the finest plants known for the open English garden; ay, if it never flowered it would be worth having for its leafage. Mr. Ware has three forms of it, the flowers of which are respectively red, pink, and white. The first flowers appeared early in the month of May.

Convolvulus cneorum is a very old but comparatively unknown plant. It is usually classed as tender, but in the Tottenham Hale it appears to be hardy, perched on a dry sheltered knoll in the rockery. Its habit is that of an evergreen shrub with silvery leaves and pink or white flowers, quite distinct and very pretty.

Dianthus alpinus is well known, for it is one of the first things a wise man secures when planting a sunny rockery. To be without it in a garden of hardy plants is like sitting down to breakfast with no bread on the table.

Zephyranthes atamasco, or Atamasco lily, is a charming amaryllid of the class, as regards hardiness, of plants that need a little help through the winter. Mr. Ware appears not to be at all surprised that it "lives out" on his rockery, but the breezy dryness of the site no doubt accounts for it. The damp warm hollows are the graves of plants that are "almost" hardy, for in such places they do not go to rest properly, and they begin to grow again too early, and frost with damp is more destructive than a dry frost.

Lychnis viscaria fl. pl. is so exceedingly showy, with its double globular blooms of a rich mauvy crimson colour, that it might be planted in quantity in many places where we see but a few dots of it. A few of these very telling subjects should be liberally spread about a garden to warm the general scene and encourage the observation of minute details.

Gorteria acaulis is a showy neat composite allied to gazania. The flowers are yellow and distinct enough.

Cistus salvifolius may be roughly described as a cushion made of little sage leaves very freely sprinkled over with strawberry blossoms. It is a first-rate dry rockery plant, and here it spreads and flowers delightfully.

Habranthus pratensis "lives out" here with many more things that are properly regarded as a little tender. The scarlet and yellow flowers are extremely beautiful and of the true amaryllis pattern.

Silene maritima plena is not often seen, although the single form is one of the commonest of garden flowers. It is exceedingly showy in a large clump.

Enothera Nuttallii is an old plant half forgotten by the world, but remembered here, and now in delightful freshness of bloom on the rockery. Its flowers are yellow, of course; the plant is neat and nice in every way.

Cypripedium spectabile is now in perfection, and the bed devoted to it is at the present time the sweetest thing in all this varied garden. The plants are healthy, and the flowers bright, pure, and large, and there are plenty of them, and it may be seen by the most casual observer that to cultivate in perfection this loveliest of all our hardy plants is as easy as to grow chickweed on a bank.

Other hardy cypripediums may be found in the place by those who will look for them, such as *C. calceolus*, *C. parviflora*, *C. acaule*, *C. pubescens*, &c., &c.

EPPING FOREST.—The *Athenæum* says, perhaps one of the earliest documents in existence relating to Epping Forest is a roll in the Cottonian Library of the British Museum, of the latter part of the thirteenth or beginning of the fourteenth century, which contains a list of foresters, verderers, woodmen, regardors, and free and customary tenants of the various forests in the county of Essex. Among them occurs Moricius de Eppinge, woodman of the Abbot of Waltham's wood in Eppinge. This roll is attached to the Computus Roll of the collectors of the king's wool in Essex, to which Epping contributed "ij. sacc. ix. petr. ij. lib. j. quar." Several other documents relating to these subjects are fastened to the roll. There is also among the Royal Rolls in the Museum one of the time of Henry VIII., containing draft rules for the taking and distribution of deer in the forest.

Notes of Observation.

TUBEROUS-ROOTED BEGONIAS.

LAST autumn we left a considerable number of old begonia tubers in the open ground, with a view to further test their hardiness; but owing to the mild winter the trial, as far as it goes, is not of much value. Strictly speaking, the trial was not necessary, because the experience of previous years has shown that they are not capable of enduring frost. At the same time it is some satisfaction to know by the vigorous growth of those which were left in the ground during the winter that they may be wintered in the beds and borders if the frost can be kept from them. It proves also that when left undisturbed in the soil damp does not hurt them. I have also another experiment to record which is worthy of notice. Finding that I had a good stock of tubers, I determined to plant out several dozen in March, and take the risk. An exposed flower bed was selected, as I thought I should then be able to judge if they might safely be planted in the open ground instead of in a cold frame, in accordance with our usual practice. It happened at the time the planting was going on that a heavy fall of snow occurred—the only snow that fell here during the winter—and the man actually covered them with a mixture of soil and snow; but they were in no way injured by the admixture of snow, for the young growth is pushing through the soil regularly. The experiment is valuable, so far that it shows, by the difference of the growth of those planted in frames and those in the open bed, that the protected roots will certainly flower three weeks before the others.

J. C. CLARKE.

PYRETHRUMS UNDER GLASS.

Your correspondent, Mr. William Greenaway, reports that pyrethrums shown at Bath by Messrs. Kelway were flowered under glass. I therefore send a note on the subject to warn amateurs not to put pyrethrums under glass unless they have some special reason for so doing. Messrs. Kelway are men of business and masters of horticulture, and if it suits them to obtain an early bloom of these useful plants by employing glass there are none to prevent them, and none to complain. But I can say from experience that it requires great skill to flower these free-growing subjects under glass. If they are in the least degree confined to force the bloom they become drawn and pale in colour, and may even become infested with red spider. Therefore, when flowered under glass they must have abundance of light and air, and be liberally supplied with water, and even liquid manure, to sustain their vigour. Generally speaking, it will not pay to treat them in this manner, for at the very best the forced flowers are wanting in colour as compared with those produced naturally out of doors. The right way to manage pyrethrums is to plant them in a good soil in an open situation, and leave the rest to nature. They do not even need the support of stakes except in windy places. They are glorious flowers to link the spring with the summer, and being thoroughly hardy never need protection of any sort.

USEFUL WHITE FLOWERS.

The specimen of *Glonera jasminoides*, exhibited by Mr. B. S. Williams on the occasion of the first of the May meetings of the Royal Horticultural Society, served to show what a useful plant it is to those who have to meet a large demand for cut flowers. It is evidently of free growth, and for several months during the spring and early part of the summer it produces its jasmine-like flowers in great profusion. The flowers are unsurpassed in purity, and from their elegance can be employed to great advantage in the choicest bouquets. Still more useful in some respects is *Tabernaemontana camassa*, which may be likened to a medium-sized *Gardenia*. This also has a good habit, and blooms so freely that a medium-sized bush will in the course of the season produce a splendid crop of bloom. The flowers are about two inches in diameter, somewhat star shaped, quite double, and very pure. They are produced in medium-sized trusses, one or two flowers being expanded in the same truss at one time; the trusses also are produced in succession, and an abundant supply of flowers may be obtained from the same plants during a period extending over two or three months. The flowers are deliciously scented, but the perfume is not, as in the case of the *Gardenias*, overpowering, and this, combined with their extreme purity, render them especially suitable for bridal bouquets. When at the Victoria and Paradise Nurseries the other day I saw several large bushes which were literally covered with flowers. Mr. B. S. Williams, if I mistake not, was the first to introduce these two useful subjects to English gardeners. They both bloom freely in a small state, but the most profitable plants are those which have become large enough to occupy pots ranging from eight to twelve inches in diameter.

ALEXANDRA PEACH.

This comparatively new peach is, to my mind, one of the most valuable varieties for culture under glass, for the fruits are large, handsome, well coloured, and richly flavoured; and it is the earliest of all in attaining maturity, being from a week to ten days in advance of the small and indifferently-flavoured *Early Beatrice*. The character we received with this variety from America is fully borne out, for it has a good constitution, and according to the experience of myself and those of my friends who have grown it there is no difficulty in obtaining a good crop. With this variety there is no more trouble in supplying the table with peaches during May than with the ordinary kinds in June. It is, of course, valuable for outdoor culture where peaches can be successfully grown, as three or four trees would increase the length of the season by three or four weeks.

W. B.

ANTHURIUM ANDREANUM.

As a small plant this anthurium is flowering satisfactorily in the stove house of John Marshall, Esq., Belmont, Taunton. Mr. Lucas, the gardener, appears to have thoroughly mastered its cultivation, if there is any difficulty about it, for the plant is in the most vigorous health, as indeed are all the choice stove and orchid plants under his care. But as to the value of this new anthurium, I fail to see that it is so much more beautiful than *Scherzerianum*. The scarlet colour of the spathe is not so very particularly bright, and instead of the spadix being ivory-white I should say it was decidedly cream colour.

J. C. C.

EXHIBITING ANTHURIUM SCHERZERIANUM.

The "making up" of specimens is not confined wholly to orchids, for a close inspection of some of the specimens of *Anthurium Scherzerianum* staged at the London exhibitions this season revealed the fact that they had been formed by crowding a considerable number of medium-sized plants into a pot of large size. This is to my mind anything but legitimate, and should as far as possible be discouraged. Unless a prohibitive note is attached to the classes for stove and greenhouse plants it might not be safe to disqualify, but the judges may impose a good check by heavily discounting, as they would be fully justified in doing, collections of which made-up specimens formed a part. In referring to this splendid anthurium, I would suggest that the managers of flower shows would act wisely in insisting that the plants should be unpacked before they are staged. Several of the leading exhibitors at the metropolitan shows have this season thought it necessary for the safety of the spathes, during their transit to and from the place of exhibition, to bind the upper end of the sticks with white cotton wool. This wool they allowed to remain, and a most objectionable appearance it had. In conversation with one of the exhibitors, I was assured that it was impossible to prevent injury to the flowers when travelling without the aid of the wool; but a more fallacious idea could not be entertained, as witness the hundreds of specimens that have been exhibited without the spathes being protected with any soft substance. If white wool is to be used it should be removed before the judges commence work, and if the removal occupies more time than can be spared the black cotton wool, which is practically invisible when the sticks are painted green, should be employed; not only is it less objectionable in appearance, but it is much cheaper. I observe by your report of the Crystal Palace that you did not overlook the fact that one of the prize collections contained two specimens of *Anthurium Scherzerianum*, and I am glad that you directed attention to it. I, in common with many other visitors, thought the judges had not noticed that there were two anthuriums until I heard one of the judges justifying himself and his colleagues by pointing out the distinctness of the spathes borne by the two plants. That there was a wide difference in them I am prepared to admit, for the spathes of one were much past their best, whilst those of the other were as bright and as fresh as could be desired. Had they been really distinct, they ought not to have been allowed; for the exhibition of two forms of a plant like this, which varies so much in the size and colouring of the spathes, according to the strength of the specimens and the skill with which they are grown, is decidedly objectionable. In some instances it would give an undue advantage to a sharp exhibitor, and in others it would result in the disqualification of an exhibitor anxious to abide by the rules of the schedule, according to the manner in which the regulation as to distinctness is interpreted by the judges.

LOOKER-ON.

LARGE FIG TREE.

In the gardens of Crowcombe Court, the residence of Mrs. Carew, there is the largest fig tree I have seen. It has attained the great height of forty feet and a width of about sixty feet. It is planted against the back wall of the stables, which divide the garden from the entrance yard. There is still left several feet of wall uncovered, both in height and width, which no doubt it will cover in due time. The tree is in the most vigorous health and full of fruit, so full in fact that I hardly like to make a guess at the quantity, but I am well within the mark when I say there will be several bushels when full grown. Mr. Clements, the gardener, tells me he never prunes the tree beyond thinning out some of the growth annually where it is overcrowded. I might also have included in this note a reference to the large orange trees in this garden, which Mr. Clements manages so well, but I prefer to wait until I can find an opportunity of learning their history. If I am not mistaken, they lay claim to be some of the oldest in this county. However that may be, they are a grand sight, and worthy of a more extended notice than the present opportunity admits.

J. C. C.

JASMINUM GRACILLIMUM.

This jasmine is fast gaining in popularity amongst those who require white flowers for the winter. For the information of those who may not have seen the plant, I may remark that it produces its flowers in trusses at the points of its shoots, and that they are of the purest white and exquisitely fragrant. With me plants in six-inch pots bloom fairly well. It may be useful to remark that it requires a stove temperature. The tops of the shoots, if put in as cuttings in the spring, strike in a few weeks with the aid of a hotbed or a propagating pit. After the cuttings are struck and potted off, place at the cool end of the stove, where they can enjoy a circulation of air and be syringed night and morning. I grow my plants in peat and turfy loam with a good sprinkling of coarse sand, and I find the mixture to suit them admirably. It is not strong rooting, so that overpotting must be avoided. As it is comparatively new, I have not subjected it to any course of drying off or resting. Probably a slight reduction of temperature in the months of August and September might be beneficial, but any further departure from the treatment in any other respect I think is not desirable.

J. M.

PANSY CLIVEDEN YELLOW.

It is somewhat singular to have to relate, after testing all the yellow-flowering pansies and violas with a view to find the best early variety, that the old Clivedon Yellow pansy is unquestionably the best for spring bedding. There are several others with much larger flowers and of stronger growth, but for securing a mass of bright colour Clivedon Yellow is in my opinion, unequalled. The habit is so compact, and the flowers are produced so freely and continuously for so many months that for the future I intend to use it almost, if not quite exclusively. Most of your readers will probably know that Clivedon Yellow is one of the oldest of those which have been used for decorating the flower garden in spring. For several years I have used Moore's Gold Prince (not Golden Prince, as it is sometimes erroneously called), and where large well-formed flowers are of more consequence than a mass of bright colour it is a very serviceable variety. There are several other violas and pansies with yellow flowers which have their own particular merits, but I have no hesitation in saying that I have made a mistake in discarding for so long my old friend. It is, however, only another instance how in searching after new things we shut our eyes to the merits of those with which we are familiar.

J. C. CLARKE.

Calls at Nurseries.

MESSRS. GEO. COOLING AND SON'S NURSERIES, BATH.

Our recent visit to Bath Spring Show afforded us an opportunity of making a call at these far-famed rose grounds. The home nursery is situate at Batheaston, on the London road, one and a half miles out of Bath, in a large district chiefly devoted to the raising of market garden produce. The land faces due south, and slopes toward the river Avon in gentle descent. Strawberries and early potatoes are produced in large quantities, and these are sent off to London and the larger Midland markets.

The land held by the Messrs. Cooling comprises three distinct nurseries, the home nursery forming head-quarters for packing, receiving orders, &c. On entering the grounds the very first objects to arrest the attention of a stranger on a hot day are the admirably-arranged water tanks, which afford an abundant supply of soft water at all times. The tanks, which are of large size, are formed of slabs of freestone cemented together, and are so placed that the watering of the various plots is accomplished with a very limited amount of labour. The water flows from a spring which runs alongside of the high road skirting the nursery, and is diverted near the gateway entrance, conveyed in earthen pipes to the upper terrace. From the tank on the upper terrace it passes through overflow pipes to tanks on a lower level, and thence into a rivulet, which divides the nursery from the grass fields verging on the sluggish Avon. Another feature is the entire absence of brickwork, all the glass sides and roofs of the various structures resting on walls of freestone. That there are brick buildings in the neighbourhood cannot be doubted, yet in our wanderings we only saw one brick cottage, and that was in College Road, Lansdown Hill. On inquiry we learnt that the difference in price of stone and brick was very trifling; although for greenhouses we opine that bricks are the most suitable. The proximity of the home nursery to the river rendered it the more exposed to the severity of the winter of 1880-81, and the slaughter among the standard rose trees was, even here, terrific. At the present time, with the view of repairing past damages, large breadths are filled with standard and dwarf roses for next autumn's sale, all healthy and vigorous. Forty thousand standard briers, and one hundred thousand manetti stocks and seedling briers have been prepared for this season's working, to meet an expected large demand later on. Large batches of fruit trees have been planted with care on land previously devoted to roses, and the high cultivation necessary for the latter has rendered the soil in fine condition for the production of well-matured wood and an abundance of fibrous roots. Evergreens, conifers, and shrubs appear to do well, and we noticed a number of fine standard ornamental-leaved and flowering trees in variety. Herbaceous plants abound; large collections of named pyrethrums, phloxes, pentstemons, carnations, pinks, picotees, and border plants meet the eye on all sides. Particularly good were the named and seedling pansies; among others were masses of the following bedding kinds: Blue King, deep purple; Mrs. Felton, white, deep violet blotch; King Koffee, deep gold, and Mr. Gladstone, large circular flower, golden yellow. Among soft-wooded subjects, were choice collections of single and double dahlias, hollyhocks, chrysanthemums, geraniums, and other bedding plants. Two acres are devoted to this department.

Under the glass we found an immense stock of roses in pots in all stages of growth, and as the system pursued here in raising rose trees was novel to us, we venture to give the *modus operandi*. In the case of the seedling brier and manetti many thousands of stocks are potted into thumbs, and then plunged to the rim close together in ashes. When the pots are full of roots, during the winter months, they are taken indoors and grafted close to the soil and plunged in a hotbed. As soon as convenient after the union is complete they are potted into a larger size, and in a few weeks they form strong examples. The hardening process completed, they are ready for sending out, and from the size of the pots must prove very light carriage, as so many can be packed into a small space. All the best kinds of the tea-scented roses are worked in this ready way, both on the manetti and seedling brier; and among others we noticed large quantities of the best new roses, such teas as American Banner, a nice pointed bud, distinctly striped crimson and white; Antoine Devert, white shading to sulphur, outer petal salmon; Madame Amadien, bright pink, changing to white, fine glossy foliage; Madame Guinoisseau, canary-yellow, good for buttonhole; Pink Safrano, a red form of the old variety of that name; Reine Marie Pia, very deep pink, and Reine Marie Henriette, deep rose, sometimes known as red Gloire de Dijon. In addition it may be mentioned that here Hélène Paul, H.P., Violette Bouyer, H.P., and Etoile de Lyons, T., were considered valuable introductions of the current year. The old Devoniansis is grown very largely, the demand being great. A very fine white moss rose, under the name of Blanche Moreau, appears to be receiving due attention, as also are Bennett's hybrid teas. In this same structure were a number of choice clematis: those possessing high qualities were Mrs. George Jackman, satiny white, creamy bar, with pale brown anthers; Blue Gem, cerulean blue changing to mauve, very rich; Fairy Queen, a splendid combination of pink and flesh colour shading purple; Lilacina floribunda, greyish lilac, richly veined, a good bedder; Madame E. Serbet, sky-blue, a showy Continental variety. Madame Van Houtte, Otto Froebel, and all the best kinds are largely grown, as are also the several varieties of Ampelopsis, including the evergreen variety, A. sempervirens, and Vitis heterophylla variegata (Japanese vine). Pot vines occupy a large space, several structures being devoted to the cultivation of fruiting and planting canes.

One house is devoted to tea-scented roses, in which is a remarkably fine specimen of Maréchal Niel rose with a stem as thick as a man's arm, and as smooth and healthy as could well be. It has been planted some six or seven years, and thousands of fine blooms are cut from it early each spring for the London market.

At a distance of a quarter of a mile further up the high road, at Batheaston, another nursery contains large quarters of evergreen shrubs and herbaceous plants; while pot vines fill the glass at disposal here. At the back of the home nursery, some ten minutes' walk on rising ground, is the Swanwick Nursery, nicely situate and free from exposure to spring frosts. Here roses occupy a large area, giving employment to a number of hands in the busy season.

Bulbs and seeds are a very important branch, the seed shop in Broad Street, Bath, ranking equal with most provincial establishments. The firm have been successful in introducing several valuable vegetables, amongst them being Cooling's Matchless Broccoli, which has proved one of the best main crop varieties in cultivation; Omega Beet, a fine, handsome, deep coloured, highly-flavoured root, now exceedingly popular, and No Plus Ultra Dwarf French Bean, which for cropping has few peers, a wonderful demand for seed having been experienced these two years past. Next, we have to notice that a very large trade is done in the production of cucumber seed, the only varieties grown being Telegraph and Tender and True. A new improved form of Bath Cos Lettuce, will very soon be introduced by this firm, who, evidently enjoy a very large share of public patronage in every department of their extensive business: one interesting feature not mentioned is their neatly got up price lists.

During the next few weeks many rosarians will assemble at Bath, and we feel sure they will meet with every courtesy on putting in an appearance at Batheaston Nurseries.

Oxford.

WILLIAM GREENAWAY.

Exhibitions and Meetings, 1882.

JUNE.

WEDNESDAY, JUNE 21.—BURTON-ON-TRENT HORTICULTURAL SOCIETY.—First Summer Exhibition.
WEDNESDAY, JUNE 21, to FRIDAY, JUNE 23.—LEEDS HORTICULTURAL SOCIETY.—Annual Exhibition.
THURSDAY, JUNE 22.—ROYAL BOTANIC SOCIETY.—Evening Fête, 8 p.m.
THURSDAY, JUNE 22.—BURY ST. EDMUNDS HORTICULTURAL SOCIETY.—Summer Exhibition.
THURSDAY, JUNE 22.—CHERTSEY HORTICULTURAL SOCIETY.—Annual Exhibition.
FRIDAY, JUNE 23.—ROYAL BOTANIC SOCIETY.—Botanical Lecture, at 4 p.m.
FRIDAY, JUNE 23.—SCOTTISH PANSY SOCIETY.—Annual Exhibition.
TUESDAY, JUNE 27.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Pelargonium Exhibition, 1 p.m.; General Meeting, 3 p.m.
TUESDAY, JUNE 27.—PELAGONIUM SOCIETY.—Exhibition in the Gardens of the R.H.S., at South Kensington.
TUESDAY, JUNE 27.—THORNTON HEATH HORTICULTURAL SOCIETY.—Annual Exhibition.
TUESDAY, JUNE 27, to THURSDAY, JUNE 29.—DUDLEY.—Flower Show.
WEDNESDAY, JUNE 28.—HITCHIN ROSE SOCIETY.—Annual Exhibition.
WEDNESDAY, JUNE 28, and THURSDAY, JUNE 29.—LEE AND BLACKHEATH HORTICULTURAL SOCIETY.—Annual Exhibition.
WEDNESDAY, JUNE 28.—CROYDON HORTICULTURAL SOCIETY.—Summer Exhibition.
WEDNESDAY, JUNE 28.—NATIONAL ROSE SOCIETY.—Southern Exhibition, at Bath.
THURSDAY, JUNE 29.—WEST OF ENGLAND ROSE SOCIETY.—Exhibition at Hereford.
THURSDAY, JUNE 29.—CHISWICK AND TURNHAM GREEN HORTICULTURAL SOCIETY.—Annual Exhibition.
THURSDAY, JUNE 29.—GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Anniversary Festival, at the Albion, Aldersgate Street.
THURSDAY, JUNE 29.—HORSHAM ROSE SOCIETY.—Annual Exhibition.
THURSDAY, JUNE 29.—RICHMOND HORTICULTURAL SOCIETY.—Summer Exhibition.
THURSDAY, JUNE 29.—FARNINGHAM ROSE SOCIETY.—Annual Exhibition.
FRIDAY, JUNE 30.—MANSION HOUSE.—Exhibition of Roses.

JULY.

SATURDAY, JULY 1.—CRYSTAL PALACE.—Great Rose Show.
SATURDAY, JULY 1.—REIGATE ROSE SOCIETY.—Annual Exhibition.
TUESDAY, JULY 4.—NATIONAL ROSE SOCIETY.—Great Exhibition in the Gardens of the R.H.S., South Kensington.
WEDNESDAY, JULY 5.—ROYAL BOTANIC SOCIETY.—Summer Exhibition.
WEDNESDAY, JULY 5.—TEDDINGTON HORTICULTURAL SOCIETY.—Annual Exhibition.
WEDNESDAY, JULY 5.—WIMBLEDON HORTICULTURAL SOCIETY.—Annual Exhibition.
THURSDAY, JULY 6.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Second Summer Exhibition.
THURSDAY, JULY 6.—CANTERBURY ROSE SOCIETY.—Annual Exhibition.
THURSDAY, JULY 6.—BROCKHAM ROSE SOCIETY.—Annual Exhibition.
THURSDAY, JULY 6.—WANSTEAD HORTICULTURAL SOCIETY.—Annual Exhibition.
THURSDAY, JULY 6.—IPSWICH AND EAST OF ENGLAND HORTICULTURAL SOCIETY.—Annual Exhibition.
FRIDAY, JULY 7.—SUTTON ROSE SOCIETY.—Annual Exhibition.
FRIDAY, JULY 7.—TENBRIDGE WELLS HORTICULTURAL SOCIETY.—Annual Exhibition.
SATURDAY, JULY 8.—ALEXANDRA PALACE.—Rose Show.
SATURDAY, JULY 8.—WEST KENT HORTICULTURAL SOCIETY.—Annual Exhibition.
MONDAY, JULY 10, and TUESDAY, JULY 11.—BEESTON HORTICULTURAL SOCIETY.—Annual Exhibition.
TUESDAY, JULY 11.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
WEDNESDAY, JULY 12.—EALING AND DISTRICT HORTICULTURAL SOCIETY.—Summer Exhibition.
WEDNESDAY, JULY 12.—CARDIFF ROSE SOCIETY.—Annual Exhibition.
THURSDAY, JULY 13.—ST. IVES (HUNTS) HORTICULTURAL SOCIETY.—Annual Exhibition.
FRIDAY, JULY 14, and SATURDAY, JULY 15.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Rose Show.
SATURDAY, JULY 15.—BIRKENHEAD ROSE SOCIETY.—Annual Exhibition.
TUESDAY, JULY 18.—LEEK ROSE SOCIETY.—Annual Exhibition.
WEDNESDAY, JULY 19.—LUTON.—Flower Show.
THURSDAY, JULY 20.—WEST OF SCOTLAND ROSARIANS' SOCIETY.—Annual Exhibition at Helensburgh.
FRIDAY, JULY 21.—NATIONAL ROSE SOCIETY.—Northern Exhibition, at Darlington.
MONDAY, JULY 24, to SATURDAY, AUGUST 5.—AGRICULTURAL HALL, ISLINGTON.—Horticultural Exhibition and Market.
TUESDAY, JULY 25.—IFFLEY HORTICULTURAL SOCIETY.—Annual Exhibition.
TUESDAY, JULY 25.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Carnation and Picotee Show, 1 p.m.; General Meeting, 3 p.m.
TUESDAY, JULY 25.—NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—Exhibition in the Gardens of the R.H.S., South Kensington.
TUESDAY, JULY 25.—BUCKINGHAM HORTICULTURAL SOCIETY.—Annual Exhibition.
TUESDAY, JULY 25.—STANDLAKE HORTICULTURAL SOCIETY.—Annual Exhibition.
WEDNESDAY, JULY 26, and THURSDAY, JULY 27.—NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—Summer Exhibition.
WEDNESDAY, JULY 26.—WEST OF SCOTLAND PANSY SOCIETY.—Exhibition of Pansies, Roses, and Pinks at Glasgow.
THURSDAY, JULY 27.—GARSINGTON (OXON) HORTICULTURAL SOCIETY.—Annual Exhibition.

AUGUST.

- WEDNESDAY, AUGUST 2.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Second Summer Exhibition.
- WEDNESDAY, AUGUST 2.—WESTON-SUPER-MARE HORTICULTURAL SOCIETY.—Annual Exhibition.
- THURSDAY, AUGUST 3, to TUESDAY, AUGUST 8 (EXCEPT THE 6TH).—BRITISH BEE KEEPERS' ASSOCIATION.—Exhibition in the Gardens of the R.H.S., South Kensington.
- SATURDAY, AUGUST 5.—ALEXANDRA PALACE.—National Gooseberry Exhibition.
- SATURDAY, AUGUST 5, and MONDAY, AUGUST 7.—LIVERPOOL HORTICULTURAL ASSOCIATION.—Summer Exhibition.
- SATURDAY, AUGUST 5, and MONDAY, AUGUST 7.—SOUTHAMPTON HORTICULTURAL SOCIETY.—Summer Exhibition.
- MONDAY, AUGUST 7.—ROYAL HORTICULTURAL SOCIETY.—Artisans and Cottagers' Show.
- MONDAY, AUGUST 7.—MANCHESTER ROYAL BOTANICAL and HORTICULTURAL SOCIETY.—Gooseberry Show and Table Decorations.
- MONDAY, AUGUST 7.—HEADINGTON HORTICULTURAL SOCIETY.—Annual Exhibition.
- MONDAY, AUGUST 7, and TUESDAY, AUGUST 8.—WEST BROMWICH HORTICULTURAL SOCIETY.—Annual Exhibition.
- TUESDAY, AUGUST 8.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.
- SATURDAY, AUGUST 12.—ALEXANDRA PALACE.—Exhibition of Floral Decorations and Gladioli.
- TUESDAY, AUGUST 15.—CLAY CROSS HORTICULTURAL SOCIETY.—Annual Exhibition.
- TUESDAY, AUGUST 15.—WITNEY HORTICULTURAL SOCIETY.—Annual Exhibition.
- TUESDAY, AUGUST 15, and WEDNESDAY, AUGUST 16.—PLYMOUTH HORTICULTURAL SOCIETY.—Summer Exhibition.
- WEDNESDAY, AUGUST 16, and THURSDAY, AUGUST 17.—SHROPSHIRE HORTICULTURAL SOCIETY.—Annual Exhibition.
- THURSDAY, AUGUST 17.—BASINGSTOKE HORTICULTURAL SOCIETY.—Annual Exhibition.
- THURSDAY, AUGUST 17.—MAIDENHEAD HORTICULTURAL SOCIETY.—Annual Exhibition.
- TUESDAY, AUGUST 22.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.
- WEDNESDAY, AUGUST 23.—BURTON-ON-TRENT HORTICULTURAL SOCIETY.—Second Summer Exhibition.
- THURSDAY, AUGUST 24.—READING HORTICULTURAL SOCIETY.—Autumn Exhibition.
- TUESDAY, AUGUST 29.—BANBURY HORTICULTURAL SOCIETY.—Annual Exhibition.
- WEDNESDAY, AUGUST 30.—CHIPPENHAM HORTICULTURAL SOCIETY.—Annual Exhibition.
- THURSDAY, AUGUST 31.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Autumn Exhibition.
- THURSDAY, AUGUST 31, to SATURDAY, SEPTEMBER 2.—DUNDEE HORTICULTURAL ASSOCIATION.—Annual Exhibition.

SEPTEMBER.

- WEDNESDAY, SEPTEMBER 6.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Autumn Exhibition.
- WEDNESDAY, SEPTEMBER 6, and THURSDAY, SEPTEMBER 7.—BATH.—Floral Fête.
- FRIDAY, SEPTEMBER 8.—BURY ST. EDMUNDS HORTICULTURAL SOCIETY.—Autumn Exhibition.
- FRIDAY, SEPTEMBER 8, and SATURDAY, SEPTEMBER 9.—MANCHESTER ROYAL BOTANICAL and HORTICULTURAL SOCIETY.—Cottagers' Show.
- FRIDAY, SEPTEMBER 8, and SATURDAY, SEPTEMBER 9.—CRYSTAL PALACE.—Great National Dahlia Show and Exhibition of Fruit.
- TUESDAY, SEPTEMBER 12, ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.
- WEDNESDAY, SEPTEMBER 13, and THURSDAY, SEPTEMBER 14.—ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—Great International Fruit Show at Edinburgh.
- TUESDAY, SEPTEMBER 19.—WOODSTOCK HORTICULTURAL SOCIETY.—Annual Exhibition.
- WEDNESDAY, SEPTEMBER 20, and THURSDAY, SEPTEMBER 21.—INTERNATIONAL POTATO EXHIBITION at the Crystal Palace.
- THURSDAY, SEPTEMBER 21, and FRIDAY, SEPTEMBER 22.—NORTHAMPTONSHIRE HORTICULTURAL SOCIETY.—Annual Exhibition.

OCTOBER.

- SATURDAY, OCTOBER 7.—ALEXANDRA PALACE.—National Exhibition of Gourds.
- TUESDAY, OCTOBER 10, ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.

NOVEMBER.

- THURSDAY, NOVEMBER 2.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Winter Exhibition.
- SATURDAY, NOVEMBER 4.—ALEXANDRA PALACE.—Exhibition of Hardy Fruits.
- MONDAY, NOVEMBER 13, and TUESDAY, NOVEMBER 14.—STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- TUESDAY, NOVEMBER 14.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- TUESDAY, NOVEMBER 14.—PUTNEY CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- TUESDAY, NOVEMBER 14, and WEDNESDAY, NOVEMBER 15.—SOUTHAMPTON HORTICULTURAL SOCIETY.—Exhibition of Chrysanthemums and Fruit.
- WEDNESDAY, NOVEMBER 15, and THURSDAY, NOVEMBER 16.—BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—Annual Exhibition, Royal Aquarium, Westminster.
- THURSDAY, NOVEMBER 16, and FRIDAY, NOVEMBER 17.—KINGSTON and SURREYTON CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- TUESDAY, NOVEMBER 21.—MANCHESTER ROYAL BOTANICAL and HORTICULTURAL SOCIETY.—Exhibition of Chrysanthemums.
- TUESDAY, NOVEMBER 21.—OXFORDSHIRE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- TUESDAY, NOVEMBER 21, and WEDNESDAY, NOVEMBER 22.—LIVERPOOL HORTICULTURAL ASSOCIATION.—Exhibition of Chrysanthemums, &c.
- WEDNESDAY, NOVEMBER 22, and THURSDAY, NOVEMBER 23.—NORTHAMPTONSHIRE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.
- WEDNESDAY, NOVEMBER 29, and THURSDAY, NOVEMBER 30.—SOUTH SHIELDS CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

DECEMBER.

- TUESDAY, DECEMBER 12.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.
- SATURDAY, DECEMBER 23.—ALEXANDRA PALACE.—Exhibition of Hardy Trees.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL, Norwich. Illustrated Catalogues sent free by post. [ADVT.]

WHO WOULD BE WITHOUT LAMPLUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain ingesta or any earthy matter calculated to produce flatulency or gouty deposits. Prepared solely by H. LAMPLUGH, 113 Holborn, London. [ADVT.]

The House, Garden, and Home Farm.

SPRING WIND.

O FULL-VOICED herald of immaculate Spring,
With clarion gladness striking every tree
To answering raptures, as a resonant sea
Fills rock-bound shores with thunders echoing—
O thou, each beat of whose tempestuous wing
Shakes the long winter-sleep from hill and lea,
And rouses with loud reckless jubilant glee
The birds that have not dared as yet to sing:
O Wind, that comest with prophetic cries,
Hast thou indeed beheld the face that is
The joy of poets and the glory of birds—
Spring's face itself: hast thou 'neath bluer skies
Met the warm lips that are at the gates of bliss,
And heard Juno's leaf-like murmur of sweet words?
WILLIAM SHARP.

THE HOUSE.

FERNS in cases require at this season of the year liberal supplies of water at the root and occasional sprinklings over the fronds. The latter must not be overdone, or some of the young fronds of the more delicate kinds will be injured. Cases occupying positions in rooms with a south-west or east aspect should be drawn from the windows when the sun is shining into the rooms, or the blinds be drawn down sufficiently to screen the ferns from the sunlight. If exposed to the action of the sun, as those grown in rooms frequently are, through neglect, the fronds are more or less browned and the appearance of the plants much impaired.

THE GARDEN.

ANNUALS of quick growth may now be sown for autumn display. The blue Nemophila blooms beautifully if sown now, better by far than from spring sowing. Balsams, Asters, and Stocks to be planted out where they are to flower. Sow Brompton and Queen Stocks.

BEDDERS to have every necessary attention to regulate the growth and display the bloom; leaf bedders to have special attention. If the ground is very dry loosen the surface between the plants, and, if necessary to water, soak the ground well.

CAMELIAS need air now night and day, and the swelling of the flower buds should be the signal to cease watering overhead, which may cause the flower buds to start into leaves and spoil the next season's bloom. Plants that want repotting may have it now, but large shifts should not be given.

CELERY to have an abundant supply of water if the ground is dry, as slow growth is ruin to it, and may cause half the crop to bolt. Continue to plant out, using abundance of rotten dung well worked into the soil of the trenches.

CINERARIA SEED should be sown now to produce plants to bloom in winter, and in July to raise a stock for blooming in the later spring months. The July sowing will be the most valuable to those who have small gardens, as the flowering of the plants in the depth of winter makes a tax on greenhouse space when it cannot be well spared; but cinerarias produce such a brilliant display during the dark days of winter that accommodation should be found for them if possible.

CUCUMBERS require an abundance of water, both over the foliage and at the roots. Put a few cans of water in the pit or in a warm house early in the day, to have it warm and soft for use in the afternoon; then use it and shut up, and if the beds are extra warm give a little air an hour afterwards.

DAHLIAS to be tied up betimes, or sudden gusts of wind will tear away the best branches from the base. On hot dry soils mulching is beneficial, and will prevent need of watering, but in small gardens mulching attracts vermin, and had best not be practised. Those that want a little extra help had best have liquid manure.

LEeks to be transplanted from the seed bed to very rich ground, and to be earthed up as they grow to blanch the neck of the bulb. The frequent use of liquid manure will swell them to a great size, and with improved quality.

LETTUCE to be sown and planted at every opportunity. A few rows of large Cos varieties should be sown in trenches prepared as for celery, and there be thinned and allowed to stand. They will form fine hearts, and be valued at a time when lettuces are scarce.

ONIONS to be sown in small breadths for salading. Forward beds of large sorts to be thinned in good time. The best onions for keeping are those of moderate size, perfectly ripened; therefore severe thinning of such sorts as Improved Reading, James's, Blood-red, and Danvers's should be avoided.

PROPAGATE at once Neapolitan Violets by dividing; Pansies, by cuttings; Pinks, by pipings and cuttings—if the latter, dibble them into pans and cover with bell glasses; put pipings in the open ground in a shady place; and any summer-flowering plants wanted for late blooms under glass.

Sow Lettuce for succession, Radishes, Turnips, Cabbages, Rosette Coleworts, and Walcheren Broccoli.

THE HOME FARM.

THE management of the dairy will now require a much closer supervision than at any other season of the year, and those who have not had much experience will do well to make note of the fact that the slightest taint will spread far, and the weather will have no mercy on the sloven. Whatever the skill in management, all may be undone by one careless hand, and scrupulous cleanliness underlies success in everything. All the waste of the dairy should go to the pigs as soon as possible; it is no use to keep bowls of milk souring, and it is even better to lose the best skimming than tempt the elements. The pigs will not object to the shadow of cream on their milk, even if it come to that; but no one likes to put good milk into the pig-trough while there are women and children within reach to consume it. This reminds us that the pig is an interesting animal, and of some importance where there is any waste of farm, garden, and dairy pro-

duce. It is the most profitable animal man has ever taken into his keeping, and one of the most easily managed. Everybody who can command the convenience should go in for pigs, and this is the best time to begin pig-keeping. In common with other things that have been improved by careful breeding, the best breeds are the most profitable, while of course they are the most interesting. Starving the sow is a common practice, and merits attention. A half-starved cow yields milk small in quantity and poor in quality. On the other hand, a liberal supply of pea or bean meal, or oil-cake, and other food rich in nitrogenous and phosphatic elements, will be repaid by an abundance of milk of the finest quality.

Exhibitions and Meetings.

WAKEFIELD AMATEUR TULIP SOCIETY, MAY 29.

ON Whit-Monday last I had the pleasure of witnessing for the first time a tulip show in Yorkshire. It was my good fortune to spend Whit Sunday and Monday with Mr. Samuel Barlow, J.P., at Stakehill, Manchester, the Rev. F. Tymons, the well-known and successful auricular cultivator, of Baskin Hill, Drumcondra, co. Dublin, and Mr. Thomas Moore, curator of the Botanic Garden at Chelsea, being also of the Stakehill party. Leaving Rochdale by the Lancashire and Yorkshire Railway, after a pleasant drive from Stakehill, we reached Wakefield at noon, and were met at the station by Mr. R. J. Sharpley and two other members of the committee, who, expecting to meet Mr. Barlow only, were greatly pleased that other floricultural friends were with him, and especially were they gratified with the company of Mr. Thomas Moore, whose portrait many of them had just seen in the *Gardeners' Chronicle* and the *Gardeners' Magazine*. From the railway station to the Brunswick Hotel, Borough Market, was a short walk through one of the principal thoroughfares of Wakefield, and thither we went to witness the forty-seventh annual exhibition of the Wakefield Amateur Tulip Society, which was established in 1836. The flowers, of which there was a considerable number considering the district, were staged on a long table filling the centre of the commodious club-room of the Brunswick Hotel, and on our arrival we found that the work of judging had commenced, the Rev. F. D. Horner, Kirkby Malzeard, Ripon, and Mr. B. Simonite, of Sheffield, who are as great authorities on tulips as they are on auriculars, being engaged on that important work. It was indeed a very happy meeting of a few florists drawn from widely different parts of the country, and all well-known to each other.

The following were the awards of the judges:—

Pan of six rectified tulips: 1st Thomas Gill, Crigglestone, with feath. byb. Majestic, flamed byb. Lord Denman, feath. biz. Wallace, flamed biz. Sir J. Paxton, feath. rose Industry, and flamed rose Lady Catherine Gordon; 2nd George Gill, Eastmoor, with feath. biz. Sir J. Paxton, flamed biz. Lady Lilford, feath. byb. Lady Denman, flamed byb. Maid of Orleans, feath. rose Minerva, and flamed rose Aglaia; 3rd R. J. Sharpley, Silver Street, with feath. biz. Lord Lilford, flamed biz. Sir J. Paxton, feath. byb. Adonis, Lord Raglan, Mrs. Lea, and Fanny; 4th C. Gill, Crigglestone, with feath. biz. Napoleon, flamed biz. Sir J. Paxton, feath. rose Bessy, flamed byb. Lord Denman, feath. byb. Lady Denman, and flamed rose Aglaia; 5th Thomas Spurr, Vicarage Street, with both feath. and flamed biz. John Brook (2), Vicar of Radford, Aglaia, Mrs. Gill, and Maid of Orleans; 6th J. Hardwick, Eastmoor, with Lord Lilford, Sir J. Paxton, seedling, Lord Deuman, Industry, and Aglaia; 7th John Netherwood, Warrengate, with Vicar of Radford, Mrs. Barlow, Lord Lilford, Sir J. Paxton, and Sylvesta (2); 8th G. Lumb, Kirkgate, with Masterpiece, Duke of Hamilton, George Hardwick, Vicar of Radford (2), and Aglaia; 9th J. Steele, Eastmoor, with Lord Lilford, Vicar of Radford, Grace Darling, John Brook, Triumph Royal, and Lord Denman; 10th E. Lister, Warrengate, with Willison's Queen, Heroine, Lord Lilford, seedling, Sarah Headly, and Sir Joseph Paxton. Pan of six breeders: 1st R. J. Sharpley, with Rose Queen of England, biz. Lord F. Cavendish, byb. George Hardwick, biz. Sir J. Paxton, rose Mabel, and byb. George Hardwick's seedling; 2nd T. Gill, with rose Queen of England, byb. Duchess of Sunderland, biz. John Brook, biz. Fanny, byb. Maid of Orleans, and rose Catherine; 3rd J. Nettleton, Warrengate, seedling (2), Miss Longbottom, Sir J. Paxton, John Bright, and Mrs. Jeffrey; 4th George Gill, with Sir J. Paxton, Louisa Brook, George Hardwick, John Brook, Catherine, and Mrs. Longbottom; 5th E. Lister, Warrengate, with Mary Ellen Fawcett, Paxton, Ethel, Mabel, Ariosto, and Mrs. Longbottom; 6th J. Hardwick, Eastmoor, with Garibaldi, Dragonnette, Mrs. Jeffrey, Dr. Hardy, Dreadnought, and Mabel; 7th T. Spurr, Vicarage Street, with Queen of England, Mary Ellen Fawcett, John Brook, Ariosto, Mabel, and Duchess of Sunderland; 8th George Lumb with seedling (2), Mabel, unknown, and Maid of Orleans. Pair of three breeder tulips: 1st Thomas Spurr, with rose Mrs. Longbottom, byb. Ethel, and biz. John Brook; 2nd R. J. Sharpley, with byb. George Hardwick, biz. Dr. Hardy, and rose Lady Grosvenor; 3rd T. Gill, with rose Catherine, byb. Maid of Orleans, and biz. John Brook; 4th E. Lister, with Lord F. Cavendish, Queen of England, and Duchess of Sutherland; 5th J. Netherwood, with Lady Mary, and John Bright; 6th George Gill, with Criterion, George Hardwick, and Industry; 7th George Lumb, with Ellen Fawcett, Mabel, and seedling; 8th J. Steele, with seedling (2), and Catherine; 9th J. Hardwick, with Beauty of Brighouse, John Brook, and Mabel; 10th Charles Gill, with Mabel, Maid of Orleans, and John Brook. Flamed bizarre: 1st and 2nd R. J. Sharpley with Sir Joseph Paxton and Mrs. Thornes; 3rd and 4th C. Gill with Sir Joseph Paxton; 5th Geo. Lumb do.; 6th and 7th G. Gill do.; 8th T. Gill with John Brook. Flamed byblømen: 1st and 2nd T. Gill with Lord Denman; 3rd R. J. Sharpley with Mrs. Jackson; 4th T. Spurr with Lord Denman; 5th R. J. Sharpley with Adonis; 6th Charles Gill with Lord Denman; 7th Geo. Gill with Lord Denman and Mrs. Gill. Flamed rose: 1st J. Hardwick with Mrs. Lea; 2nd and 3rd T. Gill with Aglaia; 4th J. Netherwood do.; 5th Geo. Gill with Vicar of Radford and Aglaia; 7th T. Spurr with Aglaia; 8th R. J. Sharpley do. Feathered bizarre: 1st R. J. Sharpley with Lord Lilford; 2nd T. Gill with Masterpiece; 3rd R. J. Sharpley with George Hayward; 4th C. Gill with Masterpiece; 5th T. Spurr with Charles X.; 6th T. Gill with Sir J. Paxton; 7th G. Gill with Criterion and Lord Lilford. Feathered byblømen: 1st C. Gill with Lady Denman; 2nd T. Gill do.; 3rd C. Gill do.; 4th T. Gill with Mrs. Gill; 5th G. Gill do.; 6th G. Gill with Maid of Orleans; 7th C.

Lister with Lady Denman; 8th T. Spurr do. Feathered roses: 1st R. J. Sharpley with Industry; 2nd A. Friend with Agnes Mellor; 3rd G. Gill with Heroine; 4th G. Lumb with Industry; 5th G. Gill with Heroine; 6th J. Hardwick, unknown; 7th J. Hardwick with Heroine; 8th R. J. Sharpley with Mrs. Lea. Bizarre breeder: 1st and 2nd R. J. Sharpley with Pilot and Emperor Nicholas; 3rd and 4th G. Gill with Charles Darwin and John Brook; 5th T. Gill with Fanny; 6th and 7th J. Hardwick with John Brook; 8th T. Gill with John Brook. Byblømen breeders: 1st G. Gill with Maid of Orleans; 2nd and 3rd R. J. Sharpley with George Hardwick; 4th E. Lister with Ethel; 5th J. Hardwick with Van Hamburg; 6th J. Netherwood with Horatio; 7th J. Steele with Maid of Orleans; 8th J. Netherwood, with seedling. Rose breeders: 1st and 2nd R. J. Sharpley with Miss Hanson and Lady Grosvenor; 3rd E. Lister with Catherine; 4th G. Gill do.; 5th J. Hardwick with Miss Boot; 6th and 7th T. Gill with Lady Catherine Gordon and Catherine; 8th E. Lister with Nannie Gibson. The premier flowers in the three classes—flame, feathered, and breeder—were adjudged to be those of T. Gill (Lord Denman, flamed byb.), R. J. Sharpley, and T. Gill (John Brook being shown in the feathered and also in the breeder form) in each class respectively.

In the ferns the prizes were awarded as follows:—Three ferns: 1st J. Steele with Lastrea f.-m. cristata, Athyrium f.-f. coronatum, and Athyrium f.-f. Frizellia; 2nd W. Mellor, Kirkgate, with Scolopendrium vulgare crispum, Athyrium f.-f. Victoria, and A. f.-f. Frizellia; 3rd, J. Netherwood with Osmunda regalis cristata, Scolopendrium vulgare crispum, and Athyrium f.-f. Victoria; 4th J. Hardwick; 5th G. Lumb. Ferns—single specimens: 1st W. Mellor with Athyrium f.-f. formosocristata; 2nd J. Steele with Scolopendrium vulgare polystichoides; 3rd J. Jacques, Zetland Street, with Polypodium dryopteris; 4th J. Netherwood; 5th J. Hardwick. The ferns were judged by Mr. Thomas Moore, F.L.S.; Mr. T. Garnet, gardener to R. B. Mackie, Esq., M.P., Wakefield, and Mr. J. Brown, gardener to J. B. Charlesworth, Esq., Hatfield Hall.

After visitors, judges, and exhibitors had dined together, a visit was made to the tulip gardens of Mr. George Gill, at East Moor, and Mr. R. J. Sharpley. The former is a working shoemaker, with his garden attached to his dwelling. Here we found two beds, each 24 yards long by 4 feet in width, with a three-feet walk between them, and covered with a light canvas awning stretched over a framework of wood. The beds are, as is usual, raised above the ground level some eight or ten inches, and the bulbs more thickly planted in the row than is usually the case. In these beds are a large number of new seedlings raised by local cultivators, and many of which appear to be of a very promising character. Among Feathered Bizarres, special mention must be made of Brunswick, Wallace, Charles Gill, Fanny, John Brook, Criterion, and Red Rover; Flamed Bizarres, Fanny, William Thornes, Lord F. Cavendish, Criterion, John Brook, and Charles Gill; Feathered Byblømen, Majestic, George Hardwick, Mrs. Gill, Fred. Gill, Mr. E. A. Leatham, and Elizabeth; Flamed Byblømen, Mrs. Gill, George Hardwick, Mary Ellen Fawcett, and Louisa Brook; Feathered Roses, Minerva, Crown Prince, Fanny, and Thomas Parker; Flamed Rose, Mrs. John Mackie. A great number of highly promising Breeder tulips were in the beds. Among the Bizarres were John Brook, Criterion, Lord F. Cavendish, James Goodair, Fanny, Brunswick, Thomas Garnett, George Ramsden, Mr. Burke, Charles Darwin, and Satisfaction. The Byblømen breeders were George Hardwick, Louisa Brook, Mary Ann, Ethel, Edith Mackie, Elizabeth, Mrs. Gill, Mary Ellen Fawcett, Jane Gill, and Parker's Emperor. Of Rose breeders, Thomas Parker, Isabella, Mrs. Longbottom, and Mr. W. H. Leatham.

Very few of the flowers have been sent out, and they are at present therefore almost entirely local. It is Mr. S. Barlow's intention to test some of them against the newer flowers he has in his fine collection at Stakehill, and thus he will be able to obtain a pretty good general estimate of their qualities.

We then adjourned to inspect the tulip gardens of Mr. Robert J. Sharpley, Silver Street, who has raised some very fine seedlings, of which we hope to give descriptive notes presently, and Messrs. J. Netherwood, G. Lumb, Edwin Lister, Thomas Spurr, Charles Gill, and Thomas Gill. We inspected Mr. Sharpley's two beds, and the flowers were in very fine condition; and we could not help being struck with the appearance of a number of seedling breeders of great promise. Here, as in the case of Mr. George Gill's beds at East Moor, growth and flowers alike were very fine indeed. Mr. Sharpley's garden is away from his dwelling, in a well-situated piece of ground immediately contiguous to the new hospital in course of erection, and not far from the heart of the town.

So ended an exceedingly pleasant visit, and we returned to Rochdale with many grateful recollections of an extremely agreeable outing. Who shall say the avocation of the florist is being neglected, or his art losing its hold upon its devotees? And quoting from an interesting article on "Tulipomania" in the current number of the *Wakefield Herald*, we can appropriately remark: "But we have a word to say in regard to the men who raise these flowers. Their great virtue is that of indomitable patience. Some of them have been at their work for forty and even fifty years. Their bulbs are as dear to them as children. They love them with an intensity of love which those outside cannot understand. Turn out of the squalor of Wrengate and inspect their little plots of beauty. Can any one doubt that the influence of this beauty enters into their hearts, and helps to make them better men?"

SEMPER AUGUSTUS.

DURATION OF RAINFALL.—Most readers are familiar with the practice of registering the actual duration of bright sunshine, for each day and week throughout the year, now in use at Greenwich, and other observations. According to the *Journal de Physique*, an apparatus has been devised for registering the duration of rainfall on a similar principle. An endless band of specially-prepared paper, "sensitized for rain," is divided into twenty-four equal parts, to represent the twenty-four hours of the day, and is kept at a certain rate of movement by clockwork before an aperture of suitable size. The aggregate length of sensitized surface marked by rain indicates the proportion of the twenty-four hours during which rain has been actually falling. Reliable data of this kind, taken in conjunction with other readings of a good rain-gauge, would not be without interest horticulturally.

Replies to Queries.

P. Springwood.—A man who grows plants for sale, whether in market or shop, must exhibit as a nurseryman and not as an amateur. Should he enter in a class for amateurs he should expect to be disqualified. He may, however, enter in any of the open classes.

Names of Plants.—Subscriber.—The daffodil is *Narcissus poeticus* fl. pl. The shrub with the racemes of white flowers is the Bird Cherry *Prunus padus*. Specimens sent for naming should have numbers attached to them, so that no mistake may occur.

Pine-apples.—Cambridge Amateur.—In the GARDENERS' MAGAZINE of January 8, 1870, you will find a paper on the cultivation of the pine-apple, which will afford you full information on the selection of varieties, the temperature for each month in the year, and the general details.

Heating Apparatus.—T. M.—The exhibitors at South Kensington of heating apparatus for small houses are: Messrs. Messenger and Co., Loughborough; Mr. J. Keith, hot-water engineer, Edinburgh; Mr. B. W. Warhurst, 33, Highgate Road, N.W.; Messrs. C. P. Kinnell and Co., 31, Bankside, Southwark, and Messrs. W. and S. Deards, Harlow, Essex.

Tuberous Begonias.—Amateur.—The begonias you have in large sixties that are becoming pot-bound should without loss of time be shifted into six-inch pots, which will be quite large enough for them this season. Use a mixture of loam, peat, sand, and well-rotted manure, the latter in a very small proportion. Fill the pots to about one-third of their depth with medium-sized crocks, as begonias do not root very deeply, and press the soil firm. A position near the glass with a light shading in bright weather will be the most suitable, and when the pots are filled with roots and the plants are coming into bloom weak liquid manure, supplied about twice a week, will be most beneficial.

Pansies.—F. G.—The pansies are badly infested with the aphids known as *Aphis ligustri*, which may be destroyed in much the same manner as the common green fly. You may either dust the plants with tobacco powder or syringe them with a rather weak solution of Gishurst Compound or Nicotine Soap. The tobacco powder should be applied when the leaves are damp from dew or a light sprinkling of water, and in dry weather, and the other insecticides should also be applied when the weather is dry, to avoid any risk of their being washed off before they have had time to accomplish the desired object. The aphids in question will spread to other plants in the neighbourhood in the course of the season unless repressive measures are resorted to.

Strawberry Beds.—R. W.—Beds may now be formed with plants that have been fruited in pots under glass, or later on with layers of the current season. Under ordinary circumstances the heaviest crops will be produced next season by the plants that have been grown in pots, and as they will be equal in vigour, and produce fruit of as fine a quality as the layers, the stock you have should be turned to account in the formation of the new beds. The ground must be prepared in the usual way, and the plants arranged the same distances apart as in planting layers. They should have a thorough soaking of water two or three hours before they are put out, and be well watered in. Two or three waterings after the planting will be of assistance should the weather prove dry, but they do not require so much attention as the layers. Moreover, by employing the stock of plants you have available you will save the labour incidental to the preparation of layers, which, in consequence of the frequent waterings necessary, takes up much time.

Abutilons.—H. M.—Cuttings of the side shoots taken off at once, and struck with the assistance of a little bottom heat, will form nice plants for flowering during the ensuing autumn and winter. The young plants must be grown on in a warm pit with free ventilation until they are shifted into five or six inch pots, in which they should remain until after they have flowered. After the repotting, the assistance of artificial heat will not be necessary, but it will be advantageous to the plants to shut up the frame rather early in the day to utilize the solar warmth. In warm weather a light syringing overhead when the frame is closed for the day will be promotive of a free growth, but syringing must be discontinued at the end of August. They may have their points nipped out when from twelve to fifteen inches in height, but the majority of the abutilons of recent introduction are of so dwarf a growth and branch so freely that very little stopping is necessary. From the end of September they should be placed in a warm greenhouse or an intermediate house, for to ensure their flowering during the winter season they must be maintained in a progressive state.

Strawberries in Pots.—Cambridge Amateur.—To obtain a steek of strawberry plants for forcing next year you must layer the runners in small pots as soon as they can be had, and shift them into larger pots as soon as they are becoming potbound. Three-inch pots are the most suitable in which to layer the runners, and they should be filled with turfy loam and well-rotted manure. To fasten the runners on the surface of the soil use small pegs of wood or wire, and to assist them to become rooted quickly supply with water as often as may be required to maintain the soil in a nice moist state. When they have filled the pots with roots separate them from the old plants, and stand them upon a bed of coal-ashes in a shady position for a fortnight or so. At the end of this period shift into six-inch pots, using a compost prepared as advised for the small pots, and stand them on coal-ashes in an open position. About the middle of October remove to a cold pit, in which they should remain until draughted to the forcing house. The beginning of January will be a good time for removing the first batch to that structure. They may be started in November or December, but when forcing is commenced in either of these months the plants require skilful management. A temperature of 55 deg. by day and 50 deg. by night will be the most suitable when the plants are first placed in the forcing house, and in a fortnight or so it must be gradually increased by about five degrees, both by day and night. When the flowers are expanded a further rise of five degrees will be required, and as soon as the fruit is set the temperature should be increased to 70 deg. by day and 65 deg. by night. From ten to fourteen weeks will be required for the production of well-ripened fruit, according to whether the plants are started at the end of February or in the previous November.

"CURSED HEBONA."

At a meeting of the New Shakespeare Society, Mr. F. J. Furnivall (director) in the chair, the Rev. W. A. Harrison read a paper on "Cursed Hebona" (*Hamlet*, i. 5), which he described as complementary to that by Dr. B. Nicholson on the same subject. Premising that the poison intended must be the same as Marlowe's "juice of hebon," he pointed out that the yew-tree is called hebon by Spenser, and by other writers of Shakespeare's age; that in its various forms of eben, cibon, ihben, &c., this tree is so named in no less than five different European languages. He showed by citations from medical authorities that the juice of the yew is a rapidly fatal poison; that the symptoms in yew-poisoning correspond in a very remarkable manner with those which follow the bites of poisonous snakes; and that no known poison but the yew produces the "lazar-like" ulcerations on the body upon which Shakespeare in this passage lays such stress. Mr. Furnivall said that Mr. Harrison had produced most interesting medical evidence, and that his paper was quite conclusive as to the meaning of "hebona." Dr. Nicholson thought that if we continued our research we should find that Shakespeare, in describing the effects of the poison on the elder Hamlet, was quoting from some old medical treatise, as he quotes Holinshed, &c., on matters of history. Miss Lathom thought that we might find some information in witch-lore, and quoted "Slips of yew, silvered in the moon's eclipse."

Obituary.

On the 2nd inst., at Caprera, General GARIBALDI, the Regenerator of Italy, in the 75th year of his age. Garibaldi died with the window of his room wide open, while the sun was setting behind Corsica. Before the last agony began, a bird alighted twittering on the window-sill. Garibaldi saw it, and stammered, "Quanto è allegro!" ("How joyful it is!")

On the 24th ult., at North Brierly, Yorkshire, JOHN FLETCHER, of Millcat Hill, aged 69 years. He was an ardent cultivator of carnations, picotees, and pinks, and raised several varieties that rank high in exhibition merit. In his early days he devoted much of his time to the cultivation of tulips, auriculas, and polyanthus. During fifty years at least he was devoted to floriculture, and manifested all the moral qualities that are looked for, and invariably found, in the true florist.

Markets.

COVENT GARDEN.

FRUIT.	
Figs..... per doz.	5s. 0d. „ 7s. 6d.
Gooseberries, Green, $\frac{1}{2}$ sieve	3s. 6d. „ 4s. 6d.
Grapes..... per lb.	2s. 0d. „ 6s. 0d.
Lemons..... per 100	5s. 0d. „ 7s. 0d.
Oranges.....	4s. 0d. „ 8s. 0d.
Pine-apples, Eng. „ per lb.	2s. 6d. „ 3s. 6d.
Strawberries.....	2s. 0d. „ 5s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Beans, French „ per 100	0s. 8d. „ 1s. 0d.
Beet „ per doz.	1s. 0d. „ 1s. 6d.
Cabbages.....	1s. 0d. „ 2s. 0d.
Carrots..... per bunch	0s. 4d. „ 0s. 6d.
Carrots, New Fr. „	1s. 0d. „ 3s. 0d.
Cauliflowers, Eng. „ per dz.	2s. 0d. „ 4s. 0d.
Cucumbers..... each	0s. 4d. „ 1s. 0d.
Endive..... per doz.	1s. 6d. „ 2s. 6d.
Garlic..... per lb.	0s. 10d. „ 1s. 0d.
Herbs..... per bunch	0s. 2d. „ 0s. 4d.
Horse-radish, per bundle	3s. 0d. „ 4s. 0d.
Leeks..... per bunch	0s. 3d. „ 0s. 6d.
Lettuces, Cabbage, per dz.	0s. 4d. „ 0s. 6d.
Lettuces, Cos.....	0s. 4d. „ 1s. 0d.
Mint, Green „ per bunch	0s. 3d. „ 0s. 4d.
Mushrooms..... per basket	1s. 6d. „ 2s. 0d.
Onion Spring „ per bunch	0s. 4d. „ 0s. 6d.
Parsley.....	0s. 4d. „ 0s. 6d.
Peas..... per quart	1s. 6d. „ 2s. 0d.
Potatoes, New „ per lb.	0s. 2d. „ 0s. 3d.
Radishes..... per bunch	0s. 1d. „ 0s. 2d.
Small Salad „ per pun.	0s. 3d. „ 0s. 4d.
Spinach..... per bushel	2s. 0d. „ 2s. 6d.
Tomatoes..... per lb.	1s. 0d. „ 1s. 6d.
Turnips..... per bunch	0s. 4d. „ 0s. 6d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Anemones, per doz. bun.	2s. 0d. „ 3s. 0d.
Azaleas „ per doz. sprays	0s. 6d. „ 1s. 0d.
Azaleas, Ghent, per doz. bunches.....	4s. 0d. „ 7s. 6d.
Bouvardias..... per bunch	1s. 0d. „ 1s. 6d.
Callas..... per doz.	3s. 0d. „ 5s. 0d.
Carnations, per doz. blms.	1s. 0d. „ 2s. 0d.
Cornflowers, per doz. bun.	3s. 0d. „ 4s. 0d.
Fuchsias..... per doz.	4s. 0d. „ 6s. 0d.
Gardenias „ per doz. bun.	5s. 0d. „ 7s. 6d.
Gardenias, per doz. blooms	2s. 0d. „ 6s. 0d.
Heliotropiums „ sprays	0s. 6d. „ 1s. 0d.
Lagerbergias, per doz. blms.	1s. 0d. „ 5s. 0d.
Lilium longiflorum, per doz. blooms.....	4s. 0d. „ 6s. 0d.
Lilium candidum, per doz. blooms.....	1s. 6d. „ 2s. 6d.
Marguerites, per doz. bun.	4s. 0d. „ 6s. 0d.
Mignonette „	4s. 0d. „ 7s. 0d.
Pansies.....	1s. 0d. „ 2s. 6d.
Paeonies „ per doz. blooms	1s. 0d. „ 1s. 6d.
Pelargoniums, Zonal, per doz. trusses.....	0s. 4d. „ 0s. 8d.
Pelargoniums, per ditto „	0s. 9d. „ 1s. 0d.
Pyrethrums, per doz. bun.	2s. 0d. „ 8s. 0d.
Roses..... per doz.	0s. 6d. „ 5s. 6d.
Roses, Tea.....	1s. 0d. „ 2s. 0d.
Stephanotis floribunda, per doz. sprays.....	2s. 0d. „ 4s. 0d.
Stocks „ per doz. bun.	3s. 0d. „ 7s. 6d.
Tropaeolum „	1s. 0d. „ 2s. 0d.

CORN.—MARK LANE.

Wheat, Red, new..... per qr.	35s. to 52s.
Wheat, White, new.....	35s. „ 55s.
Flour, town-made whites, per sack of 280lbs.....	40s. „ 43s.
Flour, households.....	37s. „ 39s.
Flour, country households, best makes.....	35s. „ 41s.
Flour, Norfolk and other seconds	32s. „ 34s.
Barley, Malt „ per qr.	30s. „ 50s.
Barley, Grinding.....	20s. „ 30s.
Malt, English.....	35s. „ 50s.
Malt, Scotch.....	33s. „ 42s.
Malt, old.....	23s. „ 35s.
Malt, brown.....	30s. „ 32s.
Oats, English.....	22s. „ 30s.
Oats, Irish.....	22s. „ 26s.
Oats, Scotch.....	22s. „ 30s.
Rye.....	42s. „ 45s.
Beans, English, Mazagan	36s. „ 40s.
Beans, Tick.....	33s. „ 44s.
Beans, Winter.....	39s. „ 41s.
Peas, Grey.....	30s. „ 36s.
Peas, Maple.....	40s. „ 45s.
Peas, White.....	36s. „ 44s.

HAY MARKET.

WHITECHAPEL.	
Prime Clover..... per load	100s. to 132s.
Inferior do.....	60s. „ 95s.
Prime Meadow Hay „	100s. „ 118s.
Inferior do.....	50s. „ 99s.
Straw.....	30s. „ 55s.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

Old Flukes..... per ton	100s. to 110s.
Old Magnum Bonums „	100s. „ 110s.
Old Champions.....	40s. „ 70s.
Old Victorias.....	90s. „ 110s.
New Cherbourg Rounds per cwt.	8s. 6d. „ 8s. 6d.
New Jersey Round „	9s. 0d. „ 9s. 0d.
New Kidneys.....	11s. „ 12s. 0d.

METROPOLITAN MEAT MARKET.

Beef, prime..... per 8 lbs. 5s. 4d. to 5s. 8d.	
Beef, middling „	4s. 8d. „ 5s. 4d.
Beef, inferior „	4s. 0d. „ 4s. 4d.
Mutton, prime „	5s. 8d. „ 6s. 2d.
Mutton, middling „	5s. 0d. „ 5s. 4d.
Mutton, inferior „	4s. 4d. „ 4s. 8d.
Lamb „	6s. 0d. „ 6s. 4d.
Veal, prime.....	4s. 4d. „ 4s. 8d.
Veal, middling „	3s. 4d. „ 4s. 0d.
Veal, inferior „	5s. 0d. „ 5s. 4d.
Pork, prime.....	4s. 0d. „ 4s. 4d.
Pork, middling „	3s. 8d. „ 4s. 0d.
Pork, inferior „	3s. 8d. „ 4s. 0d.

COAL MARKET.

Wallsend—Hutton..... per ton	15s. 6d.
Hutton Lyons.....	14s. 0d.
„ Lambton.....	15s. 0d.
„ Wear.....	14s. 0d.
„ Chilton Tees.....	14s. 9d.
„ Tees.....	15s. 6d.

MONEY MARKET.

Consols, 3 per cent.....	100 $\frac{1}{2}$ to 100 $\frac{1}{2}$
Reduced 3 per cent.....	100 $\frac{1}{2}$ „ 100 $\frac{1}{2}$

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.			HIGH WATER AT				M. temp. of air, soil, & water.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths after Noon.	Sets.	Rises Morn.	Sets. After.		London Bridge.		Liverpool Dock.				
			H. M.	M. S.	H. M.	H. M.	H. M.		Morn.	After.	Morn.	After.	DEG.		
1882															
18	S	2nd Sunday after Trinity.	3 44	0 48	8 17	6 39	9 46		3 22	3 45	0 39	0 47	61.2	Allamanda Hendersoni, s. Yellow.	1882
19	M	O. H. Spurgeon born, 1831.	3 44	1 1	8 17	7 47	10 11		4 5	4 22	1 10	1 30	61.1	Aquilegia vulgaris in var., H. Various.	169
20	Tu	Accession of Queen Victoria.	3 44	1 14	8 18	8 51	10 33		4 40	5 0	1 47	2 5	61.5	Campanula glomerata, H. Pnce.	170
21	W	Proclamation.	3 44	1 27	8 18	9 55	10 53		5 17	5 35	2 25	2 42	61.6	Campanula media, H. Blue and White.	171
22	Th	Matthew Henry died, 1714.	3 44	1 40	8 18	11 0	11 12		5 54	6 15	3 0	3 19	61.7	Erica ventricosa coccinea minor, G. Red.	172
23	F	First Quarter, 6h. 1m. aftern.	3 45	1 53	8 19	After.	11 31		6 35	6 57	3 40	4 0	61.8	Erica Victoria, G. Rose.	173
24	S	Midsummer Day. St. John Baptist.	3 46	2 6	8 19	1 11	11 52		7 20	7 45	4 22	4 45	62.0	Jasra Fraseri, s. Red.	174

The Gardeners' Magazine.

SATURDAY, JUNE 17, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

WEDNESDAY, JUNE 21.—BURTON-ON-TRENT HORTICULTURAL SOCIETY.—First Summer Exhibition.

WEDNESDAY, JUNE 21, TO FRIDAY, JUNE 23.—LEEDS HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, JUNE 22.—ROYAL BOTANIC SOCIETY.—Evening Fête, 8 p.m.

THURSDAY, JUNE 22.—BURY ST. EDMUNDS HORTICULTURAL SOCIETY.—Summer Exhibition.

THURSDAY, JUNE 22.—CHISWICK AND TURNHAM GREEN HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, JUNE 22.—CHERTSEY HORTICULTURAL SOCIETY.—Annual Exhibition.

FRIDAY, JUNE 23.—ROYAL BOTANIC SOCIETY.—Botanical Lecture, at 4 p.m.

FRIDAY, JUNE 23.—SCOTTISH PANSY SOCIETY.—Annual Exhibition.

THE PROCEEDINGS OF THE AMERICAN POMOLOGICAL SOCIETY during the session of 1881 have reached us in the usual form of a handsomely-printed quarto volume. In respect of appearance and solidity, none of our horticultural societies can produce the equal of this book, and its valuable contents justify the care bestowed on its production. It is a matter of some interest that the American Pomological Society and the Massachusetts Horticultural Society publish reports of proceedings that are in their way equally remarkable for their good looks and for their literary and scientific merit. But while the comparison in respect of these "corporate utterances" is all against us, there is another comparison possible which turns the tables this way. In the Transactions and Reports of societies our friends on the other side of the Atlantic beat us, with a considerable margin to spare. But in respect of independent horticultural papers, resting on a commercial basis solely, we beat them, and with not less margin to spare. Should it be needful to boast of our own achievements—we mean collectively and nationally—we would back the British agricultural and horticultural papers against all the world, and then perhaps have a margin to spare. At all events, as the case stands at this moment, and whatever small contentions may agitate the individual interests, we have no reason to be ashamed of our "horticultural press."

It is comfortable to find (or make) occasion for such thoughts with this handsome book before us. The British Pomological Society never, in its best days, soared so high as the American Society has done in the way of reporting; nor did it ever send forth reports in any way remarkable for their scientific value. Once upon a time the Horticultural Society of London issued reports that looked well, and were as good as they looked; but that was once upon a time, and the noble quarto volumes make a proud appearance on our shelves at this moment.

The American Society's Report is of necessity very much devoted to matters that are of more interest to American than to British pomologists. The discussions on grapes, pears, strawberries, and peaches are, however, charged with bright notions and important facts, and their general tone reveals to us that fruit-growing in the States is a growing industry, and a subject of immense interest from the commercial point of view. We have marked two papers that are of universal attractiveness, namely, a paper on "Shelter for Orchards," by Dr. J. A. Warder (p. 74), and one on "Apple Growing No. 894, NEW SERIES.—VOL. XXV.

in Nova Scotia," by A. Langley, of Annapolis, N.S. (p. 109). A series of lists of varieties of hardy fruits, with marks to indicate character, quality, and productiveness, are added; and these lists establish for this report a permanent place on the shelves that are assigned to books of reference.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION makes its appeal yearly, happily not in vain, in behalf of aged gardeners and their widows and others connected with horticultural pursuits who may need a kindly hand to help them in a time of need. We can urge upon our readers the duty, which should be but a pleasure after all, of supporting this institution on broader grounds than heretofore. Hitherto we have pointed to the list of pensions, saying that only as means were provided by the liberal sympathizers with the cause could these pensions be continued. But to this primary claim two others have been added, and to these we invite the attention of all considerate philanthropists. There has been much said of late on the subject of election to the benefits of charitable institutions, and the general tone of public opinion is evidently adverse to the system that prevails; while, on the other hand, to substitute some other method of placing deserving persons on the funds appears to be no easy matter. However, it appears to have been accomplished in the institution that now claims our attention, for there has been no election for two or three years past. From amongst the candidates being eligible, by reason of age, infirmity, &c., the governors have selected a certain number, giving the preference finally to persons who have subscribed to the funds. Those who have subscribed must have claims prior to those who have not subscribed; but so long as the system of election prevails the members must be free to vote for whom they please.

It is not to be understood from these remarks that any revolution has taken place in the management. For all we know to the contrary, we may be agitated by elections next year; but for the present we direct attention to the fact that other modes of operation have been discovered and acted on, and it is just possible that the Gardeners' Benovolent Institution may prove instructive to the world on this important part of its machinery of benovolence.

Another matter of great moment is that the governors, through their unceasingly active secretary, Mr. E. R. Cutler, are taking measures for the augmentation of the pensions to the amount of four pounds per annum each. An allowance of twenty pounds a year to an aged man living with his friends, and perhaps in great part depending on them, must be a great boon, and one we should all be glad to promote when we have the best guarantees that the truly deserving have always the best prospect of obtaining it.

The thirty-ninth annual festival of the institution will take place at the Albion, Aldersgate Street, on Thursday, June 29, the Right Honourable the Lord Mayor presiding, supported by Baron Alfred de Rothschild, Sir Trevor Lawrence, Bart., M.P., and a board of about thirty stewards. As regards the dinner, it is one of the best of its kind, owing to the admirable management of Mr. Cutler. But the cause is of far greater importance, and we lay it before our readers in the hope that it may gain in strength by their generous sympathy. The offices of the institution are at 14, Tavistock Row, Covent Garden.

MR. J. RUDD has accepted the post of superintendent of the Burton-on-Trent Cemetery and Recreation Grounds.

WOODFORD HORTICULTURAL SOCIETY.—The tenth exhibition will be held in the grounds of James Spicer, Esq., on Wednesday, July 12.

MR. F. CLARKE, late of Beckenham, has been appointed to the charge of the gardens of Lowther Castle, Westmoreland, the residence of the Earl of Lonsdale.

MR. JAMES KING, formerly gardener at Wray Park, Reigate, has entered into business as seed grower and florist at Rowsham, Aylesbury.

TOOTING HORTICULTURAL SOCIETY.—The first exhibition by this society will be held in the Vestry Hall, Tooting, Tuesday and Wednesday, November 14 and 15.

RAILWAY GARDENING has hitherto obtained so little attention that the state of the railway banks in many places is a reproach, not only to proprietors, but to society at large. We learn from the City Press that the beginning of a change is at hand, the Midland Company having resolved on the systematic cultivation of the wastes that fringe its lines. We shall believe it when we see it.

THE EVENING FETE AT THE REGENT'S PARK BOTANIC GARDENS, on Thursday next, will comprise the Rhododendron exhibition of Mr. Anthony Waterer, Knap Hill, an exhibition of floral decorations, and the usual illuminations, music, &c. The schedule for the competitive portion of the display includes classes for decorated dinner tables, arches, sideboards, épergnes, baskets, decorative groups, and finally flowers which expand only at night. Entries close on Monday next.

PINKS ARE IN GREAT FORCE IN MR. WARE'S NURSERIES at the present time, the plantations making a very brave display of dazzling colours and diffusing a delightfully spicy odour. Amongst the best of those now in perfection are the following:—*Lord Lyons*, a large double self of a rich puce rose colour; *Ascot*, a medium-sized rough flower, warm rosy flesh with centre of dark carmine; *Mrs. Sinkins*, pure white, very sweet, the finest of its class.

THE PRIZES FOR VEGETABLES (comprising peas chiefly) offered by Messrs. James Carter and Co., to be competed for at horticultural exhibitions, occur in the following order:—Chiswick, June 22; South Kensington, June 27; Richmond, June 29; Bagshot, July 4; Twickenham, July 7; Oxford, August 2. The varieties of peas especially favoured are Stratagem, Telephone, Telegraph, and Pride of the Market.

ON THE OCCASION OF THE PELARGONIUM SOCIETY'S EXHIBITION, June 27, it is intended to arrange for a luncheon in the gardens of the R.H.S. This will serve as a more suitable reunion than the usual luncheon later in the season, which will not take place this year. Friends who desire to have places reserved for the luncheon on the 27th are desired to communicate at once with Mr. Hibberd on the subject.

POISONOUS FUNGI.—The danger of mistaking toadstools for mushrooms is reported by the *Libéral de Seine-et-Oise*. That paper announces that a family of the name of Andrieux, consisting of six persons, have been poisoned at Mureaux, in the department of the Seine-et-Oise, through eating poisonous fungi. Medical aid was summoned, but all six died in fearful agony. The victims are a mother, her three daughters (aged 25, 19, and 15 years respectively), her son (aged 14), and her son-in-law.

TREES ON ROADS.—The *Architect* reports that statistics have been published by the French Department of Public Works relative to the planting of trees along the high roads of the country. The total length of the Routes Nationales is 39,938,126 mètres, of which 23,731,928 mètres may be bordered with trees. Of this distance 14,335,311 mètres are planted, while 9,396,617 mètres remain to be done. The number of trees used to form the welcome avenues is 2,691,698.

MR. ALDERMAN CHAFFIN, who is known to many of our readers as taking an active interest in the floral fêtes of the city of Bath, has been the subject of some agreeable attentions on the part of his fellow citizens. Having thrice served the office of mayor, and obtained the confidence and esteem of all sorts and conditions of men, his portrait has been painted by subscription, and at a meeting convened for the purpose was presented to Mrs. Chaffin. The speeches on the occasion afforded the best possible testimony that Mr. Chaffin's local labours are well appreciated.

THE FETE ON TUESDAY NIGHT in the Gardens of the Royal Horticultural Society, South Kensington, proved much more successful than was expected by those who, during the early part of the day, had found coats and umbrellas absolutely necessary for defence against the weather. The gardens were brilliantly illuminated with coloured lamps, and there were rich displays of plants, flowers, and devices in the conservatory and quadrants, and on these the electric light shed an enjoyable imitation of sunshine. The general management was admirable.

ROYAL SOCIETY.—At the meeting of the Royal Society last week the fifteen undernamed candidates were elected Fellows: Professor Valentine Ball, M.A., George Stewardson Brady, M.D., F.L.S., George Buchanan, M.D., Charles Baron Clarke, M.A., F.L.S., Francis Darwin, M.A., F.L.S., Professor William Dittmar, F.C.S., Walter Holbrook Gaskell, M.D., Richard Tetley Glazebrook, M.A., Frederic Ducane Godman, F.L.S., Professor Jonathan Hutchinson, F.R.C.S., Professor Archibald Liversidge, F.G.S., Professor John C. Malet, M.A., William Davidson Niven, M.A., Robert Henry Inglis Palgrave, F.S.S., Walter Weldon, F.C.S.

THE WEATHER AND THE CROPS continue to furnish excuses for gloomy speculations, and the fear is becoming prevalent that we are doomed to have another season of complete or partial failure. Although near London within the past week the thermometer has registered a minimum of 37, that has only checked—it has not destroyed—vegetation. A timely rise of temperature with a seasonable amount of sunshine will make a fairly good year of this, but prolonged inclemency will be disastrous. In the general survey, the country presents a cheerful appearance, the trees having in most places recovered their leafage, grass being abundant, and cereals and potatoes being in a condition to be greatly benefited by increase of solar heat.

COFFEE-LEAF DISEASE.—At the annual meeting of the Linnean Society, held a few days since, Mr. M. Ward read a paper on the Life History of *Hemileia vastatrix*, the fungus of the coffee-leaf disease. Mr. Ward stated that the phenomena attendant thereon show great analogy to those of the Uredine fungi. The spores, under favourable conditions, viz., moisture, a due supply of oxygen, and a temperature of 75 deg. F., usually germinate in from twelve to twenty-four hours. Complete infection, or establishment of the mycelium in the intercellular passages of the leaf occurs about the third day after the formation of the germinal tubes. The so-called yellow spot, or ordinary outward visible appearance of the disease, manifests itself about the fourteenth or fifteenth day, but may be delayed, its development and course being dependent on secondary causes, such as atmospheric conditions, monsoons, age of the coffee leaf, &c. By watching the progress of the spots it has been ascertained that the spores therefrom may be continuously produced for from seven to eleven weeks, or even more. Some 150,000 spores have been estimated

as present in one yellow cluster, and as 127 disease spots have been counted in one pair of leaves the quantity of spores thus regularly produced must be enormous. According to amount of diseased spots the sooner the leaf falls, and though young leaves arise, the fruit-bearing qualities of the plant necessarily are seriously interfered with. The various sorts of coffee plant are all liable to infection; the only possible remedy is the difficult one of destruction of the spores, and these are supposed originally to have been introduced from the native jungle, and rapidly spread under the favourable conditions of artificial cultivation.

WATER-CRESSSES ARE CARRIED TO MARKET in sewage carts, and the daily papers are in a state of alarm at the discovery. This thing has been done time out of mind, and not only are water-cresses, but cauliflowers, cabbages, lettuces, &c., &c., &c., &c., daily carried in manure carts to markets everywhere. It may shock the sensibilities of some good people, but it will probably puzzle them to propose a practical remedy. In the case of water-cresses, as they are eaten uncooked, the objection is greater than in the case of other vegetables, for even lettuces, which are eaten uncooked, are stripped of their outer leaves before they are eaten. It may be that the goods so carried are none the worse for it.

A HORTICULTURAL EXHIBITION AND MARKET on a larger scale than has ever been attempted hitherto will be opened in the Agricultural Hall, Islington, on July 24, and will continue until August 5. It will include conservatories and plant houses of all kinds, boilers and all other kinds of heating apparatus, garden adornments, waterworks, fern cases, rockeries, summer houses, lawn mowers, wirework, artificial plants, flowers, and fruits, seeds, bulbs, cut blooms, and all the miscellaneous appliances that are admissible in an exhibition. The General Management is in the hands of Mr. J. H. Rafferty; the Honorary Secretary is Mr. Shirley Hibberd; Assistant Secretary, Mr. W. A. Holmes. Letters for any of these parties should be addressed to the Agricultural Hall, London, N.

THE BEGONIA.

At a recent meeting of the North of Scotland Horticultural Association, Mr. Kilgour, gardener, Edgell, read a paper on "The Begonia and its Treatment." The begonias, he said, are very widely distributed over the world. In the East Indies they are found from the low grounds up to the mountains, to the region of slight frost and snow. Several are found at the Cape of Good Hope, where they frequently become tuberous rooted. The genus is very common in the West Indian Islands, in Mexico, and throughout the greater portion of the South-American Continent. They also present a great variety of forms, some with beautiful foliage, as B. Rex. Others, again, from their stronger growth, are useful for covering walls in either stove or warm greenhouse. In such a position they are almost continuous bloomers. Mr. Kilgour then described his method of growth from seedlings. He said, I sow the seed on peat soil, which must be very fibrous and well seasoned, which is made very firm; but I allow the surface to remain rough. Then I sprinkle some silver sand over—just enough to fill up any little hole that is likely to bury the seed—after which I give a good soaking of tepid water. After allowing it to settle, I sow the seed evenly over, then cover with glass. I then stand it in a nice brisk heat. There is nothing better than a hotbed, as the moisture does away with any need of watering for some time, if kept well shaded from the sun. When large enough to bear handling, they are pricked into a pan filled with the following soil:—Light friable loam, part silver sand, part of peat and well-rotted cow-dung, and leaf-soil. They are then inured to colder temperature, and when large enough are potted in three, four, and five inch pots, and grown in the greenhouse, where they will make a fine display by the end of August. In winter the roots must be stored so that they are not allowed to get too dry, or there will be a great disappointment in the death-rate. They should be stored under the stage of a greenhouse, with the pots lying on their side, the water from above keeping them sufficiently moist. Next spring they want nothing till towards the end of April; they should be then taken out of their pots and re-potted into their flowering pots, the soil being a mixture of friable loam two parts, leaf-soil and peat one part, well-rotted cow-dung one part, with a little silver sand. They can be propagated as geraniums, or at potting the roots can be divided into as many pieces as there are stems for. Not being hardy enough, they are not yet adapted for bedding in our northern climate.

A WEATHER COMPASS.—For many years we have had the "weather glass" as a foreteller of the weather that is approaching, but the ordinary barometer of itself only gives the atmospheric pressure, and it is well known that this factor, unless taken into account with the degree of moisture in the atmosphere and the direction of the wind, is not a trustworthy guide. The quantity of water in the air which can be condensed into rain, and whether the wind is a cold and dry northerly wind, or a warm and moist southerly wind, are also important factors in the problem. A good weather indicator ought, therefore, to combine all three observations, and this has been very ingeniously done by Professor Klinkerfues, of Göttingen, in his newly-invented "weather compass," which takes its name from its external likeness to a mariner's magnetic compass. The weather compass gives in a very simple manner a prognostication of the weather to be expected within the next twelve or twenty-four hours, and as its warnings are said to prove true in a majority of cases, it is likely to be a useful adjunct to the farmer and a convenience to almost everybody. It consists of an aneroid barometer, which indicates the pressure of the atmosphere by means of a pointer on a dial; but the pointer is also connected to a hair hygrometer for indicating the humidity of the atmosphere, and the connexion is so made that a rise of barometer attended by a decrease of humidity, both of which imply fair weather, combine to move the needle or pointer in the same direction, namely, that of fair weather. On the other hand, if the rise of barometer is attended by increase of moisture, the pointer is subject to the opposing forces of the aneroid and the hair hygrometer. The direction of the wind is also made to have a bearing on the position of the pointer and the indication of the dial, but this bearing of course depends to some extent on the locality.—*The Globe*.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

CAMELLIAS.

So far as the health of the plants is concerned, it is of no consequence whether camellias grown in pots are taken out of doors for the summer or whether they remain in the greenhouse or conservatory throughout the year. It is, however, a decided advantage to take them outside, as more space is then afforded for the preparation or display of other subjects, according to which of the two structures they occupy, and in small gardens the practice of placing camellias out of doors has much to recommend it. It is of some importance to remove them from the greenhouse or conservatory at the proper moment, which is as soon as the new growth is completed. Generally speaking, the plants complete their growth by the second or third week of June, and the plants may be taken out of doors by the 21st of that month without any risk. Care must be taken to select suitable quarters, and whilst avoiding the mistake of placing them where they will be exposed to the sun throughout the day, they must be kept away from tall overhanging trees. Shade they must have, and without the accompaniment of drip, which, even if comparatively small in amount, is most injurious in effect. The most suitable place that could be selected is along the north side of a wall or tall closely-cropped hedge, and for the formation of a bed on which to stand the pots there is nothing better than coal-ashes. The pots may be stood upon bricks or boards, but the ashes when kept moist assist in keeping the roots comparatively cool, and they should be maintained in a moist state by being sprinkled once a day when the weather is dry. The ashes are also effectual in keeping the worms out of the pot when they are laid down to a thickness exceeding three inches. Plunging the pots is not necessary, as when the plants are in a shady position there is no difficulty in maintaining the requisite degree of moisture about the roots. The watering must have the most careful attention, and the supplies must be liberal without being excessive. Especial care will be necessary in wet weather, for the rains seldom do more than moisten the soil in the pots to a depth exceeding two or three inches, and the appearance of the surface after a heavy rain is very likely to mislead the inexperienced amateur. The state of the soil may invariably be ascertained by rapping the side of the pots, a clear ringing sound indicating that it is more or less dry, and a dull heavy sound that it is well charged with moisture. When from any cause the soil has been allowed to become dust dry the plants should be watered three or four times within half an hour to make sure of the ball being properly moistened throughout its depth. The better plan in dealing with examples that can be readily lifted about is to plunge the pots in a vessel of water and allow them to remain until cessation of the rising of the air bubbles shows that the soil has been thoroughly moistened.

AZALEAS AND OTHER HARD-WOODED PLANTS.

Azaleas, eriostemons, heaths, polygalas, and other hard-wooded plants usually cultivated should be taken out of doors at or about the same time as the camellias. The situation selected should, if practicable, be somewhat sheltered on the west, and it may be partially shaded or entirely exposed, but it must be away from overhanging boughs of trees or large shrubs, as drip has a most disastrous effect upon such delicately-rooted subjects as these. A bed of ashes is the best on which to stand the pots, and in no case is it necessary to adopt the practice of placing the pots on bricks or inverted flower pots for the purpose of allowing a circulation of air underneath, which by some cultivators is considered essential to the welfare of hard-wooded plants. As in the case of camellias, the greatest care is necessary in watering, for they suffer severely when kept too wet, and dryness is exceedingly injurious. The proper course is to supply them with sufficient to moisten the whole of the ball, and then withhold the watering pot until the soil has become rather dry again. Should they become dust dry, all but the largest should be dipped as advised for the camellias, because of the great difficulty in moistening masses of peat by the ordinary course when it has become dry. Hard-wooded subjects such as are specially referred to in this note invariably perish when the upper half of the soil is quite wet and the lower half dust dry, as occasionally happens when the water is not applied in the most careful manner. Heaths and other finely-rooted plants ought not to remain out of doors more than two months, as after the middle of August there is a risk of injury to them from an excess of moisture.

LIQUID MANURE.

Free-growing subjects, such as fuchsias, balsams, abutilons, plumbagos, and brugmansias, which for some time hence will contribute materially to the attractiveness of the conservatory, will now require more assistance than clear water will be able to afford them. This assistance may be applied in the form of a top dressing of some approved artificial or as a liquid. To the latter alone I shall now refer. The preparation of liquid manure is a very simple, but from an imperfect acquaintance with the details, some find it troublesome. A very useful and exceedingly simple stimulant is prepared with guano, soot, and water. Twelve gallons of water is put into an old cask or tub, and in this is put one pound of guano and half a peck of soot. The water is well stirred when the guano and soot are first put into it, and again the next day, and the mixture is then allowed to stand until it becomes quite clear, when it is ready for use. If a rather strong stimulant is required the liquid is used as it is taken from the tub, but if a moderate strength is desirable water is added to it in the proportion of one gallon to every two gallons of the liquid. A liquid made with animal manure is unsurpassed in effectiveness, and when supplies can be drawn from the

cow byre, sheepfold, or stable belonging to the establishment it can be had, practically speaking, without cost. In dealing with these manures a difficulty is experienced in obtaining a clear liquid, a point of some importance; for when the liquid is at all thick the sediment forms a cake on the surface of the soil almost impervious to water. This difficulty may be overcome by putting the manure in a coarse bag, such as those in which the German potatoes are imported. About half a bushel of manure should be put into twenty gallons of water, or a bushel into forty gallons. It is not necessary to be very exact in the proportions of manure and water, and it is desirable to make the liquid in as large a tub or cask as is available. The bag containing the manure should be put in the tub and the water be poured on it. Very little moving about of the bag will suffice to obtain a liquid of a sufficient degree of strength, and when the supply formed by the water first poured in has been used, fill the vessel again with water and well stir the bag two or three times at rather long intervals, to enable the water to more readily draw the goodness out of the manure. Twice a week will be often enough to apply liquid manure to most plants, but of course much depends upon the strength of the liquid and the character of the subjects to which it is applied. Immediately a sediment forms on the surface it should be removed, and the soil be lightly pricked over with a pointed stick.

PANSIES.

By J. C. CLARKE.

To a great extent fancy pansies are taking the place of the show kinds in the west of England, which can hardly be a matter for surprise, seeing how much the pansies have been improved during the past twelve or fifteen years. In point of size and richness of colouring, it would seem that raisers have arrived at the extreme height of their ambition; but in my opinion there is room for improvement. More especially should the form of the flowers be improved and the colours be more clearly defined. In the cultivation of the pansy the improvement made has been quite as marked as in the size and shape of the flowers, and many amateur cultivators who took them in hand only a few years ago have mastered all the details of their culture, and cultivate them most successfully. So far as their means admit, the wholesome influence too that a love for such plants exercises on the habits and tastes of men who turn from the desk or workshop to find recreation in attending to the wants of their plants cannot well be over-estimated.

From a rather wide circle of correspondents, I learn that the present season has, on the whole, been a favourable one for pansy growers. A more than average number of plants were brought through the winter, and they came earlier into flower than usual; but some few cultivators say that the flowers have not come so large as in other years, and this is my own experience. The want of size in the blooms is further exemplified by the contents of a beautiful box of flowers recently received from a grower at Truro. These, although large, are not equal to what I have had sent me from the same source before. Nevertheless, the flowers are rich in variety and depth of colour. During the past month I have received flowers from Tavistock and from South Devon, and it is very gratifying to see to what perfection they are grown. The splendid flowers of such varieties as the Countess of Strathmore, Buttercup, Archie Duncan, Earl of Beaconsfield, Thalia, Mrs. Birkmyre, Mrs. B. Brook, and President Wickham, that are now before me, are so attractive that no one can wonder that they find admirers amongst a class of people who are not in a position to provide costly appliances for more tender plants. A remarkable fact in my experience amongst pansy growers is that as yet I have not known one single instance of failure so serious as to cause growers to give up the cultivation of their favourites. Nor do I know of a single instance of their cultivation being given up, except through some circumstance over which there has been no control. I think it will be better if I place my remarks that apply to the cultivation of the pansy under separate headings.

SUMMER MANAGEMENT IN THE OPEN BEDS.

Those who have cultivated the pansy for any length of time agree that some amount of shade in very bright weather is desirable, and it is pretty well understood that the plants can bear cold better than extreme heat. They do better when they are shaded from 10 a.m. to 2 p.m. in the day than when grown in the shade altogether. The shade of a wall or building is better for them than the shade of trees. A friend of mine who grows them largely has constructed a temporary frame, by which he is enabled to shade them as may appear desirable. He grows his plants in beds four feet wide, quite in the open garden, and along the sides of the beds at every three feet he has driven into the ground a block of wood which stands two feet out of the ground. To fit on this he has made light wooden frames in six-foot lengths covered with thin canvas. In very bright weather the canvas lights are put on for five or six hours during the hottest part of the day, which gives an efficient shade, and at the same time the plants have plenty of air, as the ends and sides are open.

Now is a good time for mulching the soil between the plants, and the best material for the purpose is some light powdery manure, such as may be obtained from an old hotbed. The manure should be moderately dry, and previous to using be passed through a coarse sieve. It should be spread an inch thick over the surface, and be put quite close up the stems. This will stimulate the roots materially, and many young offsets will root into it and form plants, which may be taken off in August with plenty of roots. Many cultivators now use road dust for this purpose, as well as for mixing with the soil. Its greatest value seems to consist in promoting an increase of roots,

but as a matter of course if it did not contain some stimulating matter the roots would not take so kindly to it. The road dust that is used by growers in this part is the sweepings of town roads, so that it contains a good proportion of animal manure. It must be laid for some time on a heap exposed to all weathers before it is used.

PANSIES IN POTS.

We have not many cultivators in the West who grow pansies in pots, but for the information of others I will briefly describe the process adopted by a very successful cultivator, who has kindly favoured me with the details of his course of management. The cuttings are struck in June, the young side growths that have not flowered being selected for propagating purposes. As only a few dozen plants are wanted, a couple of handlights are placed on a shady border, and prepared for the cuttings, as worms are liable to draw in the cuttings after they are inserted. The soil is taken out to the depth of six inches, and some pieces of slate put in the bottom of the excavation. On the slates is placed six inches of fine sandy soil, in which the cuttings are inserted in rows three inches apart. They are then watered and the lights put on and kept close until they are struck, which will be in four or five weeks. As soon as they have sufficient roots they are transplanted to another border where the soil is rich, and where they are shaded for a few hours in the middle of the day. About the middle of September they are put singly in three-inch pots. The compost my friend uses consists of equal parts turfy loam, road dust, and cow-dung, the whole being well mixed together and pressed pretty firmly about the roots; after the plants are potted they are taken to a cold frame which stands in a south aspect. Shallow frames are the best for this purpose, as the plants ought not to be more than nine or twelve inches from the glass. During the winter the plants require plenty of air when the weather is mild; even when it rains the lights should be tilted at the back; during sharp frost the lights should have a covering of mats, two or three in thickness, according to the severity of the weather. A little cold weather will not hurt them, but it is well to guard against extremes.

My friend lays great stress upon the watering of pot pansies during the winter, for he believes more pansies are lost through being kept too wet at the roots during the winter months than from any other cause. Clear water, given when the soil is moderately dry, in sufficient quantity to well moisten the ball, is all that is required. It is the giving of more water to soil that is already moist that does the mischief. The stock should be looked over three times a week, and only such have water as really want it.

Early in February they must be shifted into six-inch pots, using the compost as before, and for a fortnight afterwards the frame should be kept rather close to enable the roots to take hold of the new soil quickly; but after that time plenty of air must be admitted whenever the weather is favourable. As the plants come into flower a thin shade is necessary. After the middle of May they do better when planted in a bed of soil, which may be either in the frame or in the open ground.

I have not met with any growers of pansies who are in favour of giving them any stimulating manure with a view to promote a more vigorous growth. They all agree that clear water and a rich soil are all that is necessary to grow them well, but I have met with one who lost a great portion of his stock through the use of guano water.

RAISING PLANTS FOR FLOWERING IN THE OPEN GROUND.

The simplest way for all small gardeners to adopt in raising a stock of plants to keep over the winter in a bed of soil in a frame is to earth up the stems of the old plants in August. Fine rich manure or earth should be used, but previous to earthing up some of the loose growth should be cut down to within four inches of the ground. This will cause them to break into growth round the stems, and take root in the new soil. Early in October the old plants may be taken up, when it will be found that they have produced several offsets, which may be removed from the parent, usually with some roots attached. Even if they have no roots, they will soon make some, if pricked out into a bed of soil, and the frame kept close for two or three weeks. Of course, pansies may also be struck from cuttings in August and September, either in the frame or open ground; but cuttings give more trouble.

STAKEHILL HOUSE, CASTLETON, NEAR MANCHESTER.

THE RESIDENCE OF SAMUEL BARLOW, ESQ., J.P.

A VISITOR to Stakehill finds himself in the garden of a true Lancashire florist, and Mr. Barlow is all that and something more, for, in addition to such of the leading florists' flowers as find a congenial home here, there are other aspects of general gardening of a highly satisfactory character. The gardens and pleasure grounds at Stakehill are comprised in a comparatively small space, but there is far more in them to interest a lover of flowers than is often met with in places of much greater pretensions. That Mr. Barlow reaps a great harvest of pleasure from his garden cannot be doubted from the time he spends in it, and the warm interest he takes in everything he grows; and this pleasure he is anxious should be shared by others; consequently, any well-disposed persons are free to enter the garden gates, and walk about among the many things that are to be seen at all seasons of the year. On a Sunday especially many persons avail themselves of this privilege, and not a few come long distances, attracted by Mr. Barlow's reputation as a florist. At this season of the year, when the fine collection of tulips at Stakehill are in bloom, there are many visitors, and in scarcely a single instance has the generous owner of Stakehill any reason to regret the trust he reposes in those who visit his garden.

The dwelling-house, which is near to the celebrated dye works at Stakehill, faces almost north. Before it is a well-kept pleasure ground

planted with groups of deciduous and a few evergreen trees: the service tree, laburnum, thorn, lime, &c., flourish here; in front of these are various flowering shrubs. About the glass plat, which is kept in excellent condition, are clumps of rhododendrons and beds of roses, and on the left of the carriage drive, as one approaches the house, is a belt of shrubbery, with space for a good and useful mixed border of herbaceous and other plants. Recently, Mr. Barlow planted a new long oval-shaped bed of rhododendrons, which is circled by the carriage drive, and this is edged with lines of the best show and fancy pansies that do well at Stakehill, growing freely and flowering profusely and finely. There is a narrow belt of border round all the clumps of rhododendrons, shrubs, &c., and these come in very handy for planting out seedling polyanthus, primroses, pansies, and violas, and many other useful vernal pots. Beyond the pleasure grounds the garden is at a higher level, and there is to be seen an ample bowling green and lawn tennis ground, surrounded with a belt of shrubs and trees; on the left of this, at a lower level, is a rock garden with water; and then on the higher ground, south of the bowling green, is what was once an apple and pear orchard, but now a most useful ground for planting out beds of polyanthus, hepaticas, Christmas roses, primroses, carnations, picotees, &c. Some cold frames here come in very useful for housing polyanthus and other plants.

Close by is a commodious plant house in two divisions. The first portion is used as an ordinary show house, with such plants as lapagerias, &c., overhead. At this season of the year azaleas, pelargoniums, &c., make an effective display. In a water tank is a fine variety of *Aponogeton distachyon* that blooms freely. The inner portion is used as a stove, and here is a small collection of orchids, among which are fine plants of *œlogyne*, *cyripedium*, also tree and exotic ferns, ordinary stove plants, &c. Running parallel with this, there is a low span-roofed house in three divisions, reached by a descending flight of steps. In the first part is a collection of bouvardias and plants of a similar character, zonal pelargoniums, &c. The next division is used for the growth of tomatoes, planted out and trained up the roof, and the third is planted with cucumbers, similarly grown. These are a very useful lot of houses, and can be utilized in various ways during the year. At the north end of the plant house, and running off eastward, is the vinery, in two divisions. One portion is used as an early, the other as a later house. The former is planted with Black Hamburgh, Muscat of Alexandria, Madresfield Court, Mrs. Pince, and Troveron Muscat, among other grapes. The latter house has as occupants Lady Downes, Black Hamburgh, Alicante, &c. The vines are all healthy and vigorous, and carry, on the whole, promising crops of fruit. These houses have to be used as plant houses in winter and early spring, and some disadvantage to the vines no doubt results.

We now come to a portion of the garden of a very interesting character. It is oblong in shape, is bounded on one side by the tennis ground, on another by the plant houses, on another by the vinery, and on the south by a sloping border, which is cool and somewhat shaded in summer. On this border Mr. Barlow has had prepared beds edged with boards and placed above the ground level, and here will be planted out shortly the fine collection of named and seedling gold-laced polyanthus Mr. Barlow possesses, many of his own raising. Here the plants can scarcely fail to do well, and at the time of my visit the beds were being prepared with suitable soil.

The oblong garden so enclosed is filled with beds edged with boards and raised some six inches above the surface, with walks between. Four of these beds are filled with Mr. Barlow's fine collection of tulips. The best bed—in all probability containing the finest collection of tulips in England—was this season attacked with what is known as the tulip disease, and it played sad havoc with the occupants, and but few comparatively of the bulbs matured their flowers. Growth set in up to a certain stage, and then the foliage withered. An examination of the bulbs showed that they failed to put forth roots, and, indeed, looked as if they failed to do this from lack of moisture. But Mr. Barlow states that at no period was the bed kept so dry as to preclude proper root action. The development of the plants in the next bed was decidedly better, but not complete in all its parts. The soil in which the bulbs were planted was carefully prepared, and was the same throughout: such a failure is one of those things that baffles the calculations of a tulip cultivator, but which he cannot prevent or control. Some of the very choicest tulips in Mr. Barlow's collection altogether failed this season. In breeders Mr. Barlow is particularly strong, and when in good form he is not easily beaten. Even when handicapped with many failures, Mr. Barlow was this season able to win the leading prize with twelve tulips at the Royal National Tulip Society's Exhibition in Manchester on May 27, but other growers had similarly suffered. Next to the tulips is a fine bed of a choice strain of sweet williams, then five beds of mixed herbaceous plants, including patches of a fine strain of aquilegias, one of pyrethrums and phloxes, another wholly planted with a fine collection of named ranunculus, and another partly so, and lastly, one filled with pansies, violas, and many odds and ends. This ground finishes up with a line of pits that come in handy for raising stocks, asters, Phlox Drummondii, celery, &c., at this season of the year, and for various purposes during summer and autumn. The collection of named ranunculus comprises fifty of the very choicest varieties, had from Tyso, Lightbody, and others, and all look and promise extremely well. These beds are 40 ft. in length by about 3½ in breadth.

At the extreme end of the vinery, and close to the tulip ground, is a small plot occupied by two short lines of span-roofed cold frames. These are now planted with named gold-laced polyanthus, various hardy primulas, &c., but will soon be divided and planted out in the beds above referred to now in course of preparation.

There yet remains one of the most interesting houses in the garden; a long, low, and somewhat sunken cold house, with low stages on either side for a considerable distance, and for the remainder a high stage for auriculas, &c. The occupants of this house are varied, interesting, and valuable. An extensive collection of chrysanthemums, in large pots, are just being taken out of doors for the summer. They are, without exception, the best lot of plants we have seen this season. Then there are a collection of lilies in pots, roses in pots, salvias, single dahlia, rhododendrons of the Ormskirk race, Azalea mollis, fuchsias, British ferns, and knickknacks too numerous to mention. The floral treasures at Stakehill, especially in the way of spring-flowering things, are innumerable and valuable. At the coolest end of the house, on the raised stage, is Mr.

Barlow's fine collection of auriculas. They have just been repotted, and look likely to do well. Then there are pans of seedling auriculas obtained from choice fertilized seeds; and as soon as the plants are large enough to handle they are pricked off into pans and grown on into size. By the side of this house, and forming a boundary to the garden in this direction, is a bank of rockwork planted with saxifrages, epimediums, violas, and many choice plants, with a line of dwarf shrubs at the top, and space for a line of dahlias at the back. Here dahlias cannot be planted out as small plants, as they are in the south; they must be grown on into size in pots, and placed out in the ground at the middle of June, when two feet or so in height. Great difficulties beset the outdoor cultivation of many flowers in Lancashire that are easy to grow in the more favoured south.

Away on the rising ground, beyond the tall shaft which raises its head high above neighbouring buildings, there is a small piece of kitchen garden, and also a useful piece of reserve garden. Here a few prize gooseberries are grown, though Mr. Barlow no longer competes, as he did years ago.

This is but an imperfect sketch of Stakehill and its gardens, but it serves to indicate something of the floral enterprise which constitutes it a centre of floricultural operations in Lancashire, and its highly-respected proprietor the trusted leader of the florists in the Manchester district.

R. DEAN.

THE TURBINATE BELL-FLOWER.

(*Campanula trachelium*.)

This pretty bell-flower illustrates in a pleasing manner the prevailing difference between the flowers of the mountain and those of the plain. The rambling botanist of large experience can tell us in a moment the kind of country whence a plant has been derived, even if he cannot name the country or the plant offhand. When he finds the leaves small and in a compact tuft, and the flowers large and somewhat prominently displayed, he will declare it to be a plant of the mountains, accustomed to a strong light, to frost and snow, and keen breezes. The plants of the valley are by comparison large and leafy, with flowers less conspicuous; and however beautiful, as many of them are, they lack the tufty, closely-packed, pin-cushion growth, and brilliant colours of the true mountain flowers. This bell-flower may be compared with the average of garden campanulas advantageously for purposes of instruction. We find no tall stem, no free leafy growth, and no drawn-out spike of flowers. The whole thing is, as one may say, in a nutshell, for the mountain plant cannot afford to make a tall stem and to develop its flowers slowly. Its conditions of life are unfavourable to the development of abundant material; it must make the very most of a short summer with a pure strong light, and many sudden transitions from extreme heat to extreme cold. Do you know how the sunshine roasts one at midday in many a flowery spot on the Alps and the Pyrenees? And do you know how, in the very height of the summer, the night frost is often keen enough to make the herbage crackle beneath the feet of the late wanderer, as also of the early riser? The Alpine flowers have to live through such extreme conditions; and if they do not ripen their seeds and scatter them quickly their race must soon come to an end. Therefore they have not time to grow tall and leafy and luxurious; they hug down close to the ground to escape the keen wind, and concentrated life is of more importance to them than a luxurious display of delicate green garments.

The turbinate campanula is a native of the Carpathian mountains and Transylvania, and when transferred to the garden is essentially a rock plant, requiring a dry sunny position, and a light, deep, well-drained soil. It is at once beautiful and interesting, (the smallness of the leaves and the largeness of the flowers rendering it conspicuous; while the fine blue-purple colour and bold cup-shaped form of the flowers compel attention to detail. It may be grown in the common border where the conditions are favourable, the soil being sandy and the situation open, when it forms large leafy tufts, from which the flowers rise freely during the summer.

As rock plants the smaller campanulas have especial claims on our attention. The following will gratify the collector of such things:—*C. alpina*, a silky or woolly little herb, bearing a loose pyramid of deep blue flowers; *C. caespitosa*, very dwarf and tufty, the flowers deep blue; *C. carpatica*, a very fine rock and border plant, well known for its neat cushion-like growth and lovely flowers, which are blue or white, or combining both colours—this will thrive in almost any border, and in the very heart of London; *C. garganica*, somewhat like the last, but more inclined to run, and the flowers are expanded, and have white centres; *C. hederacea*, an exquisite gem, creeping, with small ivy-like leaves and bluish purple flowers, a bog plant, very plentiful in the southern counties on marshy uncultivated lands, the companion commonly of the beautiful buck-bean (*Menyanthes trifoliata*); *C. isophylla*, a handsome dwarf plant with pale blue flowers, it requires a limestone soil and is a good plant for a wall or ruin; *C. Raineri*, very dwarf and pretty, the flowers blue, the plant adapted for either rockery or border in well-drained sandy soil; *C. rotundifolia*, the well-known "harebell" of the hedgerow and the mountain. It is a good garden plant, adapted for rockery or border in any light soil, and there are three or four distinct varieties in cultivation. Once upon a time, when botanizing at Hayfield under Kinder Scout, we found within an hour fully a score of distinct varieties of this lovely plant, the flowers being of several shades of blue, pink, and white; and doubtless they are to be found there still in the happy summer time.

Having campanulas in general for a moment before us, we must embrace the opportunity to mention two very fine species, which are usually ranged in the genus *Platycodon*. Number one is *Campanula* (or *Platycodon*) *autumnalis*, a handsome perennial plant, rising a foot and a half high, bearing in the autumn bold panicles of brilliant blue, white, lilac, and dove-coloured flowers—for there are several varieties, and some of them are double. The other is *Campanula* (or *Platycodon*) *grandiflora*, a more robust plant than the last, and bearing larger flowers earlier in the season, although they often flower together in the late summer months. This produces very large glossy flowers that are exceedingly beautiful. These are raised from seed or by division of the roots. They are scarcely hardy in London, but in the southern counties may be planted out in any good border, and will take care of themselves. We have always grown them in pots, as companion plants to the noble chimney campanula (*C. pyramidalis*), and have been well rewarded for the trouble.—Hibberd's "Familiar Garden Flowers."

The House, Garden, and Home Farm.

ONE LOVER.

I LOVE my lover; on the heights above me
He mocks my poor attainment with a frown;
I, looking up as he is looking down,
By his displeasure guess he still doth love me;
For his ambitious love would ever prove me
More excellent than I as yet am shown,
So straining for some good ungrasped, unknown,
I vainly would become his image of me.

And, reaching through the dreadful gulfs that sever
Our souls, I strive with darkness nights and days
Till my perfected work towards him I raise,
Who laughs thereat and scorns me more than ever;
Yet his upbraiding is beyond all praise.
This lover that I love I call Endeavour.

A. MARY F. ROBINSON (*Athenæum*).

THE HOUSE.

WINDOW BOXES, baskets, and vases will require rather close attention for several weeks hence. The principal point will be to keep the plants well supplied with water, and the occupants of boxes that are fully exposed to sunshine throughout the day will require watering daily. This is best done in the evening, but if it is not convenient to supply with water at that time the watering should be done as early in the morning as practicable. Where the plants are showing signs of exhaustion apply some approved stimulant without delay. Clay's Fertilizer is admirably adapted for re-invigorating plants in window boxes. Apply it by sprinkling enough over the surface to just cover it, and then prick over the soil with a pointed stick.

THE GARDEN.

BROCCOLIS for autumn supplies should be planted three feet apart every way, but in planting to stand the winter two feet every way will suffice, as when rather thick the plants protect each other. Clubbing at the roots is generally the result of scanty manuring and shallow digging, which cause premature development of the plant before the head appears. The caterpillar is one of the pests to which broccolis are subject. These should be removed as soon as observed by hand-picking, and the plants dusted either with soot or lime.

ENDIVE required for the salad bowl in the autumn should be sown at once. Sow the seed in drills nine to twelve inches apart, and thin out to six inches in the rows for the autumn supply, which must be liberally grown on well-manured land with the aid of water in dry weather. They should not be blanched until fully grown, and then the simplest means of excluding light will suffice to blanch them thoroughly.

ORCHARD HOUSE must be ventilated very freely now, and the trees in bearing have liquid manure twice a week, and pretty strong.

PEACH TREES from which fruit has been gathered should have the syringe or engine plied freely upon them to cleanse them, and maintain a healthy leaf-action for the completion of the seasonal growth.

PELARGONIUMS in bloom must have some amount of shade, but they are generally shaded too heavily, so that we do not see their true colours. Give plenty of water, as the least check now will be injurious. Plants out of bloom to be set out of doors in the full sun, but not to be cut in for at least a fortnight. This exposure of the plants in their complete state is one of the most important points in their culture; on it depends the ripening of the wood and the health and beauty of the plants hereafter.

POTATOES to be hoed between frequently previous to the earthing up, which should be done in a more gradual manner than is usually the case.

ROSES.—Briers and Manettis will be in fine condition for working in a short time hence, one or two weeks from this date, and it will be better to set about this work as early as possible, even if it is found difficult to select buds for the purpose. It is early yet to put in cuttings from roses in the open ground, but potted plants that have bloomed out and made new growth will furnish nice short half-ripe shoots for the purpose.

STOVE PLANTS.—Take cuttings of Euphorbias, and let them dry before inserting in sand. Remove to a cooler atmosphere most of the best subjects that are now in flower. Keep a moist atmosphere amongst soft-wooded plants of all kinds, and use water in abundance about floors and walls.

STRAWBERRIES.—It is most important to obtain early plants from runners; and every means should be taken to root the strongest, and to root them well. A picked lot of the finest for early forcing should be pegged down in small pots filled with firm turfy compost. Runners just rooted and intended to be used for new plantations to be taken off immediately and be planted out in rich light soil, and have a slight shading to help them for a week or two.

WINTER GREENS must not be overlooked. Plant during showery weather Broccolis, Brussels Sprouts, Collards, Cauliflowers, Endive, Celery, Cabbages, Curled Kale, Savoys, and whatever else is needed to supply the table during autumn and winter, the grand point being to secure enough of each, and somewhat of a reserve of plants to fill up vacancies and to plant odd plots.

THE HOME FARM.

IN taking a survey of the work on the home farm, it will be found that, although there is plenty to keep the hands actively engaged, the matters demanding attention at the present moment are of a less anxious kind than for some weeks past. Calves are growing strong; lambs are becoming serious; there is plenty of feed, and the hay-making is at present a matter only to be thought of. Indeed, the great business now is to do all that is requisite to secure a good crop of roots, and at the same time to keep things in their places, weeds included, the place for which is nowhere. Wherever the horse-hoe can be used with advantage now it should be kept going, for tillage between has a marked effect upon advancing crops, and tends very directly to increase the fertility of the land by the continual exposure of fresh surfaces to the disintegrating power of air and rain and light.

A HOSE-IN-HOSE FUCHSIA.

THE figure accompanying this note represents an interesting abnormal growth of a fuchsia, to which we have applied the familiar term "hose-in-hose." We were favoured with this, through our coadjutor Mr. Greenaway, by Mr. Gurden, gardener to Miss Watson-Taylor, Manor House, Headington, Oxford. Mr. Gurden reports that the abnormal flowers occurred on one shoot only, and were not generally distributed over the plant, and he has not succeeded in "fixing" the sport. As the specimen sent lay on our desk, we thought it an extremely elegant and much to be desired novelty. All parts of the flower, including the

THE SCARLET CLEMATIS.

(*Clematis coccinea*.)

THE scarlet clematis is one of the most beautiful climbers of its class, and worthy of the immediate attention of all cultivators of hardy plants. It is of slender growth, and will run from five to ten feet on a trellis, and produce a peculiarly elegant mass of leaf and bloom, distinct from all else in the way of climbing plants. The leaves are broadly ovate or cordate on short petioles. The flowers are produced singly on long slender peduncles, and are brilliantly coloured. The sepals are stout and form a bell-shaped flower, which is of a bright orange colour within and vermilion-red without, and



HOSE-IN-HOSE FUCHSIA.

supplementary calyx and corolla, and the petaloid stamens in the form of round discs, as well as the calyx proper and the transformed and very variable proper (or improper) corolla, were most delicately coloured in several shades, ranging from pale flesh to rich rosy carmine. The fantastic outlines were enhanced in their beauty by exquisite colouring, and there was not a tint of green in any of the flowers or the slender rose tinted stalks that carried them. We judged the variety to be our old friend Duchess of Lancaster, but Mr. Gurden thinks it may be Marginata.

may be fairly said to sparkle as it grows. Fortunately this fine clematis is quite hardy, and not at all particular as regards soil or situation. But a deep rich soil and a somewhat sunny situation will produce a finer growth than a poor soil much shaded.

MR. JOHN DUNSE has left Burmoch House, to take charge of the gardens of Kibworth Hall, Leicestershire, the residence of Mrs. Hunt.

ENDIVE FOR WINTER SUPPLIES.

By WILLIAM BRADBURY.

CURLED and broad-leaved endives are, in conjunction with cabbage and other lettuces, so valuable for filling the salad bowl during the winter that wherever a constant supply of salading has to be maintained they should be cultivated somewhat extensively. In some respects they are superior to lettuces during the winter season; the two chief points in their favour being their greater hardiness and their furnishing large white hearts when it is impossible to have

even where there is a fair amount of frame room available. I am induced to refer to the production of winter supplies of endive now because so many amateurs and young gardeners defer the sowing of the seed for the first crop until it is too late to obtain first-class examples, under the impression that the middle of July is early enough. The proper time for sowing for use from the beginning of October until mid-winter is the third week in June and the first week in July, and by missing these periods the cultivator generally fails to obtain first-class samples during October and the two following months, when the endive may be had at its best.



SCARLET CLEMATIS, CLEMATIS COCCINEA.

lettuces otherwise than of small size or green in colour. To institute comparisons between these two useful saladings is not necessary, for both are required, and the prudent cultivator will endeavour to have a good crop of each available for the winter supplies.

The period during which supplies of endive are of the greatest utility is from the end of October until the end of the March following, as from the middle of the autumn until the early part of the spring it is difficult to provide supplies of really good lettuces,

It will perhaps be well to briefly refer to the various kinds suited to general cultivation before speaking of the practical details. First to be noted is the *Green Curled*, which has the great merit of hardiness combined with good quality. It is a trifle coarse in growth, but when well grown and nicely blanched it is crisp and delicately flavoured. The *Moss Curled* is exceedingly elegant in appearance, and very delicate in flavour, but it is too small for the majority of cultivators, and it is decidedly tender in constitution. When

grown, it should be for sending to table during September and October. *Digswell Prize*, a selection from the Green Curled, is intermediate in character between it and the Moss Curled; in flavour it is unsurpassed, and it is fairly hardy. To speak more definitely with reference to these three kinds, the Moss Curled should be grown in small quantities for use in autumn, and the Digswell Prize on light warm soils and the Green Curled on heavy soils for the main crops throughout the autumn, winter, and spring. The *White Curled* is very tender in constitution, a light frost sufficing to cut it off, and as it does not possess any redeeming quality it may be safely described as not worth growing. We have yet another, and that is the *Broad-leaved Batavian*, which in appearance and flavour approaches most closely to the lettuces. The finest stock of Batavian is that known as the *Round-leaved*, and when true it produces large hearts pure in colour and delicate in flavour. There is, however, some difference in the stocks of Batavian, and those with narrow leaves are under the best cultivation generally inferior and objectionably bitter. A considerable improvement appears to have been effected during the last ten years in the stocks of endive, and now seed obtained from good houses generally yields satisfactory results, the Round-leaved especially so. The Batavian, when grown to a good size and well blanched, makes an elegant and acceptable salad of itself, and it may of course be combined with lettuces and small salading; a combination essential in the case of the curled varieties. It is worthy of notice that the soft buttery taste of the cabbage lettuce forms an admirable corrective to any bitterness developed in the endive, and that therefore where the latter is grown the cabbage lettuces should be selected in preference to the Cos varieties.

To maintain a continuous supply from September until the following spring, sowings should be made at intervals of about three weeks from the middle of June till the end of August, and to save trouble, and to avoid the risk of the plants running to seed, the seed should be sown where the plants are to be grown. This is especially necessary on hot dry soils; for if the plants do not "bolt" before they attain their full size they will receive a severe check, and probably be very bitter. There will be no waste of seed if care is taken to sow thinly. The soil for the early crops cannot well be too rich or deeply stirred, and it should be broken down rather fine on the surface. The sowings should of course be made in drills, and these should be about two inches deep, and for the Curled be twelve inches, and for the Batavian be eighteen inches apart. If the weather is dry, well water the drills to ensure a quick germination of the seed, which must be distributed thinly and evenly, and be covered with the finest soil available for the purpose. In very dry seasons it may be necessary to water the rows once or twice, but in most cases the watering previous to the sowing will suffice.

Thinning out must be commenced immediately the plants are becoming overcrowded, and to avoid blanks in the rows or the trouble of mending them, thin in about three operations, the plants to have their final thinning before they are crowded. The plants raised from the first two sowings should be thinned to a distance of eight inches for the Curled, and twelve inches for the Batavian, whilst the later crops may be two or three inches closer together, as so large a size will not be attained. The only attention required until they have reached about two-thirds of their full size will be to occasionally stir the space between the rows, to keep down the weeds and maintain the surface in a nice loose state. On reaching the stage mentioned they should, if the soil is light, have a little of it drawn to them to bring the leaves closer together, to facilitate the tying up later on. The earthing up is particularly desirable in the case of the later batches sown in the open, for by gradually drawing the soil about the plants they can be blanched with no more tying up than having a strip of bast drawn loosely round the top, and the soil serves as a protection against frost. On heavy soils earthing up will do more harm than good, and therefore should not be practised.

A moderately sharp frost is sufficient to nip endives that are blanched, the Batavian being the first to suffer; and in consequence all that have reached that stage by the early part of October should be taken under cover soon enough to escape the effects of the frosts which we usually have from the 10th to the 15th of that month, or provisions be made for protecting them in the open quarters. There is no better place for them than a cold pit or frame, and in this they should be put as close together as is possible without their being crowded. They should be lifted with a nice ball of soil, and be taken to the pit on a hand-barrow, and be carefully arranged with a little soil between them. A dry day ought, if practicable, to be taken advantage of for this work, but it must not be so long delayed that a risk of exposure to severe frost is incurred. It will be an advantage to arrange them according to their size and readiness for the table. Free ventilation is essential, and in dry weather the lights may be drawn off during the day, but as damp is almost as injurious as frost, care must be taken that they are not caught by the rain. If there are no frames available, pots may be turned over them during periods of frosty weather, and other protective measures that will suggest themselves to the cultivator be adopted.

The plants raised by the sowing at the end of August should, when of a suitable size, be planted on a sloping bank facing south, and have straw hurdles or mats laid against them, where necessary, to protect from frost, or be put in cold pits. When they are to be wintered exclusively on banks, the Green Curled should alone be sown, because of the injury that is done to the more erect leaves of the Batavian. Six inches apart each way will be a good distance at which to put them on the banks.

Notes of Observation.

TWO FINE TROPÆOLUMS.

Two *Tropæolums*, named respectively *Townsoni* and *Earlsdeni*, have given me so much satisfaction that I forward you a few blooms that you may recommend them to the notice of your readers. They are, I believe, the most brilliant varieties in cultivation. The first-named is a climber, and the second a compact dwarf grower; as regards colour and general style, they are closely related. No one unfamiliar with these could form any idea of their beauty. My conservatory all through the last winter was warmed with their glowing crimson flowers, which were produced in glorious profusion; indeed, hundreds of flowers were cut daily from a single plant. In the summer we had as much of it as we can, so that Bowdon is all ablaze with it; for the raiser, who lives here, distributed it largely, so that every cottage door is wreathed with its glorious colour until frost changes the scene. Every one possessing a greenhouse should grow *Townsoni* for winter flowers, as there is nothing to equal it for bouquets or table use. I have grown many varieties of these useful plants, but have discarded all for this, with the exception of the improved variety of *T. canariense*. I have not met with one possessing the same qualities, combining profuse flowering, intensity of colour, and neat, small, glaucous leafage. *Earlsdeni* is paler in colour, but very brilliant, and grows only six or eight inches high, forming small tufts of glowing scarlet; a great acquisition to the list of useful bedding plants.

Bowdon, Cheshire.

G. B.

[Judging by the flowers sent, the variety named *Townsoni* appears to be the same as one usually catalogued as *Bowdon Beauty*. Both are very fine in colour.]

MADE-UP SPECIMEN ORCHIDS.

The question of making up specimen orchids for exhibition has of late been much discussed in exhibition circles, and although there appears to be a general opinion that some check should be put upon the practice, no one appears to be able to suggest an effectual remedy. There are not wanting those who say that it should be put down with a strong hand, and that it should be prohibited in the rules of the schedules; but it is much easier to tell the managers of the horticultural exhibitions what they should do in the matter than to show them how it is to be done. My experience in the cultivation and exhibition of orchids convinces me that it is practically impossible to put down the making up of specimens. Let us take the case of a cultivator who is desirous of forming a good specimen of an *aerides* or *saccolabium* and has a good stock of plants from which to select. He has simply to take, early in the spring, two or three examples that appear likely to bloom freely and simultaneously, then turn them out of their pots and put them together in one of larger size. If the work is done carefully the plants will not suffer, and when the specimen is exhibited the judge must be very clever who could say positively whether it had been made up or had simply been repotted. *Cattleyas* and *oncidiums* may be made up in precisely the same manner; indeed, there are but few orchids which may not be so manipulated that the most experienced judge would not feel himself justified in disqualifying, however stringent the rules may happen to be. No one can have a greater admiration for a *bonâ fide* specimen than myself; yet I cannot see any great objection to the formation of exhibition specimens with two or more plants, provided it is so done that the several examples really form a specimen. In some cases it has much to recommend it, for in the interest of the exhibition it is essential that the collections should consist of plants large enough to produce a good effect. Some kinds cannot be maintained in such a vigorous condition when of large size as when of moderate dimensions, because of the central growths not receiving sufficient light and air. For example, the *masdevallias*, and several of the *cyripediums*, become quite thin in the centre and produce undersized flowers when grown in large masses. In allowing the making up of specimens, I would insist that each should consist of but one kind, so that not more than the prescribed number should be shown. In many of the so-called specimens staged at the metropolitan shows this year there were as many distinct varieties as there were spikes of bloom. In a specimen of *Cattleya Mendeli* exhibited there were five spikes of bloom which represented as many distinct varieties, and in an example of *Odontoglossum Alexandræ* there were seven spikes, each representing a distinct variety, the colours ranging from almost pure white to as deep a shade of rose as is found in this lovely orchid, whilst the markings were quite distinct. They were indeed so distinct that no trained eye was wanted to detect it. It is against this practice of making up that a protest must be made, and I hope that the judges will, as at the great summer show of the Royal Horticultural Society, do their best to discountenance it.

LOOKER-ON.

WELLS'S SPRAY DIFFUSER.

In my walk through the exhibition of implements in the gardens of the Royal Horticultural Society, I was glad to observe that Mr. Wells was exhibiting his spray diffuser, for after some experience with it I am convinced that it is an apparatus with which gardeners should be acquainted. It is not a toy or so fragile that a little rough usage will injure it or put it out of gear, but it is strong and powerful, and well fitted for useful work. For the application of insecticides it is far superior to the best syringe, as the liquid with which it is charged is delivered in the form of a dense vapour, and can be regularly distributed without waste over the plants, saturating both the under side and upper surface of the foliage. Simplicity of action is a strong recommendation, as you have only to fill one of the two globes with which it is fitted with liquid and work the handles backwards and forwards as in using a pair of shears, to which in form the diffuser bears some resemblance.

A HEAD GARDENER.

MORNING STAR POTATO.

Herewith I send you a sample of the above-named potato. It is a sort in great favour here, and has been grown by the cottagers for the last fifty years. In quality and productiveness it is undoubtedly A 1. Can you tell me anything of its history, or offer any observations that may be useful, for a good thing may sometimes with advantage be talked about?

Cosham, Hants.

F. W. S.

[Judging by the tubers only, Morning Star appears identical with the old Ashleaf Kidney, and therefore for the present we can only observe that a multitude of synonyms constitutes a certificate of the highest merit.]

A FRAGRANT PLANTAIN.

On the cliff at Margate the plantains flourish more than in any place I know. One variety affords a fragrant scent, which it retains when cut and placed in water for a week or more. I have not noticed this fragrant variety elsewhere. I sought for it in vain at only the distance of a field from the cliff. Indeed, it flourishes to the greatest perfection on the very edge of the cliff. The scent is very agreeable, resembling somewhat that of the hawthorn. Is this fragrant plantain to be found elsewhere? I enclose a sample or two, which I fear will lose its scent before reaching you. What is the name of this other, the all-prevalent weed of Margate? It has a cluster of small white flowers, and spreads everywhere. A native called it the Devil's Weed. It is said to be of foreign origin.

June 7, 1882.

W. W.

[The plantain is *Plantago maritima*, the seaside plantain. When received by us, and although injuriously packed in cotton wool, the spikes emitted a most delightful hawthorn perfume. In our issue for August 18, 1877, we made some remarks on the peculiar fragrance of certain plants in exposed situations, and this very fragrant plantain illustrates the subject in an interesting manner, justifying the doctrine that we hazarded that the position is the determining factor in the case. The other plant is *Lepidium draba*, the whitlow pepperwort, a doubtful native, common in the Isle of Thanet.]

THE OILED RAG.

It is remarkable how high a value is set upon an oiled rag by some cultivators for giving the finishing touch to their labours. It is not so long since that it was in requisition amongst some of the potato growers, as the shining appearance presented by considerable numbers of the tubers staged at the international and other exhibitions bore ample testimony. But it is now in little repute amongst the fanciers of the "noble tuber," for the judges, who knew their business, and were anxious to promote fair competition, have unhesitatingly passed by collections containing tubers that had received a dressing of oil. Banished from the potato field, the oiled rag made its way to the fruit room, and for a few years it was used somewhat freely by several exhibitors at the autumn shows. I have had through my hands in various parts of the country a goodly number of dishes of apples and pears in which the fruits had unmistakably been oiled. One of the most noteworthy examples was a dish of splendid Ribston Pippins, shown in a class for flavour, in which the fruits had been slopped with oil that was anything but fresh and sweet. The passing by of oiled fruit, as in the case of the oiled potatoes, has had a salutary effect, and the only polishing now is done with a soft clean rag. More recently the oiled rag has been brought into use for touching up fine-foliage plants, and we have had this season, at one exhibition at least, crotons and dracænas which had previously had their leaves dressed with oil. To those acquainted with plants it was evident that the exhibitor had not been satisfied with sponging the leaves with clean water, and a closer examination showed that they had been carefully wiped over with an oily rag or sponge. To some the glossy appearance imparted by the oil may have been considered an improvement, but to my mind it was unnatural and objectionable, and the practice should be put down with a firm hand.

THE ROSE SEASON.

O. P. Q.

Up to the date of writing I cannot see that we can have a good rose season, or rather, a good crop of flowers. The fearful storm of April 29, &c., cut many of the young leaves into shreds, and there they remain a perfect wreck of bruised and half-dead remnants. Added to this, the rose-maggot is more numerous than for several years past; so numerous, in fact, that we cannot keep them under. As a consequence, many of the buds are seriously injured. Colonies of green fly have also settled upon many of the plants, and, owing to a press of other work, we have been compelled to leave them undisturbed. The most remarkable feature, however, is the inequality of the growth. The earliest growths from the ends of the shoots are fast opening their flowers, while the buds below them and those on other shoots that did not commence to grow so early are fully a fortnight later. It seems, therefore, pretty clear that we shall not have a full crop of June roses, though no doubt we shall have a good crop later on. Of course, we hope to get a good many flowers from the earliest growths, but there cannot be so many as in other years, when all parts of the plants started into growth at one time.

J. C. CLARKE.

MIMULUS CUPREUS MELLORI.

When visiting Mr. Samuel Barlow at Stakehill, a few days ago, I saw in his garden of many floral treasures a patch of brilliant orange-crimson dwarf mimulus, exceedingly free and highly effective, which was raised and given to Mr. Barlow by the late Thomas Mellor, of Ashton-under-Lyne. It is so good in every way, both as a pot plant and a bedder, that we determined then and there it deserved a name, and we further gave to it the name of its raiser. It appeared to be a great and decided advance on all the varieties of *Mimulus cupreus* I have yet seen, and this was also the opinion of Mr. Thomas Moore, who was at Stakehill at the time. Mr. Barlow is very proud of his possession, and he has every reason to be so.

R. DEAN.

HARDY FLOWERS ADAPTED TO TOWN GARDENS.

VERY few good hardy border flowers are to be met with in town gardens as a rule. Probably the selection of unsuitable sorts, which quickly die out, leaving only the remembrance of failure, is the principal cause of the rare appearance of any except the most robust of this class of hardy flowers in neighbourhoods where smoke and other pollutions of the air abound. Perhaps a more judicious selection of species and varieties having some pretensions to beauty as well as constitutional vigour to resist the effects of smut and foul air would lead to their more general adoption in the class of gardens alluded to, and the improvement of taste in them. That such a selection may be made if sought after may be judged of by the following list, which was noted in the Botanical Gardens, Liverpool, in the second week of the present month. These gardens may be regarded as the best test-ground in the kingdom for smoke-resisting plants—on three sides the breadth of the roadways only intervene between them, and the railways, with their huge engine sheds, chemical and other

manufactories, and the vast extent of the city, with its thousands of chimneys spreading out in every direction, and combining to produce as foul an atmosphere as can well be imagined; and as if to aggravate the evils of the position, the prevalent winds blow direct on the gardens over the greatest length and breadth of the city, leaving their smutty deposits everywhere. The consequences are too apparent on the majority of the hardy plants, particularly on the trees and shrubs; it may, therefore, be safely inferred that any plant which is found to succeed here will thrive in any similar atmosphere. I have some confidence, therefore, in recommending the plants named below to those of your readers who may have gardens to decorate in smoky parts: all were in full flower when they were noted:—

<i>Aquilegia Witmanni</i>	<i>Orobis repens</i>
<i>Aubrietia Mooreana</i>	<i>Phlox setacea</i>
<i>Armeria plantaginea</i>	" <i>verna</i>
" <i>vulgaris</i>	<i>Potentilla alba</i>
<i>Baptisia lutea</i>	<i>Ranunculus repens</i> fl. pl.
<i>Cardamine asarifolia</i>	" <i>Gouani</i>
" <i>pratensis</i> fl. pl.	" <i>uniflorus</i>
<i>Campanula glomerata</i>	" <i>ficaria</i> fl. pl.
<i>Dielytra eximia</i>	<i>Saxifraga atrovirens</i>
<i>Dianthus hybridus multiflorus</i>	" <i>spathulata</i>
<i>Dodecatheon giganteum</i>	" <i>platypetala</i>
<i>Geranium aconitifolium</i>	" <i>rotundifolia</i>
<i>Iberis corifolia</i>	" <i>granulata</i>
" <i>sempervirens</i>	<i>Silene maritima</i> fl. pl.
" <i>Tenoreana</i>	<i>Scilla verna</i>
" <i>superba</i>	<i>Stellaria Holostea</i>
" <i>linifolia</i>	<i>Tulipa persica</i>
" <i>saxatilis</i>	<i>Trollius asiaticus</i>
<i>Iris pumila</i>	" <i>altaicus</i>
" <i>germanica</i>	<i>Uvularia puberula</i>
<i>Orobis canescens</i>	—W. S., in <i>Gardeners' Chronicle</i> .

The Household.

ASPARAGUS SOUP.

ASPARAGUS soup is the most elegant and delicate dish of its kind, but somewhat troublesome to prepare, and decidedly costly when well done. As commonly served it is, in my opinion, poor in quality, but even then it is grateful, appetizing, and makes a seasonable and agreeable change. The way of preparing it described in the books produces a result that in my opinion is peculiarly unsatisfactory, and I shall endeavour to set forth a better way, having worked it out with care, and had the judgment of a competent tasting committee thereupon.

Directions for making a quart to three pints of soup will probably be most useful to a majority of readers. We shall want for the purpose some good white stock without any flavouring. I am at this time using a stock made from knuckle of veal: it is stout in quality and forms a bright jelly of a delicate amber colour. I take two large bundles of spruce asparagus and roughly chop across the green ends to reduce them to the size of peas and beans. The white hard ends I throw away. I thus obtain about a quart measure of minced asparagus, to which I add a pint of shelled peas, which must be young and fresh, and the green tops of about a dozen young onions. These I mix in an iron pot (porcelain lined), and lay on the top of the vegetables about two table-spoonfuls of the stock. The pot is then put over the gas stove or on the hot-plate of the kitchen in a very moderate heat for about half an hour. By this time the vegetables will be hot through and in a steaming state, and the jelly running down will prevent burning. Some cooks use butter instead of stock at this stage; but I object to the smallest particle of grease in any soup, and to assist what is called the "sweating" process find a little stock, or even water, far better.

When the vegetables have in some degree cooked in their own steam, I beat them with a wooden spoon and add a little more stock. The heat is raised and the stuff stewed away. Three several times I take it from the fire and beat and press the materials with the back of the spoon, adding a little more stock and putting it on again.

When the bulk is sufficient and the macerating process has produced a somewhat thick green soup, I proceed to the finishing. One large table-spoonful of flour is mixed with one smallish table-spoonful of Harvey's sauce and sufficient stock to make a thin smooth paste: there must be no other sauces used, or the delicacy of the soup will be ruined. About half an ounce of salt and the same of sugar must be added. The thin paste must be added to the bulk and well mixed with it, and if any more mashing is needed now is the time for it. So long as one whole pea can be seen there is proof that the mashing has not been carried far enough.

While the soup is once boiling up it must be stirred two or three times. When it has boiled a few minutes the next business will be to strain it into another pot. I find a strong conical tin strainer the most convenient: it is filled, and the wooden spoon is kept in action to help the fluid through, and the strainer is emptied into a dish and filled again, until in one pot you have the strained soup and in a dish a heap of the green refuse. It may be necessary to pass the soup through the strainer a second time to render it perfect. The final touch is to colour it. If well made it will be of a good colour already, but it may be considerably improved by adding a very little of Breton's green, which is a perfectly innocent and tasteless article, prepared expressly in aid of the cook. Soups of this description are usually coloured with spinach, but it is difficult to obtain the colour of spinach without obtaining some of the flavour also. In green-pea soup this is of little consequence, but asparagus soup is too delicate to permit of

any decisive flavour from elsewhere. It is better to secure from the grocer a bottle of Breton, the careful use of which will give the soup a most beautiful appearance.

A very little red or black pepper may be added for a table where a high flavouring prevails. But the soup should be tried first without pepper or any other flavouring. It should be quite smooth, with a fine flavour of asparagus, and should be served without toast or any accompaniment whatsoever.

The operator will discover modes of economizing material so as to reduce the cost of this soup, and it may be possible also to reduce the amount of labour which my method of procedure involves. If the whole of the vegetables could be quickly beaten or pressed into a pulp, either before cooking or during the process, it would be a great gain. According to my rough reckoning, this soup cannot be made on my plan under a cost of about seven shillings a quart; but then I am supposing that we go to the shop instead of the garden for supplies. A fairly good soup may be made by using water in place of veal stock, and that again will reduce the cost. Thus the cost may at last be so reduced as to be infinitesimal; and I remember with a feeling akin to that of the Israelites, when they lamented the loss of the fleshpots of Egypt, that but a few years ago I should have obtained all my vegetables direct from the garden in any desirable quantity at practically no cost whatever. When the soup is in daily request a little economy may be secured by a second boiling of the stock meat and the green refuse to form a second stock, which may be very good to begin with, in place of my bright amber stock of the first quality. I have reckoned the cost of my first quality on the average prices of materials in the last week of May, when I paid three shillings for two bundles of sprue, and one shilling for a pint of shelled peas, and eightpence per pound for knuckle of veal. With plentiful supplies from a garden and a good household stock of the ordinary kind, I think I could make nearly as good a soup at two shillings a quart. I cannot accomplish it in less than two hours, but means might be found, I am sure, to considerably reduce the time and the labour, X. Y. Z.

Literature.

Agricultural Depression, and How to Meet It. By A. J. BURROWS. (Rider).—The author has had experience as a land steward, and has been in various ways associated with agricultural industries and the management of estates. He is therefore in an advantageous position to tackle the problem of the day, and his book shows that he has clear views on the subject, and a distinct and rational policy. With the conservative caution that accompanies practical knowledge, he says, "Sudden transitions are seldom productive of lasting good, but some departure from the old routine will be found necessary if the farmer is to hold his own." What the departure should be in this or that particular case Mr. Burrows discusses with pleasant persuasions on a basis of facts.

Hot-Water Heating. By F. A. FAWKES, F.R.H.S. (171, Fleet Street).—It is a great advantage to the public when a specialist of extensive knowledge and ripe experience comes forward as a teacher, adding to his knowledge of his subject the capacity to teach. Mr. Fawkes, as our readers know, is a master of this subject, and in looking through his modest little book we see he has done what only a master can do—he has crammed into a small space more knowledge than many a man would have required a great book for.

The Ladies' Gazette of Fashion. (4, Ave Maria Lane).—Always bright, elegant, various, interesting, and original, the *Ladies' Gazette* is worthy of the ladies, and is no doubt lovingly edited by a ladies' man, to whom truth with elegance and progress with refinement are of greater preciousness than the temporary triumph of a thing made to catch the casual eye. If all our lady friends rally round their own gazette there will be justice done with mutual advantages. The *Ladies' Gazette* gazettes without a motto. But it seems to want one, and it should be, "God save the Queen."

Progress. By J. PLATT. (Simpkin and Co.)—It has been our privilege to read and recommend Mr. Platt's books on "Business," "Morality," "Money," "Life," and "Economy," and now, having read "Progress," we recommend it because it is likely to promote progress, not only in society, but in the mind and heart of the reader. Mr. Platt has no peculiar notions, no crotchets, no panaceas, but he has what crotchets-mongers and crotcheteers invariably lack, and he is judged by his positive and not by his negative qualities. He possesses much knowledge, and views the world in the light of common sense. Moreover, he has a happy way of saying in a happy way exactly what he means, both as to the causes of social evils and the only safe and wholesome remedies. Thus his book on Progress is as welcome as any one of the series with which his name is associated, and we advise our readers to read, mark, learn, and inwardly digest it from beginning to end. We understand Mr. Platt to say that he will not write any more books, and we wish him to understand that we say we owe him many thanks for a capital young man's library adapted for all who are anxious about the "conduct of life."

The Field Naturalist and Scientific Student.—No. 1 of this new paper is not only promising as regards the future, but is a good thing in itself. It introduces itself to public notice in a prolix preface, but the number contains excellent papers, and they relate to subjects of the most varying character. We especially commend to our readers Mr. E. Axon's article on the "Topographical Distribution of the Nightingale;" the Hon. Percy Wyndham's note on the "Sense of Locality in Animals," and the "Coming and Going of the Swallow," by a Manchester Pythagorean. There are many more good things. The *Field Naturalist*, judging by the present sample, will combine the features of "Recreative Science," "Notes and Queries," and "Science Gossip."

Haydn's Dictionary of Dates. (Ward and Lock).—The edition now publishing is brought down to the autumn of 1881, and has reached Part 9, which carries the work as far as the chronology of the Oude vice-royalty.

Amateur Work (Ward and Lock) continues its useful career, the number for June containing papers on Filters, Gasfittings, Photographic Apparatus, Violin Making, Stencilling, Electric Bells, and Woodworking Machinery. A sheet of designs is added to the usual batch of illustrations, and they are pretty enough to inspire any one with a passion for work.

Beeton's Dictionary of Science, Art, Literature, &c. (Ward and Lock) shows careful compilation, and the pictures are useful. Part 8, containing eighty closely-printed pages from Concertina to Deafness, is well filled with substantial articles, as well as all the needful alphabetical references. For the young man's library there are few books to equal this in respect of usefulness and cheapness.

From Messrs. Ward and Lock we have also received continuing parts of Dr. Adam Clark's *Commentary on the Bible*, Hallam's *Literature of Europe*, Rollin's *Ancient History*, D'Israeli's *Curiosities of Literature*; *Land, Sea, and Sky*; *Universal Instructor*; *Illustrated History of the World*; *Household Medicine*; *Epochs of History*; *Holy Thoughts on Holy Things*; *Scientific Recreations*; *Beeton's Book of Poetry*; *Thrift Book*; *Family Altar*; and *Sylvia's Home Journal*.

Exhibitions and Meetings.

ALEXANDRA PALACE.—EXHIBITION OF PELARGONIUMS AND FLORAL DECORATIONS, JUNE 10.

THE first of the series of horticultural exhibitions announced by the spirited lessees of the Alexandra Palace for the current year was held on Saturday last, and proved a decided success. The schedule included classes for show and fancy pelargoniums, decorated dinner tables, vases, bouquets, épergnes, and other decorations, and the liberal prizes provided ensured a spirited competition. In consequence of the preparations that were being made in the Central Hall for the great dog show, which has been held during the week, the collections of pelargoniums and the decorations were arranged, under the superintendence of Mr. J. Forsyth Johnson, in the exhibition department at the eastern end of the building, and the effect produced was eminently attractive.

SHOW AND FANCY PELARGONIUMS were exceedingly well shown by Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, and show varieties were presented in capital style by Mr. Hammond, York Lodge, Stamford Hill. In the class for nine show varieties Mr. Wiggins was first with large well-flowered specimens of Duchess of Bedford, Example, a splendid rose-coloured flower of excellent habit; Blue Bell, a very distinct flower, the lower petals deep rose-purple, the top dark maroon; Snowflake, white, with dark maroon-purple blotch; William Bull, Sultana, Princess of Denmark, Digby Grand, and Illuminator, one of the most brilliantly-coloured of the show varieties adapted for specimen culture. Mr. Hammond was second with specimens a size smaller than those staged by Mr. Wiggins, densely-flowered and highly finished. The premier award in the class for six fancies was made in favour of Mr. Wiggins, who had grand examples of Duchess of Edinburgh, Mrs. Hart, Lucy, Mrs. Alfred Wigan, Madame Sainton Dolby, and Goliath.

FLORAL DECORATIONS included a considerable number of very tastefully-decorated dinner tables, and an immense number of hand and buttonhole bouquets. The first prize for a dinner table for twelve persons was awarded to Miss Annie Williams, Upper Holloway, for an exceedingly tasteful arrangement. It had for the centre an elegant vase, the base dressed with orchids and other choice flowers and gladioli fronds, and the top with rhodanthe and cornflowers; at the ends were neat examples of Cocos Weddelliana, surrounded with flowers and fern fronds. Miss Stuart, Seven Sisters Road, Holloway, was second with an arrangement evincing much taste. In the class for a dinner table for six persons Miss Williams was again first with an exceedingly well-dressed table, although the centre stand was rather too large at the base in proportion to the size of the table. Miss Sperling was a capital second, and Mr. Buster, St. Mary's Cray, third. Mr. S. Abbot, Wanstead, also exhibited well in the class.

In competition for the prizes for a stand for the drawing room Miss Sperling was first with a large trumpet glass, very elegantly filled with flowers of white iris, the blue agapanthus, and grasses, and trailing over and twining round the stem was a spray of Cissus discolor. Miss Baines, Southgate, was second with a stand in which richness and lightness were happily combined, and Miss Clues, Chigwell, was third. For a hand basket of flowers Mr. J. Curtis was first, Miss Williams and Mr. Tomlinson, Wood Green, were equal seconds, and Miss Sperling was third.

The classes for bouquets were exceptionally well filled, and in that for a bride's bouquet Miss Williams was first with a very light and elegant arrangement, in which phalenopsis, eucharis, stephanotis, and bouvardias were employed; Mr. Prewitt, Swiss Nursery, Hammersmith, second; and Mr. Brown, Richmond, third. The first prize for three bridesmaid's bouquets was awarded to Mr. Prewitt for tasteful arrangements in the conventional style. Mr. Curtis was second with bouquets of flesh-coloured zonals and blue cornflowers, of a shape similar to that of an old-fashioned beehive; and Mr. Brown was third with bouquets which, if less striking than the second prize three, were decidedly more tasteful. In the corresponding class for bouquets for the ball room the successful competitors were Miss Stuart, Mr. Brown, and Mr. Curtis; and for bouquets of wild flowers Miss Baines, Mr. Buster, and Mr. Prewitt were first, second, and third respectively. The prizetakers for six buttonhole bouquets were Miss Williams, Miss Sperling, and Miss Baines.

There was a good competition in the classes for baskets of plants and of cut flowers; but in that for decorated arches it was not good. The leading competitors in the class for a rustic basket were Mr. Taylor and Mr. Tomlinson, of Wood Green, who were first and second respectively. The prizes for pairs of vases were awarded to Miss Williams, Miss Clues, and Miss Sperling, and the premier award for a fern case was made in favour of Miss Williams. The two competitors for the prizes offered for a decorated arch were Miss Williams and Miss Sperling, but the decorations were so weak and ineffective as to be far below the work done by these two exhibitors in the other classes.

ROYAL HORTICULTURAL SOCIETY.—PROMENADE SHOW, AND MEETING OF FLORAL AND FRUIT COMMITTEES, JUNE 13.

On this occasion the upper arcades were embellished with attractive collections of miscellaneous plants and floral decorations, and the council room was well filled with novelties possessing much merit, as indicated by the large number of certificates awarded. In the western arcade Mr. B. S. Williams, Upper Holloway, and Messrs. J. Veitch and Sons had large and attractive collections of flowering and fine-foliage plants, and Messrs. Hooper and Co. and Messrs. Barr and Sugden extensive collections of cut flowers of a most interesting character. In the western arcade there was also an excellent collection of plants from the society's gardens at Chiswick. This comprised show, decorative, and zonal pelargoniums, fuchsias, gloxinias, and a host of miscellaneous plants, and was remarkable not less for the taste evinced in its arrangement than for the great excellency of the subjects of which it consisted. In the eastern arcade Mr. Noble had numerous large specimen rhododendrons, which, arranged in conjunction with palms and ferns, produced a striking effect. In the same arcade was a group of fruit trees in pots from Messrs. T. Rivers and Son, Sawbridge-worth, amongst which were well-fruited examples of Lord Napier nectarine and Early Rivers and Early Guigne cherries. The firm also exhibited several splendid dishes of the nectarine above mentioned, and dishes of Guigne d'Annonay, Frogmore Bigarreau, and Bigarreau do Schreken cherries, and Conkling peaches. Mr. Brown, Richmond, exhibited a dressed dinner table, on which the arrangements were of the most tasteful character, and Messrs. Smith and Lake, Kensington, exhibited baskets of flowers and bouquets.

Messrs. H. Cannell and Sons, Swanley, exhibited a splendid collection of double petunias in a cut state. The collection comprised about one hundred blooms in a high state of development, and representing the finest varieties in cultivation. The firm had also cut flowers of tuberous begonias and other subjects, and were accorded a vote of thanks. A like compliment was paid to Mr. T. S. Ware, Tottenham, for a collection of cut flowers, in which were fine bouquets of the handsome *Orchis foliosa* and the exquisitely beautiful *Cypripedium spectabile*. G. F. Wilson, Esq., Weybridge, was accorded a vote of thanks for a nice specimen of *Masdevallia polysticta*, and Mr. Salter, Streatham, was awarded a cultural commendation for a grand example of *Cattleya Warneri*.

The most important contributions before the Fruit Committee were the splendid samples of Sutton's Late Queen broccoli, one of the very finest of the varieties for cutting in May and June, from Messrs. Sutton and Sons, Reading, and several specimens of Carters' new Perpetual Parsley, from Messrs. James Carter and Co., of High Holborn. This strain of parsley is most densely curled, and is remarkable for the length of time the plants stand without seeding, as exemplified by the examples exhibited, which were four years old, and showed no signs whatever of running to seed. Mr. Parr, Leatherhead, exhibited good dishes of Sir J. Paxton strawberry and Brown Turkey fig.

First-class Certificates were granted as under:—

To Messrs. J. Veitch and Sons, King's Road, Chelsea, for

Aerides formosum.—A very distinct and attractive form, supposed to be a natural hybrid between *A. Larpentae* and *A. odoratum*. The flowers, which are produced in long and elegant racemes, are of large size and splendid form; the sepals and petals blush lightly tipped with rose, the labellum blush richly spotted with purple and marked down the centre with a broad purple band.

Nepenthes Mastersiana.—A beautiful species, the growth rather dwarf; the pitchers large, somewhat cylindrical, and of a rich bronzy red colour. It appears to produce its pitchers very freely, and is a valuable addition to the high-coloured forms.

Rhododendron balsamiflorum.—A garden hybrid with tubular double flowers of a bright salmon colour. Very attractive, and likely to attain a high position amongst greenhouse rhododendrons.

Adiantum Legrandi.—A garden variety which may be briefly described as a very dense-growing form of the well-known and much-appreciated *A. gracillimum*. It will form a capital companion to *A. Pacotti* and *A. Bournei*, two handsome dense forms of *A. euneatum*, which have been certificated this season.

Gloxinia Robin Hood.—A superb erect-flowered variety; the flowers large, stout, and of splendid form, the limb deep glowing crimson, the colour extending down the tube, and the lobes margined with bright salmon-pink.

Gloxinia Garibaldi.—A brilliantly-coloured erect variety; the flowers of full size and splendid form, the limb bright scarlet, the interior of the tube rich rose. A great advance upon the high-coloured gloxinias at present in cultivation.

To Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, for *Masdevallia Harryana striata*.—A striking variety, bearing large flowers marked with broad bands of mauve. One of the most distinct and attractive varieties of this splendid orchid.

Cattleya gigas burfordiensis.—A magnificent variety of this splendid cattleya, remarkable for the immense size and superb colouring of its flowers. The plant exhibited was furnished with one spike bearing five or six flowers, each measuring nine inches across; the labellum rich amethyst-purple, and fully three inches wide.

To Mr. G. Smith, Edmonton, for

Pelargonium Gratitudo.—A fine show variety of a quite distinct style of colour; the flowers are large, smooth, and perfectly circular in form, the lower petals rose-lilac, with maroon-purple spot, the top maroon shading to rose-red at the margin. It has a compact free-branching habit.

To M. Lemoine, Nancy, for

Pelargonium Comtesse Horace de Choiseul.—A superb variety, belonging to the ivy-leaved section, and bearing double flowers. It has a vigorous habit, and the flowers, which are produced in fine trusses, are large and of a bright rose-pink. An admirable addition to its class.

To Messrs. Wood and Ingram, Huntingdon, for

Lobelia pumila Ingrami.—A valuable variety, of the same type as *Pumila magnifica*, and bearing pure white flowers. It is reported to be a grand bedder, and is likely to acquire a high degree of popularity for the embellishment of the flower garden. Without question it is a great improvement on the other white lobelias.

To Messrs. J. and J. Hayes, Edmonton, for

Pelargonium Gold Mine.—A decorative variety remarkable for its fine

habit and brilliant colour; the flowers are borne in good trusses, and are of a bright scarlet colour with small dark blotch on the upper petals.

To Mr. T. S. Ware, Tottenham, for

Lilium elegans robustum.—A superb variety, the flowers deep golden yellow spotted with crimson, and of grand form.

To Messrs. J. Laing and Co. for

Begonia Hon. and Rev. J. T. Roscawen.—A splendid single form; the flowers very large and of splendid shape; the colour rich red; the habit compact and free branching. Invaluable for specimens.

To W. Cobb, Esq., Silverdale Lodge, Sydenham, for

Odonoglossum vexillarium Cobbianum.—A lovely variety, differing from the species in having a pure white labellum.

To Messrs. Heath and Son, Cheltenham, for

Viola Champion.—A free-flowering form bearing cream-coloured flowers of medium size. Evidently a splendid bedder.

To Mr. G. Duffield, Winchmore Hill, for

Carnation Charles Page.—A free-growing perpetual or tree variety, producing a profusion of large beautifully-shaped flowers of a bright red colour.

PELARGONIUM SOCIETY.

The committee of the Pelargonium Society held a meeting at South Kensington on Tuesday, and conferred first-class certificates upon *Gratitudo*, *Gold Mine*, and *Madame Horace de Choiseul*, described above. They also had before them flowers of a superb ivy-leaved variety, under the name of *Masterpiece*, from Mr. George, and a stand of trusses of *Lady Brooke*, a regal variety with purplish flowers, from Mr. Stacey, of Dunmow; and a request was made that a well-grown plant of each should be submitted to the committee.

SOUTH ESSEX FLORICULTURAL SOCIETY, JUNE 14.

The annual exhibition of this flourishing society was held on Wednesday last in the grounds attached to the residence of J. G. Barclay, Esq., at Knotts Green, Leyton, and both in extent and the excellency of the productions was fully up to the high average of previous years. Stove and greenhouse plants in bloom, which invariably form a strong feature at the exhibitions of this society, were staged in splendid condition, and ornamental-leaved plants were admirably represented, and of soft-wooded plants there was a remarkably fine display. Table decorations, hand bouquets, and collections of cut flowers were sufficient to nearly fill a large tent, and formed a feature of the most attractive character. Of fruit there was a capital display, and vegetables were staged in immense numbers and in a condition that left but little to be desired. The arrangements were as usual of the most satisfactory character, and Mr. Donald, the chairman of the committee, and Mr. Cox, the secretary, may be heartily congratulated on the results of their labours.

STOVE AND GREENHOUSE PLANTS in bloom were contributed in large numbers, and in the finest possible condition. In the great class for eight Mr. Donald, gardener to J. G. Barclay, Esq., Knotts Green, was first with immense and superbly-flowered specimens of *Hedera tulipifera*, *H. fuchsoides*, *Adenandra fragrans*, *Statice profusa*, *Stephanotis floribunda*, *Clerodendron Balfouriana*, and *Ixora Fraseri*, one of the finest of the light red varieties; Mr. J. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, second with medium-sized and excellent specimens of *Ixora Williamsi* and other good things; Mr. Monk, gardener to W. Fowler, Esq., M.P., third, with a capital group. The first prize for four heaths was awarded to Mr. Donald for beautifully-flowered specimens of *Erica Candolleana* and other good kinds. In competition for the prizes for a single specimen Mr. Douglas was first with a grand mass of *Anthurium Scherzerianum*, and Mr. Donald and Mr. Monk were equal second with *Dracophyllum gracile* and *Clerodendron Balfouriana* respectively. In a miscellaneous group Mr. Donald staged a superbly-flowered specimen of the elegant and exceedingly beautiful *Boronia elatior*.

ORCHIDS were represented by seven or eight collections, and, as all the specimens of which they consisted were more or less good, they formed a very important feature. In the class for eight Mr. Douglas was a capital first with fine specimens of *Odontoglossum Roezli*, *Calanthe veratrifolia*, *Cattleya Mossiae*, *Dendrobium Devonianum*, *Laelia purpurata*, and *Dendrobium Dalhousianum*, the latter with about twelve splendidly-developed racemes. Mr. Gilks, gardener to A. Borwick, Esq., Higham Hill, was a good second with neat beautifully-flowered examples, amongst which the richly-coloured *Masdevallia Harryana* was conspicuous. The premier award in the class for four was made in favour of Mr. Monk, who had a charming group; and J. R. Scott, Esq., and Mr. Merritt, Walthamstow, were second and third respectively. The competition was very strong in the class for a specimen orchid, and Mr. Gilks was first with *Laelia purpurata*, Mr. Douglas second with *Cattleya Warneri*, and Mr. Monk and Mr. Foster were equal third with *Dendrobium nobile* and *Dendrobium Devonianum* respectively.

FINE-FOLIAGE PLANTS were sufficiently numerous to form a striking relief to the flowering plants, and the whole of the specimens were more or less good. In the class for six Mr. Douglas was first with a capital group, in which were *Croton Weismanni* and *Kentia Canterburyana*; Mr. Donald second with medium-sized specimens, amongst which a well-coloured example of *Croton Disraeli* was conspicuous; Mr. Monk third. For four Mr. Fitch was first. There was a spirited competition for four palms, and Mr. Donald was first, having amongst others a fine specimen of the elegant *Kentia australis*; Mr. Peters second. The principal exhibitors of coleus were Mr. Monk, Mr. Fisher, and Mr. Fitch, who were first, second, and third respectively in the class for six. The finest specimen in the first prize lot was that of Mr. George Simpson; and in the second collection Mons. Hardy, one of the best of the splashed varieties, was presented in capital style.

SOFT-WOODED PLANTS IN BLOOM included calceolarias, zonal and show pelargoniums, fuchsias, cockscombs, and gloxinias. The first place in the class for six show pelargoniums was occupied by Mr. Donald with neat densely-flowered specimens of *Ruth*, *Maid of Honour*, *Claribel*, *Archduchess*, *Mrs. Bradshaw*, and *Peregrine*. In the class for four Mr. Dumble was a capital first. Zonal pelargoniums were plentiful and good. Mr. Crook, Leytonstone, was first for six with superbly-flowered and fresh examples of well-known varieties; Mr. Donald a close second, and Mr. Winter a good third. Fuchsias were of exceptional merit, particularly those for which

Mr. Donald was awarded the first prize in the class for six. Very excellent also were the specimens staged in the open class for four by Mr. Monk, and in the corresponding class for amateurs by Mr. Dumble. Mr. Winter also exhibited well in the open class for four. Gloxinias were presented in splendid style by Mr. Monk, Mr. Biggs, and Mr. Barton; and calceolarias were admirably shown by Mr. Donald, Mr. Monk, and Mr. Merritt. Mr. Monk had the finest six cockscombs, and Mr. Crook had nicely-grown examples.

FERNS included exotic and British kinds, and constituted a pleasing feature. In the amateurs' class for four Mr. Sutton Abbott was first with a charming group, the specimens of medium size and exceedingly fresh; Mr. Short second. For six, open, Mr. Douglas was first, closely followed by Mr. Barton and Mr. Donald, who were second and third. The first prize in the open class for four was awarded to Mr. Monk, who had a splendid specimen of *Todea superba*, and a second place was assigned Mr. Peters. The prizetakers for six British ferns were Mr. Gilks, Mr. Donald, and Mr. Merritt, all of whom staged collections of a highly meritorious character. Mr. Douglas and Mr. Peters presented excellent collections of selaginellas, and were first and second in the class provided for these subjects.

TABLE DECORATIONS, BOUQUETS, AND COLLECTIONS OF CUT FLOWERS were so numerous and good that they proved a great source of attraction to the visitors. In competition for the prizes for a single stand Mr. Sutton Abbott was first with an extremely elegant arrangement, Mr. Medland second, and Mr. Short third. In the amateurs' class for three stands Mr. Medland was first with arrangements evincing taste of the highest order, and Mr. Sutton Abbott was a close second. The ladies' class for three stands was well filled, and the first prize was awarded to Mrs. Douglas for stands dressed in the most artistic manner, and Mrs. Abbott and Miss Abbott were equal second with arrangements of which it would be difficult to speak too highly. Mr. Gilks had a good single stand. Mr. Fitch obtained the premier award for six plants for the dinner table, and Messrs. Douglas, Merritt, and Peters were successful in taking the prizes for buttonhole bouquets.

VEGETABLES were represented by over a dozen collections of great excellency, and differing but little in relative merit. In the class for a collection of eight kinds Mr. Donald was first, Mr. Douglas and Mr. Monk equal second, and Mr. Gilks third. In the open class for six Mr. Mallett occupied the post of honour, and in the corresponding class for amateurs Mr. Garwood was first.

FRUIT was plentiful for so early in the summer, and remarkable for its high quality. Splendid dishes of Black Hamburg were shown in the class for black grapes by Mr. Biggs, Mr. Darvill, and Mr. Searing, and in the class for white grapes Mr. Douglas had an excellent dish of Buckland Sweetwater. Excellent cherries and strawberries were shown by Mr. Donald and Mr. Douglas, and a good pine-apple was staged by Mr. Donald.

MISCELLANEOUS CONTRIBUTIONS included a large collection of fine-foliage and flowering plants from Mr. B. S. Williams, and a group of flowering plants from Mr. Hart, Leyton, in both of which the orchids were especially good.

TOMATOES.

By WILLIAM COLE, The Grove Vineyard, Feltham.

TOMATOES have of late years become so highly esteemed in the English household that their cultivation now constitutes an important phase of garden practice. It accordingly no longer suffices to grow a few plants for the production of an autumn crop of fruit for conversion into sauce; a supply of fruit must be maintained over a considerable period, and in many instances it is necessary to supply the table with ripe fruit throughout the year. The production of a continuous supply of tomatoes has been described by some writers who have not had much experience as an easy matter. But it is not so, and those who have had a fair amount of experience, and possess the convenience of structures well suited for the accommodation of tomatoes, find it necessary to devote much time and thought to the work. Without the aid of properly-heated houses or pits it is not practicable to produce supplies extending over a long period; for, although tomatoes do not absolutely require houses wholly to themselves, they must have a rather high temperature to ensure a healthy growth and an abundant production of fruit. It is, of course, preferable to grow them in separate structures, a small lean-to being preferable, especially during the autumn, winter, and spring; but they will do very well in any of the forcing houses and in the cucumber pit, provided they are placed in a position where they will have a fair share of light.

To give a better idea of the work, it is desirable to say at the outset that when two houses cannot be devoted exclusively to the tomatoes it will be necessary to grow them in pots, and have four batches each year. The first batch to be raised in June, for affording supplies during October and the two following months; the second in August, for continuing the supply from mid-winter to the end of April; the third in January, for supplying the table from the early part of May until the end of July; and the fourth in March, for filling up the gap between the month last mentioned and the beginning of October.

The stock of plants raised in June should be obtained from seed, which should be sown in the usual way, and placed in a cucumber frame or melon pit, where it will have the assistance of a temperature of 70 degrees or 75 degrees. When the seedlings are of a suitable size pot off separately, using a light compost and small sixties, and keep rather close and warm until well established; then harden off by placing for a short time in a cold pit, and immediately the pots are filled with roots shift into five-inch pots. From these transfer as soon as more root space is requisite into pots nine inches in diameter, in which they should remain until destroyed in the spring to make way for a young stock. Larger pots than these are not required for the strongest plants, and in all cases too much root space is promo-

tive of an undue luxuriance of growth. The pots must be well drained, and the compost should be substantial without being rich, a mixture of turfy loam four parts and well-rotted manure one part being preferable. From the time they are put in the five-inch pots until the end of August, or the first week in September, a warm sheltered position, such as the foot of a south wall, will be the most suitable for them. They will require the support of stakes and a little stopping and training, and when removed from the outdoor quarters place them in a light and airy structure, in which they can have the assistance of a temperature of 60 degrees. Here, with a little attention in supplying them with water, they will soon commence to ripen the earliest of their fruits, and under ordinary circumstances will produce successional supplies until quite the end of the year.

The second, or August stock, should also be raised from seed sown in precisely the same manner as advised for the June sowing. The young plants must similarly be potted off and shifted on at the several stages, but the pots for the final shift must be eight instead of nine inches. They must be grown entirely under glass, and as the solar heat declines and the nights become cold the fire must be started, and a temperature of 60 deg. be maintained. A light position and a brisk temperature such as is here advised are essential to success, and as after the end of October the flowers are shy in setting, and the development of the fruit very slow, the cultivator must, to ensure supplies in January, endeavour to obtain a good sprinkling of fruit upon the plants before the autumn is far advanced.

The third stock of plants, which under good culture will furnish supplies throughout the latter part of the spring and until nearly the end of the summer, should be raised in January. The stock may be raised from seeds or cuttings, the plants from cuttings being preferable, as they produce a more short-jointed growth and come into bearing in less time than the seedlings; points by no means wanting in importance. The tops of medium-size and rather firm shoots make the best cuttings, and they should be taken off close under a joint, and after the two lower leaves have been removed be inserted singly in small sixties filled with a light sandy mixture. The pots ought then to be placed in a warm corner of one of the forcing houses, and if they can be plunged in a brisk hotbed the cuttings will strike more readily. Great care is necessary in watering them, and they should have only just sufficient moisture to prevent the leaves flagging to a material extent. The seedlings should be raised in accordance with the usual practice, and need not be further referred to than to say that they should be potted off singly when large enough to handle and be placed in a light position. It is, in fact, necessary to place plants both from cuttings and seeds near the glass during the winter to prevent their becoming drawn and weakly. The young stock must have the aid of a brisk temperature from the first, one ranging from 65 deg. to 70 deg. being the most suitable. The plants should be potted out in the same way as those in June, and be fruited in pots of precisely the same size. After they have filled the pots with roots and the days lengthen they will require rather liberal supplies of water, with an occasional dose of liquid manure. The growth will require a moderate amount of stopping and training, and it can be supported by stakes fixed in the pots, or be trained under the glass, or against the back wall, as may be most convenient, the precaution being taken in the latter case to place them where they will enjoy a full share of light. They ought to enjoy a rather free circulation of air without exposure to cold currents, which in the early part of the year are, it need hardly be said, most injurious.

The stock to be raised in March for fruiting chiefly out of doors may be propagated by means of seed or cuttings, as in the case of the January batch. Probably the best course is to strike a few cuttings when they are to be had to furnish fruit at the end of July and early in August, and to raise the principal portion of the stock from seed. Whether from seed or cuttings, they must be grown on in pots until they can be planted out at the end of May or early in June. To prevent any loss of time, they should be shifted into five or six inch pots as soon as they have filled with roots the small sixties in which they were first put, as by so doing a gain of two or three weeks will be effected. Tomatoes cannot well have too hot a position when out of doors, and where practicable they should be planted against a south wall or fence. The next best suitable position is on a south border, with the branches supported by stakes. A rather light and moderately rich soil is preferable, and where the soil is naturally heavy it is a most excellent plan to form a border at the foot of the wall or fence about two feet in width, and from ten to fifteen inches above the general level. It may be formed with soil from the surface of the quarters, and a moderate proportion of some coarse grit, or with a specially-prepared compost of maiden loam, grit, leaf-mould, and manure. After they are put out the growth must be regularly trained to the wall, and as soon as sufficient fruit is set the laterals must be removed as fast as they make their appearance. The clusters of fruit will require full exposure to the sunlight, and large leaves that shade them should be moved on one side; but the practice adopted by some growers of cutting away the large leaves cannot be recommended.

PORTABLE POULTRY HOUSES, Movable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOUTON and PAUL, Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating and refreshing Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

Replies to Queries.

Subscriber.—The removal of anything from a place without proper authority is wrong, and may be a theft or an indiscretion according to circumstances. The case you cite we regard as an indiscretion.

Exhibitor.—It is customary to enter in schedules and other official documents, "ferns and fine-foliage plants." This establishes a distinction between ferns and fine-foliage plants, and as ferns are a large and peculiar class of plants, the distinction is useful. By fine-foliage plants we are to understand such things as crotons, dracaenas, marantas, sanchezias, and other subjects that attract by their leafage, and cannot well be grouped in any botanical relationship. The judges were right in the case you refer to.

Names of Plants.—J. H., Lancaster.—Your fine fern is *Pteris grandifolia*. J. N., Brickley.—1, Spreading Millet, *Milium effusum*; 2, Wood Melic, *Melica uniflora*; 3, Meadow Foxtail, *Alopecurus pratensis*; 4, Tall Rescue, *Festuca elatior*. J. Parsons.—1, *Philadelphus floribundus*; 2, *Phillyrea media*; 3, *Hamodendron argenteum*; 4, *Kolreuteria paniculata*. Subscriber.—1, *Asplenium flabellatum*; 2, *Asplenium rhizophorum*; 3, *Callistemon rigidum*; 4, *Polystichum angulare proliferum*; 5, *Adiantum formosum*.

PROTECTION TO THE ORCHARD.

By DR. J. A. WARDER.

From the "Proceedings of the American Pomological Society."

In the opening of this discussion, the first question that must arise in our minds will be: What dangers threaten us, and from what injuries are we anxious to protect our property?

Leaving aside and out of consideration the inroads of intruders, whether these be responsible human beings or their domestic animals, for whose intrusion their owners are made responsible by the laws of our civilization, let us address ourselves to the injuries effected by natural agencies, some of which may perhaps appear to be quite beyond our control as to their movements, their coming and their going; and yet even these climatic conditions may prove to be, in a degree at least, within the control of our preventive measures by means of *Provision* and *Protection*. For, though it be proverbial that the wind bloweth where it listeth, and the frost biteth where it striketh, still we may, in a great degree, protect our orchards from the sweeping winds, both hot and cold, for both are equally injurious. We may, in many cases, avoid the disasters incident to driving storms of hail and sleet, as well as from those arising from frosts and thaws, or from sunshine and extraordinary heats, and we may protect our crops in a good degree from sudden changes of temperature.

All these may, and often do, prove sources of greater or less injury to our orchards, and they may all be met or avoided as disturbing agencies by the use of judicious preventives, or by avoidance of exposure to their malign influences.

The effects of some of these causes must be familiar to you all, who have seen the results of the wind's action in causing the growing trees to lean away from the stormy quarter, producing crooked and exposed trunks that become diseased. The same forces may shake off the fruit prematurely and will often break the branches, especially when laden with their heavy burden of fruit, and thus produce much damage.

In winter the winds often desiccate the twigs and buds so completely, in long-continued sleety storms, as to destroy their vitality and blacken the pith of the shoots, thus causing great injury.

In the spring-time wind storms, especially those which are accompanied by low temperature, will blow off the pollen, or prevent its proper development, and thus blast our cherished hopes of a bounteous fruit crop; or, later in the season, when the hot south winds come with their desolating breath, we may see our brightest anticipations dissipated by the drying up of the sap, the desiccation of the fruit and foliage, while the meridional sun scalds and partially cooks the former, and browns or burns the latter, which looks as though it were scorched with fire—truly a dismal and discouraging spectacle to the ardent fruit grower.

But you may say that these are natural conditions of the elements, and incidental to the climate of portions of our country, and you may conclude that they are wholly beyond our control, thus reaching the sorry conclusion of many an unfortunate prairie settler, who feels powerless to combat such disasters, who gives up in despair, and for ever relinquishes fruit growing, declaring it impossible, in such an unequal contest with the elements. All such are urged to consider the possibilities, to observe what has been done, to learn how they have succeeded, and adopting the motto of *Nil desperandum*, to try, try again, as others have done, who have at length attained success where at first there was nothing but failures.

Having thus rapidly passed in review some of the hindrances to success, let us now consider some of the means which are at hand for the protection of our orchards, and for the prevention or avoidance of these disasters.

These consist in ranges of higher lands or mountains, elevated sites for the orchards; sometimes sheltered valleys may be favourably situated. Again, one may count upon the protective efficacy of bodies of water, of fogs, of clouds, and even of smoke artificially and intentionally produced. But we may confidently rely upon the protection furnished by forests, groves, wind-breaks, or shelter-helts, by hedges, fences, walls, and buildings. These are some of the various agencies that may enable us to avoid the dreaded injuries, or that will afford us the much needed protection from their inroads.

In the selection of sites for our orchards we may exercise our ingenuity and use the results of observation in such a way as to avoid much damage. Some tracts of land are naturally protected from the angry storms of the seacoast, or from the cutting winds that flow from extensive stretches of prairie and open plain by ranges of highlands, wooded or bare, that will ward off the winds and protect them from their deleterious influence. Where such safeguards cannot be commanded tracts of woodland afford efficient barriers from their inroads.

Valleys, and indeed all depressions of the earth's surface, are found to be colder by some degrees than the surrounding uplands of moderate elevation: they have a wider range of temperature, and yet they some-

times escape the damage of storms which pass over these narrow depressions, striking only the parallel ridges on either side. Then again there are many valleys which are peculiarly adapted to fruit-growing, on account of their geological construction and their surroundings. This advantage may be dependent upon their sheltered condition, being shut in from harsh winds, like the mistral of southern Europe, or it may arise from the reflection and alternate radiation of heat from the adjacent sharp escarpments of the enclosing barriers of mountains, which produce a warmer local atmosphere that is undisturbed by the storms which sweep over and among the higher regions without reaching the air of these valleys. Of such a character are some of the favoured and fertile glens of southern Europe, in which the vine, the fig, the orange, and the olive are successfully cultivated, even in the immediate proximity of the perpetual snows of the frigid glaciers of the alpine summits around and above them.

Lakes, seas, and rivers often afford protection by moderating the temperature of air-currents passing over them, as well as by their fogs, that, like clouds, prevent excessive cooling by radiation of heat, and thus fogs shelter the tender buds, blossoms, and fruit from the influence of the bright sunshine of a frosty morning. In this way they act like a vapour-bath.

Unfortunately fogs, like the clouds, are an uncertain quantity, irregular in their appearance, and are therefore unreliable as a means of protection, but the modifying influence of large bodies of deep water is of vast importance to the success of the fruit crop, in the protection of which they act in two opposite directions, in the autumn, winter, and spring seasons, blowing both hot and cold, as it were; they extend the genial season, by warding off autumnal frosts, they moderate the rigours of winter, and retard the advances of vegetation in the spring until the summer has really set in and the vernal frosts have been passed. The season of vegetation is not shortened by this arrangement, and the aggregate temperature requisite for the ripening of such delicate fruits as the peach, the grape, and even the fig, is provided in many points along our northern lakes in latitudes which, without such advantages, would be impracticable for their successful cultivation.

The operation of these agencies is interesting, and may be here briefly indicated: In the autumn the water long retains a share of the summer's temperature, which it imparts to the air flowing over it, making a genial climate at that season. Even in the midst of winter, the great mass of water away from the shore-ice remains at a temperature some degrees above the freezing point, and it must needs affect the temperature of cold air-currents that pass over it, so that the atmosphere of the shores upon which they impinge is never so cold, within a few miles of a lake, as it is further inland.

Another great advantage arising from these bodies of water, that are partially covered with ice in the winter, is their influence in retarding the advances of vegetation in the spring, as already alluded to; so long as any ice remains afloat, the temperature of the whole body of water continues nearly at the freezing point, and the air coming in contact with it is cooled to such a degree that vegetation along shore is retarded until all danger from spring frosts is dispelled by the heats of summer, when all vegetable life pushes forth with full vigour, and without receiving any checks. Where such bodies of water do not exist to lend their happy influence water has been topically applied to prevent injury from late spring frosts, in using a simple device, by those who may have little understood the philosophy of its action. Thus, in the frosty limestone valleys of Pennsylvania, the Germans protect the peach blossoms by placing a tub of water beneath the tree, and after wetting a loosely-twisted rope of straw, this is led from the tub among and over the branches and left there for the night, with the desired result. The humid atmosphere produced by evaporation of the liquid thus carried up by capillary action furnished the needed protection from the frost.

Under similar conditions of the atmosphere smoke has also been used with advantage. A smothered fire, producing a dense smudge, if placed to the windward side of the trees to be protected, will, in a comparatively still night, envelop the orchard with a cloud, that acts as a hindrance to radiation of the earth's caloric, rather than by providing any perceptible heat from the fire.

Mere elevation of the orchard site above surrounding valleys will often afford the desired immunity from frosts, especially in the spring season; cold air having greater specific gravity will naturally flow off and settle to the lowest places, above which the atmosphere will remain warmer, since all the cooling effect produced by radiation arises from direct contact of the lower stratum of the air with the earth's surface. Hence we hear of the "Frost Line" or limit, being at some definite elevation above the valleys or drainage level of the country; this point is especially noted in broken, hilly, or mountainous regions, where it often happens that fruits which fail to be productive in the lowlands succeed admirably on the ridges.

But the frost-line is sometimes comparatively low, and even in gently rolling lands, as in some prairie regions, the elevation will often escape frosts that prove disastrous on the lower lands: this immunity is always most apparent where the rise or fall is abrupt, so that the heavy stratum of cold air may rapidly escape.

It should be remembered that those late spring frosts are always worst when the atmosphere is calm and at rest, because, when otherwise, the winds tend to mingle the cold air of the lower strata with the warmer air above it, that has not been chilled by contact with the radiating surface; this fact is so well known that we frequently hear the remark on breezy evenings, "There will be no frost to-night unless the wind lulls."

This much is presented respecting the natural means of protection, and though beyond the reach of our providing, their benefits may be secured for our advantage, where they exist, if we but apply the knowledge gained by observation, and if we use provision in selecting the site of a fruit farm. Let us now turn to the consideration of other means which are more subject to our wills, and more dependent upon our own efforts to make provision for the protection of our orchards.

The great and the available means of protection, and such as are applicable to all situations, but which are especially valuable in the great interior level regions of our continent, are derived from the preservation, and from the planting anew of trees. The natural forests exercise a most important influence upon climate, and in many parts of the country we already begin to realize the sad results of their too extensive removal.

Where the sheltering influence of broad areas of forest lands is absent, from whatever cause, beneficial effects may still be obtained, in the way of protection from winds, by the judicious location of artificial groves, of greater or less extent, which will afford the desired relief, in greatly modifying the local climate. Groves of forest trees also contribute to the beauty of the landscape; they may be quickly produced, and they will furnish valuable and continuous crops of most useful material that is essential for the comfort and convenience of civilized man, so that the lands appropriated to their cultivation are by no means to be counted as wasted or lost to the country; on the contrary, these groves are a source of profit in many ways.

Wind-breaks or shelter-belts are an essential element of successful farming in all prairie regions. So too, in many parts of our once wooded country, where man's cupidity has induced him, in a few short years, to obliterate all traces of the original forest over large contiguous tracts of the fertile soil, we are simulating the conditions of the prairie country. This is painfully apparent not only in parts of our own States, but it is also especially noteworthy in the level plateaus of the Province of Ontario. Here, too, we already find great need for the planting and care of these shelter-belts as a means of protection from the winds of winter.

The wind-break may consist of a single line of trees planted along the divisions of the fields, or it may more satisfactorily be made up of several rows, occupying a strip of land, three, four, or more rods in width. The ground must be well prepared for planting, and the trees should be set closely together, and well cultivated for a few years, until their shade covers the ground, when they may be allowed to take care of themselves. The time required will depend upon the character of the plants used, as some will grow more rapidly than others, and are sooner able to take care of themselves.

In these shelters both deciduous and evergreen trees may be used, but it is best to plant them separately. Evergreens are the most effective, and a narrower belt will yield the needed protection; nor need trees of this class be planted so closely as the deciduous, because their lateral branches will occupy the spaces between the shafts and complete the screen. Among the evergreens adapted to this purpose are the native White Pine, the Scotch and Austrian Pines, the Red Pine, and even the Pitch Pine on thin soils; the spruces, particularly the tall-growing Norway Spruce, are highly recommended, and the Hemlock in soils adapted to it, as well as the American Arbor-Vite, and the common Red Cedar, which last adapts itself to so great a variety of soils as to succeed anywhere.

The selection of deciduous trees for these belts may be left to the taste and judgment of the planter, but the prairie settler is advised to observe nature's pioneers in his first planting, and to select those hardy species, the Cotton Woods, Box Elders, Green Ash, the Elms and Soft Maple, with the foreign White Willow, all hardy and adapted to the climate; after these have become established the evergreens may be planted under their lee, and the first part may be thickly set with acorns and other nuts, to supplement the pioneers as they may be removed.

It were well to plant these storm barriers on the windward sides of our fields, but in an open country the intervals between them should not exceed eighty rods, and it may be found desirable to have the shelter belts much closer, or to introduce hedgerows of single lines of trees between the fields. The beneficial effects of these wind-breaks are not restricted to the winter season, for in windy countries the farmer and orchardist suffers as much from the hot and drying winds of summer, at which season also he will frequently derive great benefit from the partial shading produced by these rows of trees.

Hedges will furnish a good deal of protection, and they should be introduced where the means already mentioned are not to be applied. They may also be well introduced as minor subdivisions of the farm, and are especially useful about the orchards as a means of protection, not only from the elements but from other intrusions. For this purpose the Osage Orange is invaluable, and to the northward the Buckthorn, but as a mere protective agency, against winds, the evergreens are more potent; of these the common Arbor-Vite, the Hemlock Spruce, and even the common Red Cedar, are invaluable, but the taller-growing Norway Spruce, with its general adaptation to almost all soils, is preferable, and may be considered the best of all trees for a shelter edge.

Evergreens, especially the conifers, may be advantageously introduced here and there among our fruit trees. When so placed they have been known to protect the trees near them, while the rest of the orchard has lost its fruit. Be not afraid of losing the space thus occupied, for these interlopers pay a good rent, and they second our efforts in fruit growing both in summer and in winter; the partial shade is often greatly beneficial at both seasons. We are all familiar with the injurious effects of sunshine in the summer solstice, and some of us are becoming aware of the trying conditions caused by violent alternations of temperature that occur in a bright winter's day, when two thermometers suspended on opposite sides of the same tree—one in sunshine, the other in the shade—will indicate a difference of more than one hundred degrees. A most trying ordeal, one might think, for organized vegetable tissues.

Even fences and walls afford no inconsiderable degree of protection to our fruits by breaking the force of the winds, and the latter also, by radiating heat at night, help, in no mean degree, to equalize the extremes of temperature, which are often very trying to our fruits. In England, as well as on the Continent of Europe, the fruit gardens are inclosed with walls, that are sometimes built hollow, and may be supplied with artificial heat. Some are also furnished with a coping from which shelters are suspended in severe weather, and thus the proprietors are enabled to produce delicate fruits that could not withstand the rigours of the climate if exposed. In the same way the shelter of buildings should always be utilized by training vines and fruit trees upon their walls.

As a summary of the means of prevision and provision to effect the protection of our orchards and fruit trees, the list is here repeated:—

Ridges of elevated lands, or ranges of mountains across the direction of the prevailing storm, will ward off their rigours.

Aspect and the elevation of the orchard site above the frost line promise favourable results. Sheltered valleys are sometimes successfully planted with fruits.

Masses of water, with their influence upon the temperature of the air, both in winter and spring, insure the safety of our crops, even in high latitudes.

Fogs prevent the action of frosts, and are often very beneficial, but they are unreliable.

Smoke or smudge will act as a cloud in checking the radiation of heat that might produce a killing frost.

All these natural features may be taken advantage of where they exist and may be used as means of prevision by the acute and well-informed orchardist.

Where the sheltering woodlands have been removed by man, and where they do not naturally exist, the following means may be, and should be, provided by the careful cultivator as a means of protection to his orchards.

Forests, natural or artificial.

Groves and Copses, judiciously placed.

Artificial Wind-breaks or Shelter-belts, at moderate intervals, and set across the lines of the prevailing summer and winter winds.

Hedgerows of trees between the fields.

Hedges for shelter, as subdivisions of the farm and around the orchards or fruit gardens.

Trees, deciduous or evergreen, scattered through the orchards.

Walls and close fences, particularly about the gardens. The sides of buildings should also be utilized.

Obituary.

ON the 16th of May, at his residence in Rochester, N.Y., Mr. JAMES VICK, the well-known editor of *Vick's Illustrated Monthly Magazine*, which has often been recommended to our readers for its elegant and homely advocacy of outdoor recreations. Mr. Vick was born at Portsmouth, November 23, 1818. He went to America in 1833, and practised successively the several occupations of printer, editor, publisher, and merchant. He may be said to have glided into the seed and plant trade, and probably was always more of an amateur than a trader in the products of the garden. Mr. Mehan says, "No man in his day has so endeared himself to the people."

Markets.

COVENT GARDEN.

FRUIT.

Figs.....	per doz.	5s. 0d.	7s. 6d.
Gooseberries, Green, 3 sieve	2s. 0d.	3s. 0d.	
Grapes.....	per lb.	1s. 6d.	4s. 0d.
Lemons.....	per 100	5s. 0d.	7s. 0d.
Melons.....	each	2s. 0d.	3s. 6d.
Oranges.....	per 100	4s. 0d.	8s. 0d.
Peaches.....	per doz.	7s. 6d.	15s. 0d.
Pine-apples, Eng.	per lb.	2s. 6d.	4s. 0d.
Strawberries.....		1s. 0d.	2s. 6d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d.	6s. 0d.
Beans, French.....	per 100	0s. 8d.
Beet.....	per doz.	1s. 0d.
Cabbages.....	per doz.	1s. 0d.
Carrots.....	per bunch	0s. 4d.
Cauliflowers, Eng., per dz.	2s. 0d.	4s. 0d.
Cucumbers.....	each	0s. 4d.
Endive.....	per doz.	1s. 0d.
Garlic.....	per lb.	0s. 10d.
Herbs.....	per bunch	0s. 2d.
Horse-radish.....	per bundle	0s. 2d.
Lettuces, Cabbage, per dz.	0s. 4d.	0s. 6d.
Lettuces, Cos.....	0s. 4d.	1s. 0d.
Mint, Green.....	per bunch	0s. 3d.
Mushrooms.....	per basket	1s. 6d.
Onion Spring.....	per bunch	0s. 4d.
Parsley.....	per quart	1s. 0d.
Peas.....	per bunch	0s. 1d.
Radishes.....	per pun.	0s. 3d.
Small Salading.....	per bushel	2s. 0d.
Spinach.....	per lb.	1s. 0d.
Tomatoes.....	per bunch	0s. 4d.
Turnips.....	per bunch	0s. 4d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d.	0s. 6d.
Bouvardias.....	per bunch	1s. 0d.
Calceolarias, per doz. bun.	5s. 0d.	10s. 0d.
Callas.....	per doz.	3s. 0d.
Campanulas, per doz. bun.	7s. 6d.	15s. 0d.
Carnations, per doz. blms.	1s. 0d.	2s. 0d.
Cornflowers, per doz. bun.	3s. 0d.	4s. 0d.
Eucharis.....	per doz.	4s. 0d.
Fuchsias.....	per doz. bun.	5s. 0d.
Gardenias, per doz. blooms	2s. 0d.	6s. 0d.
Gladioli.....	per doz. bun.	7s. 6d.
Heliotropiums.....	sprays	0s. 6d.
Lapagerias, per doz. blms.	1s. 0d.	5s. 0d.
Lilium longiflorum, per doz. blooms	4s. 0d.	6s. 0d.
Lilium candidum, per doz. blooms	1s. 6d.	2s. 6d.
Marguerites, per doz. bun.	4s. 0d.	6s. 0d.
Mignonette.....	per doz.	4s. 0d.
Pansies.....	per doz.	1s. 0d.
Paeonies.....	per doz. blooms	1s. 0d.
Pelargoniums.....	per doz.	0s. 9d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d.	0s. 8d.
Pinks.....	per doz. bun.	3s. 0d.
Pyrethrums.....	per doz.	2s. 0d.
Rhodanthe.....	per doz.	7s. 6d.
Roses.....	per doz.	0s. 6d.
Roses, Tea.....	per doz.	1s. 0d.
Stephanotis floribunda, per doz. sprays	2s. 0d.	4s. 0d.
Stocks.....	per doz. bun.	3s. 0d.
Tropaeolum.....	per doz.	1s. 0d.

CORN.—MARK LANE.

Wheat, Red, new.....	per qr.	35s. to 52s.
Wheat, White, new.....		35s. „ 55s.
Flour, town-made whites, per sack of 280lbs.		40s. „ 43s.
Flour, household.....		37s. „ 39s.
Flour, country households, best makes		35s. „ 41s.
Flour, Norfolk and other seconds		32s. „ 34s.
Barley, Malting.....	per qr.	30s. „ 50s.
Barley, Grinding.....		20s. „ 30s.
Malt, English.....		35s. „ 50s.
Malt, Scotch.....		35s. „ 43s.
Malt, old.....		25s. „ 35s.
Malt, brown.....		30s. „ 32s.
Oats, English.....		22s. „ 30s.
Oats, Irish.....		22s. „ 26s.
Oats, Scotch.....		22s. „ 30s.
Rye.....		42s. „ 45s.
Beans, English, Mazagan		36s. „ 40s.
Beans, Tick.....		38s. „ 44s.
Beans, Winter.....		39s. „ 44s.
Peas, Grey.....		30s. „ 36s.
Peas, Maple.....		40s. „ 45s.
Peas, White.....		36s. „ 44s.

HAY MARKET.

Prime Clover.....	per load	100s. to 132s.
Inferior do.....		70s. „ 95s.
Prime Meadow Hay ..		100s. „ 118s.
Inferior do.....		60s. „ 90s.
Straw.....		30s. „ 55s.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.		
Old Flukes	per ton	100s. to 110s.
Old Magnum Bonums ..		100s. „ 110s.
Old Champions	„	40s. „ 70s.
Old Victorias		90s. „ 110s.
New Cherbourg Rounds	per cwt.	8s. 6d.
„ Kidneys		10s. 6d.
New Jersey Rounds		9s. 0d.
„ Kidneys		11s. „ 12s. 0d.

The imports of potatoes from the Channel Islands are, as usual at this period, beginning to be heavy. Received during the week from Jersey, 16,224 bushels and 65 tons; from Cherbourg, 1,171 cases and 2,600 bags; from St. Malo, 2,073 packages; and from Harfleur, 310 cases and 1,055 bushels.

METROPOLITAN MEAT MARKET.

Beef, prime large.....	per 8 lbs.	4s. 10d. to 5s. 4d.
Beef, „ small.....		5s. 2d. „ 5s. 6d.
Beef, middling ..		4s. 4d. „ 4s. 8d.
Beef, inferior.....		6s. 4d. „ 6s. 6d.
Mutton, prime.....		4s. 4d. „ 4s. 6d.
Mutton, middling ..		3s. 6d. „ 4s. 0d.
Mutton, inferior ..		6s. 4d. „ 7s. 0d.
Lamb.....		6s. 0d. „ 6s. 4d.
Veal.....		3s. 4d. „ 4s. 0d.
Pork, large.....		4s. 2d. „ 4s. 8d.
Pork, small.....		4s. 2d. „ 4s. 8d.

COAL MARKET.

Wallsend—South Hetton.....	per ton	10s. 0d.
„ Lambton.....		15s. 6d.
„ Tees.....		10s. 0d.
„ Hawthorn.....		14s. 9d.
„ Wear.....		14s. 6d.

MONEY MARKET.

Consols.....	100½ to 100¾
Reduced 3 per cent.....	100¾ „ 100½

"SPRING'S DELIGHTS" can only be actually realized by those who live in healthy houses, and who combine known sanitary measures for the prevention of such infectious diseases as smallpox, scarlet fever, and measles. The remedy actually becomes a luxury when the washing of Toilet, Bath, and Nursery is conducted with WRIGHT'S COAL TAR SOAP. Refuse all imitations, which are but dangerous counterfeits.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M.t.m.p. avg. of 40° Ch. Wick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	South ^{as} after Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
1882	S	3rd Sunday after Trinity.	3 46	2 19	8 10	2 17	—	8 10	8 40	5 10	5 35	62.1	<i>Brodiaea congesta</i> , H.	Blue.	1882
25	M	Inundation in France, 1875.	3 46	2 32	8 18	3 25	0 17	9 10	9 47	6 15	6 35	62.2	<i>Chrysanthemum frutescens</i> , G.	White.	176
26	Tu	Bosmer Trial Trips, 1875.	3 46	2 44	8 18	4 33	0 44	10 22	10 50	7 12	7 47	62.3	<i>Cypripedium spectabile</i> , n. ... Rose and White.	177	
27	W	Coronation Day.	3 46	2 56	8 18	5 39	1 20	11 25	11 55	8 15	8 50	62.4	<i>Dianthus plumarius</i> fl. pl., H.	Red	178
28	Th	St. Peter.	3 47	3 8	8 18	6 40	2 4	—	0 29	9 20	9 45	62.5	<i>Erica tricolor</i> Wilsoni, G.	Red.	179
29	F	William Roscoe died, 1831.	3 47	3 20	8 18	7 33	2 59	0 46	1 10	10 11	10 35	62.6	<i>Ixora Williamsi</i> , S.	Orange-red.	180
		JULY.													
1	S	O Full Moon, 6h. 8m. morn.	3 48	3 32	8 18	8 18	4 6	1 35	1 57	11 0	11 22	62.7	<i>Rondeletia speciosa</i> , S.	Red.	181

The Gardeners' Magazine.

SATURDAY, JUNE 24, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, JUNE 27.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Pelargonium Exhibition, 1 p.m.; General Meeting, 3 p.m.

TUESDAY, JUNE 27.—PELARGONIUM SOCIETY.—Exhibition in the Gardens of the R.H.S., at South Kensington.

TUESDAY, JUNE 27.—THORNTON HEATH HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, JUNE 27, to THURSDAY, JUNE 29.—DUDLEY.—Flower Show.

WEDNESDAY, JUNE 28.—HITCHIN ROSE SOCIETY.—Annual Exhibition.

WEDNESDAY, JUNE 28, and THURSDAY, JUNE 29.—LEE and BLACKHEATH HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, JUNE 28.—CROYDON HORTICULTURAL SOCIETY.—Summer Exhibition.

WEDNESDAY, JUNE 28.—NATIONAL ROSE SOCIETY.—Southern Exhibition, at Bath.

THURSDAY, JUNE 29.—WEST OF ENGLAND ROSE SOCIETY.—Exhibition at Hereford.

THURSDAY, JUNE 29.—GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Anniversary Festival, at the Albion, Aldersgate Street.

THURSDAY, JUNE 29.—HORSHAM ROSE SOCIETY.—Annual Exhibition.

THURSDAY, JUNE 29.—RICHMOND HORTICULTURAL SOCIETY.—Summer Exhibition.

THURSDAY, JUNE 29.—FARNINGHAM ROSE SOCIETY.—Annual Exhibition.

FRIDAY, JUNE 30.—MANSION HOUSE.—Exhibition of Roses.

SATURDAY, JULY 1.—CRYSTAL PALACE.—Great Rose Show.

SATURDAY, JULY 1.—REIGATE ROSE SOCIETY.—Annual Exhibition.

"HOW TO OVERCOME THE POTATO DISEASE" is the title of an essay by Mr. J. L. JENSEN, director of the "Bureau Cérés," Copenhagen an English version of which, by Mr. J. PEDERSEN, has been published by Messrs. Menzies.* Having read scores, perhaps hundreds—of papers in pamphlet form on the subject of potato disease, we could not in the first instance regard with kindly feeling Mr. Jensen's addition to the potato library. But as the proof of the pudding is in the eating, so the perusal of a book helps one more directly to a judgment of its value than to look at the title-page and shake one's head. It is fortunate, in behalf of international courtesy, that the work of our Danish friend may with propriety be recommended to the attention of all who take more than a casual interest in this important subject. It contains no proposals of an extravagant or fanciful nature; it rests upon no peculiar theories, and it does not torment us by even so much as an allusion to the inscrutable power of electricity. The reader familiar with the class of literature to which this book belongs may dismiss the fears his readings have engendered, for this is a rational book, dealing with facts that are beyond dispute, and making proposals that are certainly not ridiculous. These negative virtues are of some account, but the positive value of Mr. Jensen's proposals remains to be determined by experiment and observation.

It is not intended in this notice to present anything like a *résumé* of the sixty-four octavo pages that are before us. But we will endeavour to indicate the nature of the practical pivot on which the proposals of our friend revolve. It happens that there is ample time for testing all his assertions and recommendations, so that when the present season closes we may be in a position to

* "How to Overcome the Potato Disease, by a Simple and Easily Performed Method of Cultivation, Proved by Experiments and Corresponding Investigations." By J. L. JENSEN. John Menzies and Co., Edinburgh and Glasgow. No. 895, NEW SERIES.—VOL. XXV.

determine whether we have really learned "how to overcome the Potato Disease."

It will be remembered by readers of the Magazine that amongst our own proposals for the advantage of the cultivation, careful, successive, and slight mouldings have been recommended. Mr. Jensen also lays stress on the importance of care in this matter. At page 17 he says, "Early and high moulding does, under all normal circumstances, reduce the yield somewhat." But to abstain from moulding is a mistake, because the uppermost tubers are in that case liable to become exposed to the air, and to be rendered uneatable in consequence. It is not long since we said that early, sudden, and excessive moulding might actually obliterate the crop, and it seems that the writer of this paper has arrived at a similar conclusion. But why talk of moulding before setting forth the plan proposed to "overcome" the disease? For this good reason, that a system of moulding is recommended for that purpose, and is called "protective" moulding. The early mouldings and stirrings of the earth between the rows are called, for distinction's sake, "productive" mouldings, because they favour the growth of a good crop, but do nothing—or, at all events, very little—to protect it from disease.

Mr. Jensen's teachings agree with our own in another matter. At page 13 he makes the declaration that it is useless to cope with the enemy above ground by any doctoring of the leaves or removal of the shaws, and he seems to doubt if the disease reaches the roots through the shaws or haulm, as it has been commonly supposed to do. He says, "If (at harvest time) the weather is rainy, the result will, according to our experience, be the final destruction, by the fungus, of nearly all the leaves of the majority of potato fields." If, then, we cannot fight the enemy in the open field, we must fight him after the manner of a siege, and if possible cut off his supplies and destroy him by starvation. In order to justify his plans, Mr. Jensen considers that the spores of the fungus fall from the infected leaves upon the ground, and are washed in by the rain, and in this way reach and ravish the tubers. He tells us that the tubers nearest the surface are the soonest and the most seriously affected, and not only so, but that the disease first attacks them on their upper sides, as if to prove to demonstration that the crop is exposed to danger in exact proportion to the liability of the spores being washed down upon them. Having these points clearly in mind, the cultivator is to practise "productive" moulding to ensure the growth of a good crop; and he is to watch for the proper time to bring into action the "protective" moulding, that is intended to save it from destruction.

The time for this proceeding is when the crop, being nearly full grown and yet requiring time to mature, is endangered by the disease having already appeared upon the leaves. Let us now have the exact words of the author on this, the main proposal of his book. At page 19 occurs the following:—

"According to the results of the experiments, a covering of earth about 4 inches thick above the upper surface of the uppermost tubers will suffice to almost perfectly protect the tubers against the disease. Now, suppose that the flat-moulding has left the ridges about 4 inches high, then, under ordinary circumstances, the uppermost tubers will be covered with about 1 inch of earth; an additional covering, 3 inches high, will therefore be needed. But in heaping up this covering, the ditch from which the earth is taken will ordinarily be deepened 2 to 3 inches, and thus we have a ridge the top of which is 9-10 inches above the bottom of the ditch, but only about 5 inches above the original level of the ground. As the height of the ridges, by sliding down and settling of the earth, will gradually decrease the covering should be made an inch higher than stated, at which rate the entire height of the ridge immediately after the moulding will be 10 to 12 inches, and the 5 inches of earth over the uppermost tubers will by-and-by decrease to about 4 inches."

We seem to hear a murmur to the effect that there is nothing new in this. There is certainly nothing new in moulding up potatoes in every way imaginable, and some of the ways are beneficial and some others are injurious. It is quite certain that where the general conditions are favourable a good crop may be secured without moulding, and if some of the topmost tubers are green it may not matter, because they, at least, may be set aside for seed. But Mr. Jensen may justly claim that he has devised a scientific system of moulding, the first being for Production and to afford a basis for the second, which is for Protection. The protective moulding, he suggests, may be accomplished in two different ways, to accommodate cultivation by hand or by machinery. To

back up the crop celery fashion will need the spade in the hands of an experienced workman; but to accomplish this on a large plantation by means of machinery will be a difficult matter. In this case we are advised to bend over the tops and mould up on one side only. The spores will then be shed in the trench at a depth of perhaps ten inches from the top of the ridge, where they will not readily reach the growing tubers. "With this bending of the tops moderation must be observed; at any rate, the inclination ought to be half-erect (forming an angle of 45 deg. with the water-level), as otherwise the plants will suffer too much, and we suppose a somewhat less inclination will suffice for the purpose. It will be apparent that the flat moulding is a preparation for the protective moulding also in this sense, that it affords room for a ridge sufficiently large to hold firm the bent tops in the desired direction."

It must be understood that we have, in the foregoing remarks, referred only to the central idea of Mr. Jensen's paper. It contains much that a potato grower may consider with interest, and possibly with advantage, and goes a long way towards completeness as a practical treatise on the whole subject of the cultivation of the noble tuber. Mr. Pedersen has made a good translation, but it might have been improved by a slight brushing over by an experienced English editor. It matters little, however, if we now and then trace the hand of the Dane in the English text, for every point of importance is clearly stated, and there is scarcely a superfluous word in the paper from first to last.

MAJOR FLOOD PAGE has resigned the post of manager of the Crystal Palace, and applications are desired for the appointment, which is worth £750 per annum.

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.—The Summer Show will be held in the grounds of Hanger Hill House, on Wednesday, July 12; and the Chrysanthemum show in the Drill Hall, Ealing, Wednesday, November 22.

ZONAL PELARGONIUMS in pots on a window sill near Finsbury Park lived through the past winter, and were only slightly killed back in their soft green tops. Having been pruned and refreshed with a top dressing, they are now in vigorous health and flowering freely in the same pots as they were in last year.

A DOUBLE DARK PANSY, sent up from Swanley by Mr. Cannell, is sufficiently novel, sufficiently double, and sufficiently ugly. The late Mr. Benton favoured double pansies, but the world went not with him in the matter, and those that he raised or selected have long since been forgotten. This new double of Mr. Cannell's is one of the finest of the class we have seen, but it reminds us of old times as though we had seen it before.

MESSRS. SUTTON AND SONS' SEEDLING GLOXINIAS illustrate in a striking manner the persistence of a race in respect of those characters which in flowers are too often considered transitory. In these gloxinias we have all the colours and styles that are recognized as desirable, with high quality, abundant variety, and great vigour of constitution. A large glass dish filled with the flowers makes a glorious show on our table, and suggests one of the many uses to which gloxinias may be devoted, in addition to their services as plants, in the conservatory.

THE ANNUAL LUNCHEON OF THE PELARGONIUM SOCIETY will take place this year in connexion with the exhibition at South Kensington on Tuesday next, instead of later in the year at Chiswick. As the society's exhibition will be visited by the guests expected from Belgium, the Council of the Royal Horticultural Society and the Committee of the Pelargonium Society have arranged for a joint meeting of a semi-festive kind, which it is hoped will afford an agreeable opportunity for friendly intercourse between the English and Belgian horticulturists. As the time is so near at hand, it will be impossible to invite friends as we would wish, but there will be no difficulty in the way of those who desire to be present. The luncheon will be served in a tent in the gardens of the R.H.S. on Tuesday next, June 27, at 2 p.m. Those who desire to have seats reserved for them will be provided for at a charge of 21s. each, and communications on the subject may be addressed to Dr. Masters, F.R.S., 41, Wellington Street, Covent Garden, W.C., or to Mr. Shirley Hibberd, 15, Brownwood Park, London, N.

A VISIT OF BELGIAN HORTICULTURISTS TO LONDON having been arranged for, a committee of reception has been formed, and a programme of operations prepared to keep the guests well employed, and, as it is hoped, to render their visit agreeable. As the case stands at this moment, the following is the order of business: *Monday*, June 26, trip to Swanley fruit farms. *Tuesday*, June 27, joint reception of visitors by representatives of Royal Horticultural Society and Pelargonium Society; luncheon at two p.m. The R.H.S. will be represented by Lord Aberdare, Dr. Hogg, and Dr. Masters; the Pelargonium Society by Messrs. Thomas Moore, H. Little, and Shirley Hibberd. *Wednesday*, June 28, to Cliveden and Dropmore. *Thursday*, June 29, market gardens of Twickenham and district. Visitors invited to dinner of Gardeners' Royal Benevolent Institution, at Albion, Aldersgate Street. *Friday*, June 30, fruit gardens and orchards of Maidstone and district. *Saturday*, July 1, Kew, Richmond, Sion; luncheon at Star and Garter. Should there be time to spare, other visits will be made, but there is probably enough determined on, and we trust our guests will have strength to accomplish all that is set out for them.

Calls at Nurseries.

MR. WILLIAM BULL'S EXHIBITION OF ORCHIDS.

MR. BULL'S display of orchids in his nurseries, King's Road, Chelsea, justifies all that he has himself said of it as a remarkable spectacle. It is a kind of thing we are unused to, and it cannot surprise any one who sees it that Mr. Bull refrains for a season from sending specimen orchids to exhibitions. For the present they are *en fête* at home, and their appearance is altogether glorious. The house devoted to the principal display is heaped up in the centre with Odontoglossums, Cattleyas, Oncidiums, and miscellaneous orchids, all in the fullest perfection of freshness and colour, and the beautiful Odontoglossum vexillarium gives a special tone to the whole display, for Mr. Bull is extravagantly rich in this species and its several varieties. Here we find it in half a dozen shades of colour, and in specimen form as well as in smallish plants that command only moderate prices. One of the loveliest plants in the exhibition is a specimen of this odontoglossum at the lower end of the house, with its great garlands of rosy flowers in perfectly natural contour, without a tie or any restraint whatever. Amongst the varieties, one that impresses us by its beauty is named Bicolor, the lower segments of which are of a pure white. Of this there are several fine plants. A variety of Odontoglossum citrosimum we thought unique in colouring, the prevailing tint being a kind of olive-tinted cream colour, the flowers large, and the spike almost massive. Being in proximity to the gorgeous Cattleya Mendeli and C. gigas, of which there are several fine varieties, this delicate beauty attracts attention by its relative lack of colour. Sobralia macrantha and S. Rückeri are very showy; Masdevallia Harryana cœrulea is a marvel of colour, the normal crimson tone being intensified and at the same time softened by a wash of blue, which brings it up to what we suppose to be true "Tyrian die." Of Dendrobiums, we noticed D. Dalhousianum in fine trim, with its peculiar yellowish buff-coloured flowers. Of other well-known orchids there are innumerable examples, and there are not many that compel admiration more readily than the delicate Odontoglossum Alexandræ.

MR. B. S. WILLIAMS'S EXHIBITION OF ORCHIDS.

In the fourth house of the principal range on the way down the main walk of the Victoria Nurseries, Upper Holloway, may be seen a rich and peculiar display of specimen orchids, and if these do not suffice many more may be found in other houses close at hand and easy of access. Here the most telling subjects are the Vandas and Dendrobiums, which are in the "forefront of the battle," and carry their colour nearly to the roof. Of Vanda suavis, V. tricolor, and V. insignis there are sumptuous specimens that sparkle with fresh colour upon a basis of grand healthy leafage. The showy Dendrobium thyrsiflorum is not often seen in the perfection in which it appears here at the present time, and of D. densiflorum, D. calceolus, and D. chrysanthum there are not wanting fine specimens. Varieties of Cattleyas are conspicuous for their splendour, C. gigas, C. superba, and C. Warneri being fine, while as to C. Mossii there is a peculiarly rich collection. A plant of Lælia purpurata commands attention for its fine bloom and purity of colour, this popular orchid being too often poorly grown. There are many glorious Odontoglossums in the collection, the varieties of O. Alexandræ making quite a feature. In the houses apart from the show house may be found many of the miniature orchids that do not attract popular attention, but are valued by amateurs who can appreciate the more delicate as well as the more showy subjects.

It is agreeable to notice that many hardy plants in the open borders here present a healthy and fresh appearance, as though but little affected by the nearness of the metropolis. But the general aspects of these interesting nurseries teach us how absolutely necessary is glass when anything beyond the most commonplace gardening is attempted near a smoky town. The palms, cycads, dracænas, ferns, and hard-wooded flowering plants here glisten with health, although the place is buried amidst houses and exposed to the dust of a busy thoroughfare. In this transition time, while the home garden is yet cold and flowerless, the amateur may do well to make calls at good nurseries.

THE WEATHER continues to perplex and distress those whose interests are directly associated with outdoor vegetation. Midsummer has arrived, and until within the past two or three days the temperature has been wintry and the rainfall inconvenient, if not injurious. The truth must be confessed that the country does not look well, and that the hay crop is in jeopardy. But there is a gleam of hope in the fact that the barometer appears to be acquiring steadiness, and we will indulge the hope that a term of sunny weather is at hand.

"THE PLAGUE OF CATERPILLARS."—A great discussion has arisen as to the reason of the plague of caterpillars which appear to be destroying our British oaks. Some say that it is the deficiency of the insect-eating birds which causes the plague, while others maintain that it is the sickness of the trees which renders them liable to this plague, and that that sickness was caused in 1881 by the severity of the two previous winters, but in 1882 by the fierce gale of April 29th, which certainly scared the horse-chestnuts and hawthorn trees on the side on which it struck them almost as if it had been rather flame than wind. We doubt both explanations. It is certainly true that, on the whole, the little birds have been unusually numerous this spring, instead of unusually deficient, for which, no doubt, we have to thank Mr. Dillwyn's Wild Birds Act; so that it is hardly possible to account for the increase of the caterpillars by the decrease of their hereditary foes. And again, it is not at all easy to suppose that a wind which did not seriously injure either the beech, the elm, or the lime, should have taken such effect on the oaks as to have more than compensated for the mild winter. Perhaps some "protective" variation has taken place in this destructive oak-leaf caterpillar which makes it unpalatable to the insect-eating birds, but this guess is so disagreeable and ominous that we earnestly hope that it may be false. It is a plain duty to let all the young rooks and bullfinches of this generation grow to maturity, and see what they may be able to effect in the way of making war on the oak caterpillars.

—Spectator.

NEW NOTES ON PYRETHRUMS.

By W. JOHNSON.

FEW matters belonging to the garden have afforded me more genuine satisfaction than to note the high degree of popularity to which the pyrethrums have attained of late years. It appeared at one time as if it were quite impossible to persuade the general body of cultivators to take to them in earnest. In the nurseries in which hardy plants receive due attention were year after year displays of the most attractive description; yet amateurs were shy in planting them, the professionals showed them but little favour, and it was impossible to allude to the flowers without expressing regret that they were so little appreciated. Now they are not lacking in appreciation, and it is an almost every-day experience during May and June to see most excellent displays in large and small gardens alike. I am unable to say exactly how long I have grown the pyrethrums, but for ten or twelve years past they have contributed in no small degree to the attractions of my garden during May and June, and have formed as it were an admirable connecting link between the flowers of the spring and the flowers of the summer. We have no hardy plants to equal them in their season, and none of the tender bedders can be compared with them, for the simple reason that not until quite the end of May can they be planted out. As usual, our display has been simply magnificent, and I mention the fact for the purpose of stating that pyrethrums are but little influenced by the winter, for after severe and mild winters alike they bloom most satisfactorily. Spring frosts and periods of drought affect them but little, and the character of the soil would appear to be a matter of but little consequence, for one day we see them in the finest possible condition on a heavy undrained clay, and the next flowering as freely as could be on a soil so light that many subjects will not thrive in it without receiving special care. As still further showing their accommodating character, it may be mentioned that they grow vigorously and bloom superbly in town gardens, provided they are not so enclosed with buildings or trees that they are altogether deprived of the beneficial influence of sunlight. Indeed, some of the finest displays I have seen have been in gardens within four miles' radius of Charing Cross. For the information of those who are still unacquainted with the pyrethrums, it may be added that they are of dwarf tufted growth, attaining, when in bloom, a height ranging from one to two feet, the flowers being somewhat similar in form to the asters, and affording a great diversity of colour. In the double flowers, which are the most effective in the garden, we have pure white, and shades of crimson, purple, rose, pink, blush, and cream. The single flowers include also the most brilliant magenta and the richest crimson, and from their light and elegant appearance they are of special value for indoor decorations in a cut state, whilst presenting a bright and attractive appearance in the flower garden. The single flowers do not last so long in perfection, either on the plants or when cut, as the doubles.

From the foregoing remarks it will have been gathered that the cultivation of pyrethrums is exceedingly simple, and that failures are well-nigh impossible. Nevertheless, like many other subjects that may be grown with a fair amount of success under conditions unfavourable to many classes of plants, their cultural requirements should be carefully complied with. The usual seasons in which pyrethrums are planted are spring and autumn, and they are in every way suitable for the work; but there is no occasion to wait until the autumn, when the spring is missed; they can be planted in the summer with as full an assurance of success as at any other season of the year, and those who plant at the end of June or the beginning of July will gain a season. The merest scrap planted in the summer will bloom next season, for immediately the roots begin to extend to the new soil growth will commence, and under ordinary circumstances will continue until the autumn, with the result that the smallest examples will become strong tufts by the time the cold weather puts a stop to further progress. When the planting is done in the autumn, it must not be delayed until so late that there is not sufficient time for them to become established by the winter, for when this is the case there is some risk of their being injured during the winter, particularly if the soil is naturally cold and heavy. They may be grown in beds and borders by themselves, but it cannot be recommended, excepting for the production of blooms for exhibition and indoor decoration. Their proper place is the mixed border, and distributed in large clumps at regular intervals, and with due regard to the colours, they are very effective. There is no necessity for clearing the border before putting them out, as they can be arranged between the tender bedders and the permanent occupants of the border without in any way interfering with them or being injured by the subjects with which they are associated. Attaining a height ranging from one to two feet when in bloom, the second and third rows are the most suitable for the pyrethrums, and when planted the clumps should be about six feet apart.

In the matter of soil few hardy plants are more accommodating, but, as in the case of a host of other good things, a moderately deep, decidedly rich, and a well-worked soil is the best. In planting them amongst the other things, the soil at each station should be stirred as deeply as convenient with the trowel or a hand fork, and a little well-rotted manure or leaf-mould added. Unless small plants from a nursery bed are employed, it is not necessary to put more than one in each station, for those of moderate size will form good clumps by the autumn and bloom freely in the year following.

When planted, they may remain until they become too large, or indicate by a want of vigour and the diminished size of the flowers that the soil has become exhausted. It is, of course, practicable to maintain them in the most vigorous condition for an almost indefinite

period by annual dressings of old hotbed manure or some good artificial, carefully forked in within reach of the roots. The end of August or early in September is a capital time for lifting the clumps, whether for restoring the fertility of the soil, planting elsewhere, or for the increase of the stock. When lifted, they should be broken up into two, three, or four parts according to their size, unless it is desired to increase any particular variety to the fullest possible extent. Then the clumps may be divided into as many portions as there are crowns, but such small portions must be wintered in a cold frame either in pots or in a bed of light sandy soil, and be planted out in the spring.

Stocks may be readily obtained from seed, but the raising of seedlings is not a work in which those who have not much space can be advised to engage. A very large proportion will be quite worthless; some will be second-rate, and very few will be equal to the best of those now obtainable under name. The seed should be sown before the end of June in pans filled with light sandy soil. Place the pans in a cold frame, shade during bright weather, and maintain the soil in a nice moist state. Immediately the seedlings are becoming crowded prick off into other pans or into boxes to strengthen, and in a fortnight or three weeks plant in nursery beds; the rows to be eight inches apart, and the space between the plants four or five inches. The seed may be sown in the open bed, and the seedlings can be put into nursery beds direct from the seed pans, but it is in every way preferable to follow the advice here given. When the seedlings are first put in the nursery beds, they must be carefully watered as often as may be necessary to maintain the soil in a nice moist state. The plants also that are put in the mixed border should be assisted during the first two or three weeks with an occasional watering if the weather happens to be dry.

Owing to the large number of varieties in cultivation, and the want of distinctness in many of them, considerable care is necessary in selecting to avoid loading the collection with duplicates. The following comprise some of the finest that have yet been introduced in cultivation, and will form a thoroughly representative collection:—*Argentine*, a pure white, the flowers small, and of special value for decorations; *Boule de Neige*, white, suffused with rose; *Brilliant*, rose-purple, rather dwarf, and well suited for the front and second rows; *Comte de Montbrun*, bright pink, tipped with white; *Delicatissimum*, rich rose-lilac, the centre bright yellow; *Emilie Lemoine*, purplish crimson, the florets tipped with yellow and the centre yellow, very effective; *Gaiety*, rose-pink, a pleasing variety of dwarf habit; *Gloire d'Italie*, rich crimson, one of the finest of the high-coloured flowers; *Gloire de Stalle*, rich carmine-red, very effective; *Hermann Stenger*, rose shaded lilac; *Imbriatum plenum*, dark carmine, the florets tipped with white; *La Belle Blonde*, creamy white, deepening to golden yellow in the centre; *Lady Blanche*, blush, suffused with pale lilac; *Madame Munier*, pale rose; *Marquis of Bute*, bright rosy pink; *Michael Buehner*, bright crimson, with orange-yellow centre; *Ne Plus Ultra*, bright lilac; *Prince of Wales*, purple-crimson, with yellow centre; *Princesse de Metternich*, pure white, the centre deep yellow; *Roseum album*, rose-purple, with white centre; *Rose Marguerite*, rose, the florets tipped with white; *Solfaterre*, creamy white, deepening to yellow in the centre; *Voie Lactee*, white tinted pink, the centre yellow, and *Wilhelm Kramer*, deep rose.

THE TUBEROUS BEGONIA IN THE GARDEN.

MUCH attention has been lately given to the history, cultivation, and merits of the hybrids of the tuberous begonia. They have been recommended at various times for garden culture, but occasional failure from various causes, and a natural distrust of the effect of open-air treatment upon a plant of so tropical an appearance, and so long associated with the greenhouse and the stove, have no doubt deterred many of your readers from thoroughly testing the hardiness and full capabilities of this beautiful tribe of plants. As usual, there have been considerable exaggerations and consequent disappointments. The begonia was to supersede the geranium and all the old-fashioned bedders, and to give, with its glowing flowers and exotic appearance, an entirely new and semi-tropical character to the gardens. It was to bear our coldest winters with only moderate protection, and to endure all the changes of our changeable climate without injury or loss of beauty. The begonia has had too good reason to cry, "Save me from my friends!"

Having been one of the first to experimentalize on the comparative hardiness of the plant and its fitness for outdoor decoration—having, in point of fact, grown some thousands of plants (including some of the newest kinds and many of the double varieties*) with considerable success as ornamental bedding plants in the open garden—I have had a little opportunity of judging how far these enthusiastic encomiums are deserved.

There is no doubt whatever that the graceful and attractive tribe of plants in question are destined to add immensely to the beauty of our open gardens. During seasons of continuous and drenching rains, when the blooms of the geraniums and calceolarias have been mere bundles of dripping rags, the tuberous begonias have with me continued to blossom with undiminished, or rather with increased, beauty. Their delicate waxy blooms are of so smooth and firm a texture that they will bear the most pelting of our summer rains and the longest continuance of wet weather without injury or

* I cannot speak well of many of the double kinds for this purpose, as they appear to have a tendency to deteriorate after the first year's culture; but three kinds, called Phosphorescent, Gloire de Nancy, and Marie Bouchet, answer admirably, the first named, struck as cuttings in the open air, being used for edgings.

decay; so that for months together, during the continuous downfall of recent wet summers, the begonia beds proved here almost the only source of supply for cut flowers from the open air.

On the other hand, the dry scorching winds, which just suit the geranium, are uncongenial to the tuberous begonia, notwithstanding its origin in tropical and mountain regions. The deficiency of moisture is difficult to supply; for although luxuriating in the natural downpour from the skies, the begonia has a great impatience of the watering-pot, requiring a proportionate balance of moisture in the air and ground for its best effects. This experience of the habits and likings of the plant teaches us a very simple lesson as to its mode of cultivation. A garden filled with begonias in the full glare of the sun, to the exclusion of rival bedding flowers, would probably (should the season prove dry and cloudless, with a long continuance of scorching driving east winds) prove a failure. On the other hand, a proportion of beds of these brilliant and graceful flowers as a supplement and adjunct to the rest would, I believe, afford the satisfaction and pleasure to others which they have undoubtedly for many years past given to myself. The open exposed centres of the flower garden, and the draughty places "where the winds their revels keep," I would leave to plants of a less tender and succulent nature, reserving the sheltered or partially-shaded situations for the tuberous begonia. If it should so happen that these chosen places should have sunlight during one third or half the day and shade for the remainder, there will you find the most brilliant, the most constant, and the largest blossoms.

So much has been lately written respecting cultivation that there is little to add. As regards soil for outdoor culture, authorities differ. My experience points to a rich and fibrous soil, with abundance of humus to retain moisture, as most suitable to their wants. Certainly a cold, poor, "pudding" soil is poison to the delicate fibrous roots and fleshy tubers.

Both natural and mineral manures may be used with great freedom to obtain brilliance of colour and luxuriant growth, for the plant is a gross feeder. Instructions for raising seedlings have been often given. Great patience and care are required from the excessive minuteness of the seed, and there will probably be some disappointment in the end from the well-known tendency of hybrids to produce a degenerated offspring, which are always inclined to revert to the original uncultivated type. A large proportion of inferior flowers must therefore be expected. I strongly advise the purchaser of begonia seed to subject it to a powerful microscope. The perfect seed is oblong, round, and symmetrical, curiously pitted with small indentations, and of a rich pure red colour. The useless seed is pale or colourless, and ruptured at the ends.

I have found it useful to spread the seed on rough unsized white blotting paper, and to gradually shake it off into a second paper. The ruptured and effete seeds will be held back, in the form of fine dust, by the roughness of the surface.



Perfect Seed Magnified.



Imperfect Seed.

I will now speak of the real and unexaggerated merits of the tuberous begonia as a bedding plant. Let me refer to one recommendation, which is of no small account for gardeners' purposes. I allude to what may be called its *good nature*. We all know the unpardonable offence which we should give to a geranium (for instance) if we took up its long straying roots when in full growth for purposes of a necessary removal. The begonia, on the contrary, will bear any amount of removal at any time, even when in full bloom, if ordinary care and judgment are used, with perfect equanimity; in fact, it rather likes the change than not. I have thrown a discarded begonia plant in full growth upon a refuse heap, and after months of dry exposure have found it pushing out fresh roots and evidently determined to make the best of it. The succulent root appears to form a reservoir of moisture and nourishment, which continues to support the plant under adverse circumstances.

I need not point out what a valuable quality this is under circumstances which may occur in all gardens, when accidental vacancies have to be filled up or a blaze of colour is wanted urgently for some particular spot. Again, what a charming opportunity this habit of the plant gives for the harmonizing of its rich shades of colour! deep blood-reds, pure whites, glowing crimson, lakes, and magentas, salmon-pinks, golden yellows, and all the intermediate shades and gradations which they afford. The most fastidious æsthetic need no longer be grieved by discords of contrasting colour which the garden trowel in a few seconds can put to rights; and to the lover of colour harmonies what an easy field for experiment and success!

For garden baskets and decorations of that kind the begonia is almost unrivalled. Its graceful drooping habit of growth and the exquisite semi-transparency of the wax-like petals when seen against the light, together with the luxuriance and beautiful veined markings of the foliage, peculiarly adapt them for this purpose, whilst, owing to the facility of removal above referred to, a basket of growing plants may be arranged almost as easily and effectively as a bouquet of flowers.

Another great advantage possessed by the tuberous begonias is the

casiness of storage during the winter months, an advantage which renders them almost as easy of cultivation for the cottage as for the mansion. When the first frost cuts down the leafage the fleshy tubers may be taken up, and either thrown into a corner of a cellar or stored away in boxes out of the reach of frost. Damp does not hurt them, but if allowed to get dry and shrivelled the roots are often slow to start growth in the spring; a slight sprinkling of water is therefore sometimes useful. I have kept some thousands in this way with only a very small percentage of loss.

In selecting the kinds required for garden use, it should be remembered that freedom of bloom is of more importance for effect than the size of the individual flowers. For general purposes the tribe may be sorted into two sections, the pendent and the rigid kinds. The former are the most graceful in their mode of growth and the most free flowering, but have the disadvantage of requiring to be tied, as the weight of the bloom is disproportioned to the strength of the tender and succulent stems. There is also the drawback that the exterior of the bloom (which is usually far less brilliant than the inside) is alone visible, owing to its drooping habit. The rigid section have rounder and more symmetrical flowers, and a slower and more sturdy habit of growth with less freedom of bloom, and usually a too coarse development of foliage. The garden begonia of the future will require to combine the advantages and minimize the defects of both classes to be a complete success; and it is in these directions that the patient hybridizer will have to work.

One more good quality of the begonia before I conclude. Should you possess an unusually attractive kind, and be inspired by a generous spirit to share your good fortune with an admiring friend, the gratification of your goodwill is easy.

You have but to take a sharp kitchen knife and slice your plant into two halves, and the thing is done. What other floral pets could stand this unceremonious treatment? Barbarous as such a *modus operandi* appears to the old-fashioned gardener, it will be successful with ordinary care and judgment. I have operated on many hundreds of plants in all stages of growth without a single failure, except such as may be accounted for by the plant being unhealthy at the time of the operation. I have usually, in replanting, placed a little clean sand or cocoa-nut fibre against the severed portion. I prefer this mode of propagation to cuttings, unless dwarf plants are required.

J. AUBREY CLARK.

FORTHCOMING ROSE SHOWS.

WITHIN a very few days the rose shows arranged for the current season will commence, and as they extend until nearly the end of July, it is evident that the rose has lost none of its popularity as an exhibition flower. To the rosarian who aspires to honours in the exhibition tent, and sets no limit upon himself as to the number of shows he will frequent, or the distance he will travel, the next five or six weeks will be a very busy time. Not only do the exhibitions devoted to roses follow each other with remarkable rapidity, but at many of the horticultural gatherings of a miscellaneous character prizes are offered of sufficient value to tempt the leading growers to take part in the competition. The encouragement afforded is indeed so great and so generous that at no time since roses were exhibited in a cut state within the United Kingdom have cultivators had such good cause for satisfaction as at the present moment. Small societies for the encouragement of rose culture within prescribed limits continue to multiply, and we have a considerable increase in the number of gatherings of national importance. The National Rose Society will hold this year three exhibitions instead of two, and by this body having its London show at South Kensington instead of at the Crystal Palace we shall have an additional metropolitan gathering, as the authorities at Sydenham will hold an exhibition on their own account, as in the years previous to the National Rose Society migrating thither. Influenced by the success which attended the Northern exhibition of the National Society, when held at Old Trafford, the Manchester Botanical and Horticultural Society will also hold an exhibition of its own this year, and it is to be hoped that the results will be such as to ensure its becoming a permanent institution, as it is only by these exhibitions that thousands of the dwellers in the Manchester district have an opportunity of seeing the rose in its full beauty.

There are three metropolitan shows this season, and at the present moment it is a very interesting speculation as to which of them will be the best. For my own part, I have no hesitation in expressing an opinion that the exhibition of the National Rose Society at South Kensington, on July 4, will be decidedly the most important. The date, so far as it is now possible to judge, is as suitable as any one that could be fixed for catching the largest number of roses in the best condition: the classes are numerous, the prizes are liberal, and the day is more convenient for many amateurs than Saturday. It may perhaps be of interest to state that the schedule of this exhibition includes thirty-two classes, of which eight are set apart for nurserymen, seventeen are confined to amateurs, and the remainder are open. To afford the small growers a chance of competing successfully, the trade classes are broken up into two divisions, and those for amateurs into three, and no exhibitor is allowed to compete in more than one of the divisions. There is nothing to prevent the large nurserymen competing in the division obviously provided for the smaller growers, or of the amateur with his thousands of roses competing for prizes intended for those who are compelled to confine the number of their trees within three figures, and it appears to be practically impossible to frame any rule to meet the case. The chances are, however, that the large grower will compete in the division in which the largest classes are found. To still further protect the small grower, as far as it is possible

to do so, the number of classes in which any one exhibitor can compete is limited in the second division for nurserymen, and in the third division for amateurs. The two most important classes in the schedule are those for seventy-two and forty-eight blooms for trade and amateur growers respectively, and in each of these the first prize is a challenge trophy of the value of sixty guineas, and £5 in cash; the trophy in each case to be held for one year. There are as usual two classes for suburban-grown roses; but it appears to me that a radius of eight miles from Charing Cross is too large, as within it there are several districts in which roses can be as successfully cultivated as in any part of England. A radius of six miles would be much better, as the competition would then to some extent demonstrate what could be done in the cultivation of roses within the influence of the London smoke. The three silver medals offered for the best single bloom of hybrid perpetual, tea, and noisette respectively add much to the interest of the competition; but the medal most to be desired is that of gold, offered for three trusses of any new rose not in commerce. With reference to the schedule, which on the whole is very satisfactory, I should like to say that it would be a decided improvement to have the special regulations put immediately under the classes to which they refer. At present they are arranged at the end of the list of prizes, and as they comprise two distinct sets, with nine having the same distinctive mark, there is a great risk of the reader being much perplexed.

Next in importance to the foregoing will in all probability be the exhibition at the Alexandra Palace on July 8, as the schedule is the most comprehensive and liberal after that of the National Rose Society. Altogether there are twenty-nine classes, and the first five are for nurserymen. The chief class in this division is for seventy-two, with £10 as the premier award, and the principal prize for forty-eight in the same division is of the value of £6. The division for amateurs includes six classes, with prizes on much the same scale as those mentioned above. In the open division there are several classes of a quite novel character, as, for example, one for a thousand trusses, with prizes of £20, £10, and £5; one for five hundred roses, with prizes of half the above amounts; three for thirty trusses each of light, pink, and dark roses; one for collection of moss roses, and four for bouquets. It is worthy of note also that Messrs. W. Paul and Son will offer liberal prizes for collections of roses raised or introduced by themselves, as they announced in the GARDENERS' MAGAZINE some time since. If the competition is spirited, as no doubt it will be, I am well sure that the high opinion I have expressed of the Waltham Cross roses from time to time in these pages will be more than justified.

The schedule of the Crystal Palace exhibition, to be held on July 1, contains twenty-one classes, and as the prizes are sufficient to ensure a good competition, a satisfactory exhibition may be anticipated. Tea roses are particularly well provided for, but new roses in collections have no class made for them. It is not surprising they should be omitted from the schedule of a body who require the productions in each class to contribute their share to the display, for the stands of new roses are seldom satisfactory. Sometimes they are far otherwise, and it is not unusual for a leading grower to stage blooms in the "new" class so inferior as to suggest the idea that they are the refuse of other stands. In many instances they are so, as the blooms in different stands from the same exhibitors testify. For the interest of themselves, and the guidance of the visitors, I have often felt surprised that trade growers should not recognize the fact that the best way of tempting amateurs to speculate in new roses is not to set before them undersized and overblown blooms. Not less have I been surprised that the judges have not endeavoured to put down the practice of showing roses of recent introduction out of character by withholding the prizes.

The Royal Botanic Society offer a series of very good prizes for roses to be competed for at its exhibition on July 5, and if the show in the gardens of the Royal Horticultural Society on the previous day does not interfere with the competition there will doubtless be a good display. The class for a collection of climbing roses, represented by sprays arranged to show the habit, is not without interest, and if the competition is at all spirited, and a fair amount of taste is evinced in the arrangement of the specimens, the display will be both instructive and attractive. I observe that the society still retains in its schedule the classes for baskets three feet in diameter, one to contain "all colours" and the other "one variety." For several years baskets of roses have been invited to Regent's Park, and I must confess I have not seen one that has had a pleasing appearance. I say this without any reflection upon the taste of the exhibitor, and would add that it is most difficult to arrange such large baskets in an effective manner. As a rule, the mistake is made in arranging these large baskets of crowding as many roses as possible into them. The only satisfactory way of arranging baskets of so large a size is to fill them level to the edge with moss or other loose material; then insert tubes or small bottles far enough apart for the blooms to stand just clear of each other, and surface with fresh green moss. The top of the tubes or bottles should stand about three-quarters of an inch above the moss, and they should be so arranged that those in the centre stand two inches higher than those at the sides, the others rising gradually to them, and the moss to have the same slope. The tubes may be held in their proper places by means of strips of deal fixed across the basket and close enough together to form a platform on which to place the moss. Baskets so prepared are lighter than those filled with moss or other material; for unless they are packed as firmly as possible the receptacles for the roses will not be held securely in their proper place. The blooms should be prepared and fixed in the tubes in precisely the same manner as in setting them up in exhibition boxes. The only baskets in which roses appear to advantage

are those ranging from fifteen to twenty inches in diameter, and these when the flowers are good and properly set up, are very attractive, as exemplified by the beautiful baskets of *Maréchal Niel* which, Messrs. Paul and Son, of Cheshunt, have exhibited in London on several occasions.

The remaining exhibition within the metropolis is that to be held at the Mansion House on the 30th inst., and, as it has been arranged for the benefit of two important charities, it is to be hoped that it will meet with the support it so well deserves. As will have been seen from the advertisements, bouquets and baskets of roses will be most acceptable for sale, and I again mention it, as there must be some hundreds of amateur rosarians within a short distance of London to whom the exhibition will afford an opportunity of assisting in a good work with but little effort or expense. As roses that are not fully expanded are the most saleable at the close of an exhibition, I would strongly advise those who intend giving their aid to use roses that are just opening in filling baskets and in making bouquets.

Of the rose shows to be held in the provinces it will suffice to say that they have all been arranged on similar lines to those with which I am so well acquainted. The Northern meeting of the National Rose Society bids fair to be a great success, for a capital place in which to hold it has been secured, and the Darlington people are evidently anticipating the event with considerable interest.

From observations made in widely-separated districts within the last fortnight, I am strongly of an opinion that the rose bloom will this season be exceptionally good. Roses have in some districts suffered severely from the gale experienced at the end of April, and the cold easterly winds to which they have been subjected since; but those which have been seriously injured are the exception rather than the rule, and they are now rapidly recovering, and promise good blooms later on. It was at one time thought the roses would be much earlier than usual, and that the finest blooms would be over before the exhibitions; but the low prevailing temperature and the heavy rains have materially checked the development of the flowers, and July will certainly be in before we shall see the finest blooms of this year. This is by no means the first season in which fears have been expressed that the roses would be over before the mid-season shows were reached, but invariably they have been groundless. There must be a very great difference in the weather to materially influence the flowering season of roses. I have it well impressed on my mind that on no occasion have we had a satisfactory rose show in the metropolis before the 28th of June. For several years the Crystal Palace authorities had their rose shows about the 24th of June, and they were invariably too early.

In conclusion, I would add that the following are the dates of the various rose shows to be held this season:—June 28, Bath and Hitchin; June 29, Hereford, Horsham, and Farningham; June 30, Mansion House; July 1, Crystal Palace and Reigate; July 4, South Kensington; July 5, Regent's Park; July 6, Canterbury and Brockham; July 7, Sutton and Ludlow; July 8, Alexandra Palace; July 12, Cardiff; July 14 and 15, Manchester; July 15, Birkenhead; July 18, Leek; July 20, Helensburgh; July 21, Darlington.

VIATOR.

THE FLORA AND FAUNA OF INDIA.—Herr Haeckel having recently visited the island of Elephanta, with its interesting rock temple, after describing it, goes on to mention the impression made on him by the tropical flora. "In another way this excursion to Elephanta was of the greatest interest and never to be forgotten, for this day, the 9th of November, was the first on which I saw the magic of the tropic flora in all the freedom of nature. I had occupied the afternoon of the previous day in visiting the Victoria Garden, which is a fine though not very carefully-cultivated botanical garden. It cannot indeed be compared in richness and arrangement with other botanical gardens in India, but still it was there that I saw for the first time a number of the most beautiful and grandest tropical growths. But my delight was infinitely greater and more vivid when in Elephanta, I saw the most important and characteristic Indian plants growing wild in an unartificial state, with a luxuriance impossible to a limited garden. There clinging creepers and climbing ferns clothed the mighty trunks of the teak trees; there the noble cocoa palm bends its slender trunk and splendid feathery glittering crown above the seashore, which is bordered by bushes of the pandanus, and secured by walls of mangroves rooted in the water; there big parasite figs, convolvulus, and other climbing plants, with large gay flowers, run up the straight black stems of the mighty Palmyra palms, the proud summits of which, with their fan-shaped leaves, are also covered with the climbing flowers. And there rise noble examples of the sacred banyan: their mighty trunks are divided into an actual network of great roots, while from among the dark green leaves of the stout branches above hangs a mass of air roots, many of which reach the ground, and taking root, form new supports for the mother crown. And look there! a gigantic strangler (parasite fig) smothered a noble palm with its network of twigs, and a few steps further stands a brother of this strangler, like a hollow cylindrical pillar without leaves, for the palm it had embraced had died and decayed, and the cruel murderer now suffers the same fate. The pretty bamboo forms large bouquets; bananas and strelitzias spread their fresh green leaves; large gay flowers unfold their scented cups; feathery acacias form shady roofs, and prickly cactus-like euphorbias are woven into thick hedges. Here I saw in concrete reality a number of the most remarkable and loveliest forms of the tropic flora, of which I had read and dreamed for thirty years; and in the sunny air sported thousands of the most beautiful butterflies; great golden beetles darted through the bushes; hundreds of swift lizards and snakes glided among the leaves; noisy flocks of splendidly-feathered birds flew from tree to tree—all new forms which I had never seen alive, and yet seemed old acquaintances. I snatched at everything like a child, and laid my hands upon the trunks of the palms and bamboos to convince myself that all was not a dream of fairy land!"

THE EDIBLE-ROOTED INDIAN CRESS.

Tropaeolum edule.

THIS fine *tropaeolum* has been in the country over forty years and is still a scarce plant. It is a native of Chili, and when first introduced was thought to be the blue *tropaeolum* (*T. azureum*), figured by us at page 226. As a matter of course, the flowering of the plant dispelled the delusion. Messrs. Low and Co., of Clapton, have the honour of first flowering this plant, and according to *Paxton's Magazine of Botany* (ix. p. 127) the first well-grown specimen was produced by Mr. Green, then gardener to Sir G. Antrobus, Bart. Mr. Green trained the plant out on a flat trellis, and gave it the liberal culture, without which it cannot show its proper characters.

The specimen here figured was grown to prove its suitability for pot culture and loose pyramidal training. To train a plant of this kind to hard formal wires is destructive of its proper elegance of growth and form. But support it must have, and we find it by no

NEPHRODIUM RODIGASIANUM.

THIS fine fern has been duly entered under "New Plants," as described by Mr. Thomas Moore in *Illustration Horticole*, t. 442. The accompanying figure, reduced from the one referred to, will, however, be useful to many of our readers. This species comes near to *N. truncatum* of Presl, and is not very far removed from the well-known and exquisitely beautiful *N. molle*. As compared with the latter, it is larger every way, more massive in leafage, and a tone deeper in colour. It is in fact a very rich plant of the most brilliant tone of full green, and it approximates to *N. molle*, not only in general plan, but in its delicate pubescence. In all probability it is a variety of *N. truncatum*, but distinct enough for garden purposes to bear another name. For the production of a fine specimen it must have stove culture, in turfy peat well drained; but in a general way a warm greenhouse or intermediate house will suit it very well.



TROPEOLUM EDULE.

means a difficult task to secure the free and apparently unrestrained growth shown in the figure. The plant requires plenty of pot room, and the bulbs must be covered. A light rich soil is requisite, and perfect drainage is a *sine qua non*.

The natural lightness of the plant contributes much to the beauty of a specimen in which the shoots are trained pretty close together; but if trained far apart there is an appearance of poverty, owing to the smallness of the leaves and their distance from each other. But when a certain degree of density is obtained the fingered glaucous leaves and the strong orange-tinted flowers present a somewhat novel, or at all events unusual, appearance.

To treat this as a hardy plant is to invite vexation. But it may be planted out when flowering freely, and a good place for it would be near a sunny wall on a dry warm border, for in common with other species of the genus *tropaeolum* it loves warmth and light, with a free range for its roots.

RHODODENDRONS AND AZALEAS.

By J. C. CLARKE.

THE freedom with which rhododendrons have flowered this season, the large size of the trusses and flowers, and the depth of colour, have afforded further proofs that a humid atmosphere and a fair supply of moisture at the roots when making new growth are most conducive to their welfare. These were the conditions they had for the most part last summer, and they have resulted in a display of flower that has not been surpassed for many years. If we turn to the table of rainfall for 1881 we shall find that after the first week in June there was a fall of rain on fourteen days in that month. In the succeeding month, July, there were thirteen days on which rain fell, and in August rain fell to the amount of 4½ inches, the rainy days numbering seventeen. It will thus be seen that in the three months in which these shrubs make their growth and form their flower buds the weather was eminently favourable. If we consider also that the rhododendrons

did not bloom so freely in 1881, we shall arrive at a fairly accurate conclusions respecting the abundance of flowers this season.

It may be useful to explain that these shrubs do not flower every year alike. This is more noticeable in small plants than in large ones; but the same remark applies to both, and very little of observation will show any one that as soon as the flowers begin to expand those branches on which there are no flower buds begin to produce new growth, and it is on this early growth that flowers are produced in the year following. The growth made on those branches which have flowered this year is considerably later. In fact, in the majority of cases it has not been produced early enough to form flower buds, but it may be said to stand in readiness for making an early move next spring, which it will do, as I have just explained, as soon as the flowers begin to open; and if all goes well the young shoots will produce flower buds in the course of the summer. This will explain why in the case of small plants they do not flower so well every succeeding year, and this should be a sufficient reason why the small bushes ought not to be cut from: a few trusses would probably not be missed from a large specimen, but in the case of a small example the removal of a branch means the loss of flowers for two years. There ought to be a standing order in every garden that young rhododendrons and azaleas are not to have their flowers cut,

varieties that are admirably adapted for massing which have a loose straggling habit, which renders them unfit for single specimens. In our strong silky loam, in which both azaleas and rhododendrons do so well, such varieties as *Minnie*, white; *Mrs. John Waterer*, crimson; *Concessum*, rose; *Joseph Whitworth*, dark purple, and *Lady Eleanor Cathart*, rose, are not suitable for single specimens. There are not probably any more effective or beautiful varieties for growing in clumps than these, but their habit of growth and long-jointed branches render them unsuitable to be placed singly in prominent positions, and as there are others of equal merit with a close short-jointed growth there is no reason why those enumerated should be selected for specimens. It may be useful to remark here that young plants two or three years old do not show this loose habit, and unless any one is conversant with them it is an easy matter to make a mistake. I can with every confidence recommend the following selection as well suited for growing singly: *Barelayanum*, rosy crimson; *Brayanum*, bright crimson; *Eclipse*, chocolate-crimson; *Everestianum*, lilac; *Exquisite*, white; *Nero*, purple; *Roseum superbum*, rose; *Mrs. John Penn*, pink, and *Pictum*, white.

Under the impression that a suitable soil has to be made for rhododendrons in gardens where peat does not occur naturally, and that it is a costly affair, many people deprive themselves of the



NEPHRODIUM RODIGASIANUM.

The extraordinary growth that some varieties made last summer is a conclusive proof that they are not averse to receiving plenty of moisture at the roots when in active growth, and this fact further shows that choice specimens growing in dry and high positions should be liberally supplied with water in dry seasons. I have known a dry autumn to be fatal to large choice plants when growing in high and peaty soils, and all who have such may be advised to watch them carefully during August and September, and if the rainfall is deficient the plants should have a thorough soaking of water twice a week all the time the dry weather lasts. Much will depend on the position they occupy; for if they stand on raised mounds or dry banks they will require more water than those in beds on a level surface.

Owing to the vigorous growth made last year, never was there a better opportunity for studying the habits of the different varieties than in the present season. We have availed ourselves of the opportunity for going through some plantations and marking a few of those of a close compact habit for removal, when the proper time arrives, from the beds to positions as single specimens on the lawns. Having to deal with new varieties, with the habits of which we were unacquainted, this step was necessary, as there are many very excellent

pleasure they are so well able to afford. The idea that they cannot be grown in any other but a peaty soil is erroneous, for here they thrive in a deep loam. In the catalogue of Messrs. John Waterer and Son, who cultivate about 200 acres of these plants, are given some directions for making a suitable compost in places where peat is not conveniently to be had, and these directions I will transcribe for the benefit of the reader. "Take the top spit from any good pasture land, the thickness of the spit being regulated as to its composition: the more turfy and fibrous the better. This mixed with leaf-mould and well-rotted manure from melon frames, well mixed but not chopped too fine, is a very suitable compost." From this extract it will be seen that the preparation of a suitable soil is not laborious or costly—not so costly at all events as to prevent the owner of any garden having a bed or two of them. There is no occasion to speculate largely in the first place: a trial might be made with a dozen plants until the soil and position had been tested, and three years would be ample time for that purpose.

With respect to the Ghent azaleas, I need not enlarge on their merits, as they are well known for their beauty, and, as they thrive under precisely the same conditions as the rhododendrons, it is not necessary to dwell further on the cultural details.

The House, Garden, and Home Farm.

THE GLOWWORM.

WHEN on some balmy-breathing night of spring,
The happy child to whom the world is new,
Pursues the evening moth of mealy wing,
Or from the heath-bell shakes the sparkling dew,
He sees before his inexperienced eye
The brilliant glowworm like a meteor shine
On the turf-bank. Surprised, and pleased, he cries,
"Star of the dewy grass! I make Thee mine."
Then, ere he sleeps, collects the moistened flower,
And bids soft leaves his glittering prize unfold;
And dreams that fairy lamps illumine his bower;
But, in the morning, shudders to behold
His shining treasures viewless as the dust:
So fade the world's bright joys to cold and blank disgust.

CHARLOTTE SMITH.

THE HOUSE.

It is essential to remind those who cultivate ferns in indoor apartments that fern cases in a prosperous state will require regular attention, more especially in respect of watering and ventilating. One hour of strong sunshine is likely to make an end of the ferns for the season, or if they recover from the shock the summer will be gone before they make a new show of verdure. Therefore be particular to screen off the full blaze of the sun during the time cases are exposed to it. We have had our cases sorely crippled through the carelessness of a servant, who drew up the blinds of certain windows an hour too soon in the morning, although even that would have done but little harm if she had at the same time opened the cases to give air. But as they remained closely shut and the sun beat upon them for a considerable time, the interior became very hot, and the ferns were seriously injured. We have tied up fronds that lean forward to the light more than was desirable with common iron wire, which answers perfectly for this purpose, and if a little thicker than a darning needle will be stout enough. Flowers in vases and other table ornaments last longer if left untouched than if "put in order" occasionally.

THE GARDEN.

ASPARAGUS should not be cut after this date. Liquid manure will do great things for asparagus now, and a dressing of salt may be given with advantage.

AZALEAS AND CAMELLIAS, if still under glass, must have air night and day, and the floors kept damp. Use the syringe regularly till the flower buds show at the points of the shoots, and then discontinue its use.

CAULIFLOWERS should, to ensure a full measure of success, be sown now where they are to remain, and of course to be thinned to a proper distance in due time. Any that are planted out now from seed beds must have water, and be shaded during midday for a week.

CELERY for main crops to be planted out without loss of time, in showery weather if possible; but if the weather is hot and dry shade and give water. Pea-sticks laid across the trenches will give shade enough with very little trouble.

FUCHSIAS.—Specimen plants will require abundance of water and twice a week liquid manure. Fuchsias in the open ground are generally disfigured with a superabundance of sticks, whereas in a good turfy soil, with a moderate amount of rotten dung, they ought to need but little artificial support, and a certain easy drooping habit is proper to their character.

ORCHARD HOUSE TREES require very little attention now beyond abundant watering. Shoots badly placed may be removed now without fear of causing the buds at the base to break.

PINES should have every needful attention now, as at this season robust growth may be secured for the succession plants. These swelling their fruit will need the help of liquid manure and atmospheric moisture, with a good steady heat.

RHODODENDRONS may now be layered for increase: it is the simplest and surest method of propagation, though slow. Nevertheless they are always better on their own roots than grafted.

ROOT CROPS, such as Parsnip and Beet, require now a final thinning: there is no gain from crowded beds.

ROSES.—Make ready to work the strongest briers at once, as plump buds can be obtained of the choicest varieties. Buds that remain dormant till the next spring do not generally make such good plants as buds that start away soon after being entered, and make ripe hard shoots before winter. We have found that when the shoots from the buds of the season were very sappy a gentle lift of the stock by means of a four-tined fork, early in October, gave a cheek that hastened the ripening, and prevented loss in winter.

SOFT-WOODED PLANTS, such as Cinerarias, Herbaceous Calceolarias, Chinese Primulas, Pansies, Pyrethrums, &c., should be raised from seed now in quantity. If Primulas were sown in April for early bloom, it will be as well to sow again for a successional batch. Soft-wooded plants rarely do any good if grown slowly: they need abundant nourishment, and if kept stout and strong rarely suffer from vermin.

STRAWBERRIES are pushing their runners freely, and whatever stock is required for forming new plantations should be taken only from the strongest runners, which remove as soon as they have a few roots, and prick out on an old hotbed, or in any rich light soil where they can be easily shaded, unless they are layered in small pots.

VINES that have ripened their fruit must be carefully brought into a resting condition by gradually reducing water and increasing the ventilation to the fullest possible extent. Crops ripening to have the help of fire-heat in case of a prolonged term of cloudy or cold weather, as any delay in ripening will bring on mildew.

WINTER FLOWERS require careful attention at the present moment. Propagate *Euphorbia jacinthiflora* and *E. splendens*; repot and propagate *Poinsettia pulcherrima*; give *Salvia splendens* another shift; set out in the open air *Solanum capsicastrum* and *Callicarpa purpurea*; put all

potted shrubs for winter blooming in a cool moist bottom heat for a month, then remove them to a sunny position under a wall or fence, to hasten the ripening of the wood.

WINTER GREENS to be planted out at every opportunity. It is most important to get out good breadths of Brussels Sprouts and Scotch Kale as early as possible.

THE HOME FARM.

THE making of hay will now occupy a large share of the labour on the home farm if it contains a proper proportion of pasture land. It is not enough known that better hay can be made under a cloudy sky, with a moderate breeze and no rain, than with the aid of fervid sunshine. But we cannot control the weather, and even if we carefully work by the perception of the "weather eye" and the barometer together we cannot always be safe. Nine times in ten grass is cut when too old; for the different kinds of herbage do not flower all at one time, and there is a certain moment when the average of the entire plant is at its best, and then down it should come. If you wait for the bottom to thicken, and for the later grass to flower, you ensure a large proportion of hard bents from the grasses that have flowered and shed their seeds, and become wiry through age. By cutting when the field is in its first full flush of flower you secure the utmost starch, sugar, glucose, and other feeding properties the grass contains, and if the ultimate bulk is less the quality is higher, and the ground is less injured than when the cutting is deferred. The after-feed will amply make amends for the slight diminution in the rick; for you cannot have your money in several places at the same time, but you may have it in the wrong place now and then. The rules for haymaking must to some extent be regulated by the custom of the country, but not slavishly so. To wait for weather is, generally speaking, bad policy. When the grass is really ready have it cut, but do not have overmuch down at a time. Take the piece by the piece, and get it down and get it up by smart practice, and you will be pretty sure to make a fine rick of hay. As fast as the swathe is laid shake it out and turn, and make no cocks unless compelled by bad weather. Should the worst happen, make big cocks quickly, and if the rain lasts six weeks you will find that you still have something to carry when you open the cocks. When the rick is making, put down a foundation of faggots and set a sackful of straw in the centre, which pull up as the work proceeds. A trough of some kind should be made from the funnel in the centre to the outside to carry off the products of fermentation and prevent mildew. It is not good practice to thatch until a month or so has elapsed, because of the danger of undue heating.

Literature.

Familiar Wild Flowers. By F. E. HULME. (Cassell.)—Of this work sixty-three numbers have been published, but the wild flowers are by no means used up, nor is the delicacy of Mr. Hulme's pencil diminished. In the number before us the common ling and the hop trefoil furnish subjects for two beautiful pictures, and the literary notices are sufficient and interesting. As a popular guide to the woodland and wayside flora this will be the best book of modern times.

Familiar Garden Flowers, by SHIRLEY HIBBERD (Cassell), has reached the fortieth number, completing the second series. The subjects figured by Mr. Hulme, and described by Mr. Hibberd, are the mallow, sweet clematis, dielytra, zinnia, phlox, incomparable daffodil, canary tropæolum, leadwort, avens, day lily, rosy yarrow, pelargonium, cuphea, begonia, hawthorn, laburnum, campion, coreopsis, pheasant's eye, and rose. The third series will comprise the camellia, kerria, berberis, ageratum, gentian, fritillary, columbine, hawkweed, and other flowers that are or should be "familiar."

The Botanical Atlas, by D. McALPINE, F.C.S. (A. W. and A. K. Johnston), of which the first part has reached us, promises valuable aid to the student and teacher of botany. This part contains life-size dissections and analyses of the chickweed, maiden pink, campion, fumitory, wallflower, herb Robert, white dead nettle, and sage. The folio size admits of effective illustration, without stint as to the number of figures, and the details are worked out with care and taste. This will be an important work of its class, and the price being only two shillings each part, places it within the reach of thousands who need such a work, but cannot afford a higher figure.

Hardwicke's Science Gossip is always attractive, and but rarely lacking in novelty. The June number contains excellent papers on Water Snails, the Carboniferous Limestone, the Natural History of Cornwall and Jersey, the Ornithology of the Poets, and the Life and Work of Charles Darwin.

The Ladies' Treasury, edited by MRS. WARREN (Bemrose) is as fresh and interesting as ever. In fact, the June number is one of the best we have seen. A proof of the high merits of this work is seen in its survival of a severe competition which has removed several rivals from the field, and left the "Treasury" the richer and the riper, to the advantage of its many lady readers.

The Great Northern Railway Panoramic Guide, published by Messrs. Bemrose, is in agreement with similar guides they have provided for other railway lines. It is a good sixpennyworth for the traveller to carry in place of a heap of newspapers.

PORTABLE POULTRY HOUSES, Moveable Poultry Fencing, New Coops and Chicken Houses, Pheasantries, Aviaries, Dog Houses and Yards, Improved Kennel Railing, Portable Kennels, Travelling Boxes for Dogs, Rabbit Hutches, Portable Piggeries, &c. Manufactured by BOULTON and PAUL Norwich. Illustrated Catalogues sent free by post.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

THE GLOWWORM.

Lampyrus noctiluca.

BETWEEN the insects that assail our crops and the insects that assail our insect enemies there is a great gulf fixed, not only in the objective world of nature, but in the subjective world in the mind of man. Of the insects that injure and destroy his property he knows much; of those that protect his goods and befriend him by every act of their lives, he knows but little; and he is not much to blame for his injurious ignorance. The work of the destroyer is made manifest: we see the fruit that has fallen from the tree; we observe the nakedness of the oak that has been devoured by caterpillars, and the "green fly" in the garden "comes home" to us a trifle too much. So that to be ignorant of its existence or of its ravages is impossible. But when the ichneumon fly persecutes the palmer worm, or the ant-lion sets his trap for a sawfly, or the ladybird devours the aphid, or the glowworm preys upon the cock chaffer, the observant naturalist alone is admitted behind the scenes, and to him we must trust for a report of the aid that insects are capable of affording us. The glowworm is one of the most useful of the humbler creatures, and should always have the kindly protection that has been besought for the ladybird. It is a decidedly carnivorous beast: it subsists on grubs, slugs, snails, and other such small deer, and that is one of the reasons why it gives forth light. It is a fact that neither vegetarians nor humanitarians or Lotharians (whatever they are) can with propriety ignore that the higher stages of organization are associated with carnivorous appetites. The peaceful ox may be as strong as a lion, perhaps stronger when put in harness, but the lion has the advantage in fire and force, and he is "king of the beasts" because he eats them. India submits to the British yoke for several reasons, but one of them is that a large proportion of the conquered races are strict vegetarians, and a large proportion of the conquerors are flesh eaters, and have the advantage of the lions in fire and force. But it is not intended now to indite a large essay on the relation of food to politics, but simply to say a few words about the glowworm. However, to close this paragraph properly, permit me to say that were the glowworm restricted, both by circumstances and by choice, to a vegetable diet, he would cease to glow—he would lack the requisite fire and force. None can deny this who understand the relation of food to phosphorescence.

The glowworm, *Lampyrus noctiluca*, is a beetle, and a very curious beetle too. It is so anomalous, as regarded from the point of view of the systematist, who is bound to find an order and a class for everything, that there is really no proper place for it in any scientific classification of beetles. I shall display my learning by saying that it belongs to the *Malacodermi*, which have flexible rather than horny coverings, and a fair type of which is the pine beetle of Rannoch, a long-bodied brown thing of the shape of a cricket-bat minus the handle, and about a third of an inch long. An interesting point in the life economy of the *Lampyrus* is that the male is winged and but slightly phosphorescent, while the female is wingless and emits a strong and steady light, and is the "glowworm" *par excellence*, for the simple reason that while all have seen her, very few have seen her mate. He is a clandestine lover, whose policy it is to "keep it dark," and yet as a genuine "spark" he can shine when it pleases him, and when you have actually caught the fellow you are likely to be surprised at his unsuspected brightness.

The insect hunter knows how to secure the male, and as for the female, anybody can secure her, for she advertises herself and carries a lantern with her name inscribed upon it. But when she shines most brightly the gallant is not far off. The expert sweeps the grass around and bags him; or he puts a light in a dark place and the lover makes directly for it, being wakeful to what appears the light of love, though stone blind to the light of reason. Thus, in just the way of lighting for moths, the male glowworms may be captured.

The male is a proper beetle, as may be seen in the figure, where he is coquetting to his lady love, and, like a true dandy, doing his best to shine, but not half succeeding; while the bride glows with conscious pride, and values herself in proportion to her objective splendour. But you see a little of the true fire streaming from him, as if he had made final arrangements with Mr. Edison for a supply of perpetual incandescence at a cheap rate, and might go as a prophet amongst the ghebers, if they would but have a dingy beetle for a teacher.

As a study in Natural Theology or Evolution the glowworm is a grand propounding. Archdeacon Paley did not master this subject; nor did Charles Darwin. I am not reproaching them; I do but direct your attention to a subject that is as rich in wonders as any in the world, and those wonders revolve around the idea of *Adaptation*, on which rest the best arguments both of the School of Design and of the School of Evolution. And both schools are dedicated to "natural theology," and have precisely the same ends in view—the discovery of Truth as God hath declared it.

In a casual examination it will be observed that the head of the male is hidden by the thorax, and that the eyes are very large. Do you know how useful to the swan is the black tubercle that adorns its head? This is another lesson in the design or evolution of vision. The swan thrusts his head down to drag a dinner from the bottom of the stream, and the black tubercle

enables him to see the stuff he is collecting. If you are looking far across the country on a bright day, you will spread one hand upon your forehead to make a shade for your eyes. Nature has provided the swan with a needful shade to his eyes from excess of light, and the male glowworm has given him a similar aid to his vision, that when the moon shines brightly above he may still see the soft phosphorescent glow of the little lump of life that is of more importance to him than all the moons in the "Nautical Almanac." In a scientific investigation of this creature you might be tempted to liken his hood to a coal-scuttle, and when you have done so you will call to mind the immense advantage of a shade to the eyes when perpendicular light interferes with a clear perception of terrestrial things.

And there is another study of not less interest. The glowworm subsists on animal food, and is one of the cleanest of little creatures. Dirt is death to it, and yet it can make a breakfast of a fat slimy slug and live through the operation. The vulture lives on the vilest garbage, but is always clean, and Nature denies it a clothing of feathers on the neck because they would become soiled, and the bird could not clean them. Now the glowworm is furnished with a patent sweeping and collecting broom at the very tip of its tail, and in our left-hand figure you see how the broom is used by a twist of the tail, the form of this broom being shown in the diagram of the last few joints placed above the figure of the insect.

The instrument is at once a sweeping fringe and a collecting tube. It acts by a process of suction. The worm applies it in such a manner that the impurities it meets with in brushing its body are collected in the cup or pocket with which the tube terminates, and there the obnoxious particles are pressed into a kind of pellet, which by a peculiar muscular movement is thrown out, and the apparatus is again ready for action. The accumulation of dirt on a glowworm would extinguish its light, and the loss of that would soon bring the race to an end.

The light emitted by the *lampyrus* is of the same nature as that of the far-famed firefly and the less familiar centipede. It is the same, beyond all doubt, as that produced by a dead fish that has been kept some time, and that may often be seen on oyster shells when placed in the dark. The substance that produces the light is a special secretion of an albuminous nature,

which occurs only in the breeding season, and therefore it is only in warm weather in the height of summer that the insect is seen. That the light is in some degree under the control of the insect is probable, although when I have handled glowworms I have often doubted their alleged power of extinguishing the lamp at will, more especially as the soft glow is communicated to one's fingers, just as used to be the case with the old-fashioned phosphorus matches, much handling of which would render the hands luminous for some time afterwards. The subject is discussed in the second volume of Kirby and Spence, p. 418, to which I refer the reader who may desire to make a study of this subject. Its association with warmth is the fact most strongly impressed on my mind. We have had sometimes a few glowworms placed in a fern case to clear away woodlice and snails, and it has been observable that on a chilly night they gave no such lustre as when the night was sultry and the air quite still. Moreover, the *lampyrus* is plentiful only in the southern counties. At all events, this is my observation. I remember driving from Hatherleigh to Okehampton with my friend Mr. John Summers, who, like myself, had been about the world somewhat. During the greater part of the journey—the night being warm, still, and very dark—the road was thickly sprinkled with splashes of blue light, mostly near the turf on each side, but occasionally in the centre, so that our wheels must have killed many of the luminous creatures. We then agreed that such a profuse display of these phosphorescent lights could be seen only in the warmest parts of the country, and more especially in Devonshire. Erasmus Darwin mentions the glowworm as requiring warmth for the generation of its lustrous adornments in the first canto of his "Botanic Garden." Having invoked the "effulgent maids" that superintend the production of phosphoric lights, he proceeds to sing thus:—

You with light gas the lamps nocturnal feed,
Which dance and glimmer o'er the marshy mead;
Shine round *Calendula* at twilight hours,
And tip with silver all her saffron flowers;
Warm on her mossy couch the radiant worm,
Guard from cold dews her love-illumined form,
From leaf to leaf conduct the virgin light,
Star of the earth and diamond of the night.

The glowworm is but rarely seen in the immediate neighbourhood of London, and I have wearied of searching for it in all the more likely suburbs. Once, however, I had an experience similar to that of the man who during twenty years hunted through the world for Parkinson's daffodil, and in the end found it growing in his own grass field—practically on his own doorstep. Some lady visitors had been conversing with me on this very subject, and I had told them it was vain to hope to see glowworms in a London garden. But strangely enough, when they were quitting the house we saw a blotch of blue light on the margin of the garden walk, and it proved to be a glowworm, and it communicated its light to my fingers. That was the only occasion of such an experience to myself, and it occurred in the Green Lanes, about the distance of a furlong on the London side of the tower of the New River Company.

ALPHABETAGANNA.



THE GLOWWORM.

A, Male and Female *Lampyrus*, slightly enlarged. B, The Female, cleaning her body.
C, The Cleansing Brush.

Notes of Observation.

EARLY CHERRIES.

In the collection of fruits exhibited by Messrs. T. Rivers and Son at South Kensington, on the occasion of the evening fête, were several cherries which well deserve to be more generally known and cultivated than at present, appears to be the case. One of the first to be mentioned is the Bigarreau de Schrecken, a comparatively new variety of great merit; the fruits are of large size, almost jet black in colour, delicious in flavour, and early in attaining maturity. The fruit is indeed so good, and the tree such an excellent bearer, that for the orchard house and the open wall the variety is of much value. Very fine also is the Guigne d'Annonay, of which they had a remarkably fine dish. The value of those useful varieties Early Red Guigne and Early Rivers for orchard house culture was admirably exemplified by the large pot specimens exhibited by the firm. The trees of each were between four and five feet high, of a proportionate diameter, and literally loaded with fruit. That the trees were carefully selected from a large collection there can be no doubt, but they nevertheless showed that under good culture most excellent crops may be obtained from trees in pots. Early Rivers is a black variety which has the great merit of bringing heavy crops of fruit of the most delicious flavour to maturity on a very early date. It may in fact be described as one of the most useful of the early black cherries. Early Red Guigne has pale red fruit, and from its high quality, productiveness, and handsome appearance, forms a capital companion to the Early Rivers.

PRACTICAL FRUIT GROWER.

EARLY NECTARINES.

The early nectarines exhibited by Messrs. Rivers on the occasion referred to in the preceding note were not less interesting than the cherries, and were certainly not less valuable. The firm exhibited several trees of Lord Napier, which is now so highly esteemed by cultivators, and a dish of fruit of Dryden, a more recently-introduced variety, which is as yet but little known. Lord Napier is about equal in size to the Elruge, but it is several weeks earlier, a matter of great importance, and it is decidedly richer in flavour. Out of doors the fruit of Lord Napier begins to ripen early in August, whilst that of the Elruge does not attain maturity until quite the end of the month. Lord Napier is hardy in constitution, and unsurpassed in productiveness and the appearance of its fruit. The fruit exhibited of Dryden was remarkably fine, being of large size and of a rich deep red. I have had no experience with it myself, but the fruits are described as having a white flesh and being finely flavoured. It is certainly worthy of a trial, and from what I have seen of it I shall be much surprised if it does not prove a valuable acquisition.

PRACTICAL FRUIT GROWER.

THE CONKLING PEACH.

The Conkling peach exhibited by the Messrs. Rivers did not strike me as likely to meet with much favour at the hands of fruit growers. The fruits as shown were of medium size, and, like other yellow peaches when the skin is destitute of the slightest trace of red, were by no means tempting in appearance. This is the newest of the new peaches, and although I was not taken by its appearance at South Kensington, those who have plenty of space at command should, in the interests of pomology, give it a careful trial, and in due course give publicity to the results. I was disappointed in not meeting with a dish of the Alexander peach in the Sawbridgeworth collection, for it is so valuable for its earliness and high quality that it cannot be brought too prominently into notice. The Messrs. Rivers did send a dish of the Alexander to the May exhibition of the Royal Botanic Society, but the authorities presented them to the Princess of Wales before the exhibition was open, and in consequence the practicals present in the afternoon were deprived of the opportunity they would have had for making the acquaintance of so fine a peach.

PRACTICAL FRUIT GROWER.

DENDROBIUM DALHOUSIANUM.

In your notice of Leyton Flower Show this plant is mentioned as having about twelve spikes. Its merits were not overstated, for it had eighteen, all of which were perfectly developed, and they are still on the plant. I should not have noticed the remark had I not been anxious to say that this beautiful species ought to be more generally cultivated. I hope it is not neglected because it is old. Still it is neglected, and yet if it was introduced to the Floral Committee at South Kensington as a new plant it would certainly create a sensation amongst the orchidophiles. Like nearly all the dendrobiums, it has its growing season, and afterwards it requires a season of rest, when very little water indeed should be supplied to the roots; but being an evergreen species it must not be quite desiccated. Give it plenty of pot room and it will produce immense growths, which flower the second season. *D. clavatum* is another species one seldom sees at exhibitions or in collections, but it seems to have been exhibited in good condition at the last Manchester Whitsun exhibition. It is one of the best deep yellow-flowered species that bloom in the summer months, and if it can be obtained true is well worth the attention of cultivators. Dendrobiums require more sun than many other genera of orchids, and if they are shaded too closely when making their growths they cannot be expected to flower well. They must also have a good resting period in winter.

Loxford Hall, Hford.

J. DOUGLAS.

MIMULUS CUPREUS.

Referring to the notice of this mimulus at page 309, I am not sure whether it is right to tack poor Mellor's name to the plant in question. Is there any proof that he raised it at all? I am almost sure that Mellor told me he had the plant given to him, when I saw a glowing bed of it in his garden two or three years ago. With his usual kindness, he gave me a clump to take home with me; and I fancy the Editor saw a bed of it in our garden last year—at least, many persons did see it. Any one can see it now, and very beautiful it is; but it is only the best variety of *Mimulus cupreus* after all. I shall be pleased to take a clump to South Kensington. Then, if it is found to be a new variety raised by the late Mr. Mellor, by all means let it bear his name.

Loxford Hall, Hford.

J. DOUGLAS.

SUTTONS' LATE QUEEN BROCCOLI.

From the report of the meeting of the Royal Horticultural Society held on June 13 I learn that Messrs. Sutton and Sons exhibited on that date fine heads of their Late Queen broccoli, and I should like to state for the information of your readers that I have been able to cut fine heads even later. We have it thus settled in the most satisfactory manner possible that with the assistance of this fine variety it is practicable to supply the table with excellent broccoli up to the middle of June. Later than this we hardly want broccoli, as the early cauliflowers are then coming forward, and we have had an abundance. We were, indeed, cutting cauliflowers and broccolis at the same time. The greatest value of Suttons' Late Queen consists, in my opinion, in the abundant supply it affords from the end of April until the first week of June, and from a breadth of moderate size we were able to supply the table almost every day. This variety is simply invaluable, for it is of excellent colour and most delicate in flavour. It is well worthy of notice that is hardy as well as late, and in the two winters preceding the last, which, as is well known, were of exceptional severity, a percentage of the plants escaped, and we had good supplies in May, 1880 and 1881, as in the month just past.

GOWER'S CURLED GOLDEN FEATHER.

This form of the golden feather, which has been recently introduced by Mr. Gower, of Tooting, is likely to quite supersede the ordinary type for the choicer work. Whilst quite equal in colour, the leaves are somewhat crisped, and form a more dense band or truss, and consequently have a much richer appearance. That it comes true from seed is an important fact, as no plant of this description would possess much utility unless it could be multiplied in the most simple manner. To my mind, it is a most useful addition to the list of bedding plants with golden leafage.

G. S.

SHOW PELARGONIUMS.

It is not so long since that, in competing for prizes offered for "show pelargoniums," it was considered necessary to stage "show" varieties; that is to say, varieties bearing flowers of good shape and quality. But now all this is changed, and in the classes provided for show flowers, if the terms of schedules have any meaning, we invariably have a large proportion of the coarse decorative varieties, which ten years or so since were considered as fit only for market culture. Not only does the practice prevail of staging market sorts at provincial shows, but at the metropolitan exhibitions they usually predominate. Judges are not altogether free from blame in the matter, for, as at the exhibition held by the Royal Botanic Society in May last, some of the judges consider mere size of the specimens and a blaze of colour of the greatest importance, and quality of the flowers and finish of the plants as a quite secondary matter. If the relative merits of the show and decorative varieties are discussed with growers who now occupy a leading position, complaints are made of the long-jointed growth of the show varieties as compared with the market kinds, and the difficulty experienced in producing good specimens. Ten years ago we had at the exhibitions specimens quite half as large again as the best that are shown at the present day, and so densely flowered that it would have been difficult to put the point of a pencil between the flowers without touching them. The same varieties are available now, and in addition we have a very large number that are much superior, both in the habit of the plant and the quality and the colouring of the flowers. My practical acquaintance with show and fancy pelargoniums extends over quite thirty years, and I am quite sure that I shall be stating no more than the barest fact in saying that at no time during that period has the cultivation of these two sections been at so low an ebb. To see, as I have recently done, such indifferent varieties as Digby Grand and William Bull figuring in a first-prize collection at a metropolitan gathering is terribly trying to one's patience.

O. P. Q.

Correspondence.

PROPAGATING POTS.

In reading your report of the exhibition of implements, garden appliances, &c., at South Kensington, I observe that Mr. Matthews, of Weston-super-Mare, was awarded a special certificate for a propagating pot introduced by me and patented nearly thirty years ago, i.e., in the year 1855. A full description, with engravings, appeared in the *Gardeners' Chronicle* of July 7, 1855, showing the pots as used with the glass shades; also in the *Floral World*, July, 1858, and *Gardeners' Magazine*, February 21, 1863. Specimens were also shown at the autumn meeting of the Horticultural Society, 21, Regent Street, which was on the 20th November, 1855, when the contrivance received honourable mention. The patent right was purchased by the late Mr. Joseph Pascall, of Chislehurst, Kent, who had also purchased my patent West Kent garden pots, which I introduced in 1846, and the which have been very extensively employed by most of the leading plant growers and exhibitors. I presume the above facts were forgotten, lost sight of, or not known to the present management of the Horticultural Society at South Kensington, or they undoubtedly would never have so prominently noticed my invention, although shown by others, after the lapse of so many years. It is strange, however, that the judges should award a certificate for a thing they should have known more about.

Further Green, Lewisham, June 5, 1882.

GEORGE FRY.

IS THE FLORIST'S CINERARIA A HARDY PLANT?—We will not pause for a reply, but will state a fact. We have before us a truss of flowers of a good cineraria, crimson with white inner ring. It is forwarded by our esteemed friend Dr. Kellock, of Stamford Hill, and by him reported on as grown by Mr. Browne, F.R.H.S., at Teignmouth. Given a warm spot and a winter without frost, and it may be said that the cineraria is a hardy flower.

"SPRING'S DELIGHTS" can only be actually realized by those who live in healthy houses, and who combine known sanitary measures for the prevention of such infectious diseases as smallpox, scarlet fever, and measles. The remedy actually becomes a luxury when the washing of Toilet, Bath, and Nursery is conducted with WRIGHT'S COAL TAR SOAP. Refuse all imitations, which are but dangerous counterfeits. [Advrt.]

Exhibitions and Meetings.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—FIRST SUMMER SHOW, JUNE 13.

THIS society opened its fifty-second season on the above date by a display of plants, blooms, fruits, and vegetables, in the beautiful sylvan retreat known as Worcester College Gardens, Oxford. The gardens were in good trim, having been very carefully tended in view of this event, which has for over half a century been considered one of the chief of the round of outdoor gatherings compressed into the five or six days known as "Commemoration Week." Worcester Gardens are spacious and very shady, and have as an additional charm a lake of considerable area, on the surface of which swans disport, and water plants thrive and bloom; the only adjunct necessary to make the place enjoyable is a fair amount of sunshine. On the present occasion the weather was from the first doubtful; the few days previous had been cold and as unlike June as could be. Indeed, at the Promenade in the Broad Walk on Sunday evening, and at the Procession of Boats on the Isis on Monday evening, the ladies were compelled to don wraps and cloaks to ward off the north-wester prevailing. Tuesday's sun shone early, but treacherous; gleaming brightly, but watery; and so it proved, for as the afternoon wore on, and just as the visitors were mustering in good force on the ground, the rain came on, at first with a drizzle, and then increased to a continuous downpour till dusk, thus marring one of the best exhibitions this society has held for many years past. At this "first" show, or, as it is always called, "Commemoration Show," prizes of fair value are offered (open to all England), and this season the competition fully justified and fulfilled the expectations of the executive. As these classes contained the principal attractions of the show, we purpose noting briefly the varieties exhibited, commencing with the

STOVE AND GREENHOUSE PLANTS.—Here Mr. James Cypher, Cheltenham, led with nine grand examples, securing the £10 prize with *Erica Cavendishi*, quite seven feet through; *E. depressa*, a magnificent bush; *Ixora regina*, splendidly fresh and bearing a large number of fine corymbs; *Clerodendron Balfourianum*, *Anthurium Scherzerianum*, *Dracophyllum gracile*, *Aphelexis macrantha purpurea*, *Azalea Roi de Hollande*, and *A. elegantissima*, an immense pyramid aglow with colour. The second prize of £3 was awarded to Mr. E. Tudgey, Henwick Grange, Worcester, for large well-bloomed specimens of *Anthurium Scherzerianum*, *Ixora Williamsi*, *I. coccinea*, *I. Prince of Orange*, *Clerodendron Balfourianum*, *Azalea Brilliant*, *Dracophyllum gracile*, *Erica Cavendishi*, and *E. ferruginea*; the *azalea* and the *heaths* being very large, fresh, and densely bloomed. The third prize of £5 fell to an old exhibitor at Oxford, Mr. W. Chapman, gardener to J. Spode, Esq., Hawkesyard Park, Rugeley, Stafford, his group containing several fine examples, though smaller than his compeers'. The collection comprised *Phenocoma prolifera*, *Hedera tulipifera*, *Ixora coccinea*, *I. Colei*, *Dracophyllum gracile*, *Aphelexis macrantha purpurea*, *Erica depressa*, *E. Cavendishi*, and *E. ventricosa grandiflora*.

In the members' class for plants there was a fair show of stove and greenhouse plants in groups of eight and six each. In the former the card went to Mr. Pearce, gardener to W. M. Foster-Melliar, Esq., North Aston Hall, Oxon; while in the latter W. Wootten-Wootten, Esq., Headington, Oxford, presented very neat specimens, and also secured the card for four heaths.

CAPE HEATHS were staged by the above exhibitors in groups of half a dozen each, Mr. Cypher heading the list, and securing the first prize with finely-formed bushes of *Erica depressa*, *E. affinis*, *E. tricolor speciosa*, *E. Ne Plus Ultra*, *E. ventricosa rosea*, and *E. ventricosa Bothwelliana*; Mr. W. Chapman second with *E. Cavendishi*, *E. odorata*, *E. ventricosa alba*, *E. ventricosa grandiflora*, *E. ventricosa magnifica*, and *E. depressa*; Mr. E. Tudgey third with *E. tricolor Wilsoni*, *E. tricolor major*, *E. Massoni major*, *E. mutabilis*, and *E. Cavendishi*.

SHOW AND FANCY PELARGONIUMS were beautifully staged by Mr. C. Turner, Slough, who was first in the classes for the two sections. The specimens forming the two collections, although rather small, were well flowered, their individual character fully sustaining his reputation as an exhibitor in this department. Among the show section were *Maid of Honour*, *Joe*, *Mountain of Light*, *Alice*, *Patroness*, *Illuminator*, *Venus*, *Viscount*, *Modesty*, *Hector*, *Kingston Beauty*, and *Ritualist*; and the fancies included *Lady Harvey*, *Fanny Gair*, *Miss Little*, *Jewess*, *Pilgrimage*, *East Lynne*, *Jannette*, *Mrs. Pope*, *The Shah*, *Polar Star*, and *Roi des Fantaisies*. In this latter class E. Dyke Lee, Esq., Hartwell House, Aylesbury, put up a fair group, although a trifle leggy; but it failed to secure the second prize, owing to one specimen not bearing the characteristics of a "fancy" pelargonium. An "extra" prize was awarded instead.

SOFT-WOODED PLANTS, comprising fuchsias, zonal, tricolor, and bicolor pelargoniums, were well grown and in fair display, as were the ferns, both exotic and hardy. *Gloxinias* comprised two groups, and *achimenes* one.

SPECIMEN PLANTS were not above the average, if we except a well-bloomed *Acerides virens superbum*, the noble *Latania borbonica*, staged by Mr. C. Pearce; the *Hemanthus puniceus*, by W. Wootten, Esq.; the charming *Adiantum pedatum*, by Mr. J. T. Castell, Crown Yard, Oxford; and the splendid fuchsias, by Mr. Joseph Bates, Blenheim Nursery, Oxford, and Mr. E. Thorne, Laburnum Cottage, Oxford.

CUT FLOWERS were on this occasion plentiful, and included a few tastefully-arranged dinner table decorations in three and single pieces; hand bouquets and buttonhole bouquets, collections of twenty-four and nine bouquets, collections of bouquets of hardy perennials, stands of pyrethrums, pansies, pinks, and ranunculuses, all more or less very meritorious, and certainly an advance on the past three seasons. The chief attraction, however, were the many fine boxes of

ROSES.—In the classes open to all England, Mr. Charles Turner held his own against two amateurs, who, however, pressed hard for first place, his blooms being large, well built, and representing the following varieties: *Abel Carrière*, *A. K. Williams*, *Devoniensis*, *La France*, *Mme. Victor Verdier*, *Mrs. Baker*, *La Rosière*, *Mme. Marie Verdier*, *Sénateur Vaisse*, *Souv. d'un Ami*, *Star of Waltham*, *Perle des Jardins*, *Prince Arthur*, *Marie Van Houtte*, *Marquis de Castellane*, *Mme. Hippolyte Jamain*, *Baroness Rothschild*, *Duke of Wellington*, *Cheshunt Hybrid*, *Charles Lefebvre*, *Charles Darwin*, *Captain Christy*, *Catherine Mermet*, and *Alba rosea*. Miss

Watson-Taylor, Manor House, Headington, second with blooms of good size, substance, and pure colours; the varieties represented were, *Eli Morel*, *Mons. E. Y. Teas*, *Maréchal Niel*, *A. K. Williams*, *Captain Christy*, *Etienne Levet*, *Niphotos*, *Duchesse de Valombrosa*, *Catherine Mermet*, *Mme. Welch*, *Beauty of Stapleford*, *Belle Lyonnaise*, *Marie Baumann*, *Marie Van Houtte*, *Souv. d'un Ami*, *Prince Camille de Rohan*, *Dupuy Jaumain*, *Cheshunt Hybrid*, *La France*, *La Boule d'Or*, *Duke of Edinburgh*, and *Alba rosea*, the last-named very fine. The third place was filled by Mr. Alfred Evans, dairyman, Marston, near Oxford, with a nice level box of fresh blooms. In the members' class for twenty-four blooms Miss Watson-Taylor (gardener, Mr. F. Gorden) defeated the Rev. E. Penwarne-Wellings, Stanford-in-the-Vale, whose box contained a very choice collection of good blooms, her box being arranged with much the same varieties as in the "open" twenty-four. For eighteen blooms the card went to E. D. Lee, Esq., for an average lot; Mr. A. Evans, leading in the twelves, and Mr. J. Tranter, Henley-on-Thames, in the division for nine varieties. As an extra, Mr. George Prince, Oxford and Longworth, staged a fine dozen blooms of *Maréchal Niel* and a dozen of *Comtesse Nadailac* of fine size and splendid colour, and it may be added that perhaps a finer dozen of this variety have never graced a show. A collection of tea-scented varieties grown round the walls under the thatched eaves of the farm buildings were also staged by Mr. Prince, which spoke volumes in favour of the "seedling brier" culture, each bloom being of deep colour and stout petalled. The varieties were, *Maréchal Niel*, *Marie Van Houtte*, *Madame Lambert*, *Niphotos*, *Souv. d'un Ami*, *Perle des Jardins*, *Alba rosea*, *Catherine Mermet*, *Comtesse Nadailac*, *Innocente Pirola*, *Anna Olivier*, *Mons. Furtado*, *Souv. d'Elise Vardon*, and *Souv. de Madame Pernet*. Some pretty examples of moss roses were exhibited by Mr. Prince; *Blanche Moreau*, a white perpetual well-mossed variety being very noticeable.

FRUIT was not quite equal to some June shows held here. Mr. J. Thomas, gardener to the Dowager Mrs. Drake, Bignell House, Bicester, Oxford, led with well-finished Foster's Seedling and Madresfield Court grapes, Hero of Lockinge melon, Stirling Castle and Noblesse peaches, and Lord Napier nectarines. Strawberries, though few dishes were on view, were of large size; Sir Joseph Paxton, Keen's Seedling, President, and British Queen being the varieties staged. A fine dish of fully ripe Turkey figs, and a dish of tomatoes were staged by Mr. John Gough, Buckland Park Gardens, Faringdon, and were highly commended.

VEGETABLES.—Cucumbers were plentiful; the Telegraph variety the most prominent prize winner. Cauliflowers rather mediocre in texture; while potatoes have rarely been so large and handsome, Ashleaf type predominating, Foxe's Seedling standing high in the amateur class. Peas were plentiful, William I. and Laxton's No. 1 forming the staple. A few good dishes of long-pod and broad beans were on view. Canadian Wonder was attached as the name of the winning dishes of French beans. Rhubarb is always done well in this neighbourhood; the stalks are long, straight, and richly coloured. "Stott's Monarch" was introduced at this show for the first time at Oxford, and the six stalks (like giants' clubs) presented for a prize by Mr. George Browning, Ship Street, Oxford, failed to attract the notice of the judges, owing to their deep green colour; otherwise the stalks were straight, solid, and weighty. Cabbage, lettuce, carrots, and turnips were well put on the tables. Some special interest was attached to this department of the show in consequence of the competition for

WEBB AND SONS' SPECIAL PRIZES.—There were eight competitors, staging six kinds each, the premier prize, £3 3s., going to Mr. J. G. Kitching, gardener to S. P. Brooks, Esq., North House, Tewkesbury; second, £2 2s., Mr. John Gough, gardener to Sir W. Throckmorton, Bart., Buckland Park, Faringdon; third, £1 1s., Mr. C. Pearce, gardener to W. M. Foster-Melliar, Esq., North Aston, Oxon; and fourth, Mr. George Kirtland, Blethingdon, Oxon. A very extensive display was made by cottagers from the villages of Headington, Baldon, Nuneham, and Barton, Oxon, and Wytham, Berks, whose strawberries, potatoes, cauliflowers, carrots, cabbage, and lettuce were of creditable size and quality.

MISCELLANEOUS EXHIBITS comprised a box of twenty-four colours of auricula-eyed sweet williams, from Mr. John Walker, Thame; boxes of single and double forms of tuberous-rooted begonias, from Messrs. Laing and Sons, Forest Hill, S.E., and basket of carnation *Souv. de la Malmaison*, by Mr. C. Turner.

First-class cultural Certificates were awarded to Messrs. Laing and Son for double and single begonias; and to Mr. C. Turner for a batch of new show pelargoniums comprising the following varieties:—

Zealot, rich crimson-scarlet with dark spot; very glowing.

Royal Review, after the character of Scottish Chieftain, but of a higher quality, rich dark painted crimson, black top-petals edged crimson.

Cornet, pale orange-scarlet; a free bloomer and effective.

Statesman, pale rose, maroon top petals, white centre, large flower, very circular.

Duke of Albany, large rose-coloured variety, maroon blotch, clear white centre.

Morning, deep glowing crimson, very showy.

Comet, deep red; profuse bloomer.

Sister of Mercy, rich painted crimson, lower petals black, top petals with narrow margin of rose, clear white centre; and

Veteran, a large fine flower, rose with maroon top petals, white centre.

The judging was entrusted to Mr. C. Turner, Slough; Mr. W. Daniells, Swyncombe Park Gardens, Henley, Oxon; and Mr. C. Hill, Rewley Nursery, Oxford, and other members of the executive assisting.

The musical share of the day's programme was divided between the bands of the Royal Marine Light Infantry (Portsmouth Division) and the Oxford City. The arrangements went as smoothly as could be desired under the circumstances, and gave great credit to the executive, who so ably directed the newly-elected secretary.

Oxford.

WILLIAM GREENAWAY.

EALING AND DISTRICT GARDENERS' SOCIETY.

This useful society had a pleasant outing on the 15th inst., and two sides of members played a friendly cricket match in the grounds of the "Green Man," Ealing. The players on either side were selected on the ground, and some very good play was shown all round. W. Jennings's side was decidedly the strongest, and won an easy victory in one innings.

In the evening the players, reinforced by a number of brother gardeners, who could not attend earlier in the day, sat down to an excellent tea in the club room of the Green Man inn, about fifty being present. Mr. R. Dean, the vice-president of the society, occupied the chair, and was supported by Mr. S. Simmonds in the vice-chair. After justice had been done to the repast the chairman proposed, "Success to the Ealing and District Gardeners' Society," and pointed out the advantages resulting from membership; and, alluding to the recent spring show held by the gardeners of Ealing on behalf of the library fund of the society, said that the sum of £10 was available for the purchase of books. He exhorted all to be diligent in their business, and especially recommended the young gardeners to qualify themselves for taking the highest possible positions in their profession, and advised them to read well the contents of the gardening papers, and apply the knowledge so gained in their practice. Several other toasts were drunk, and some capital singing enlivened the proceedings. The company broke up at a comparatively early hour, much delighted with their enjoyable half-holiday.

It is proposed another such a match should be played during the month of August. Annexed is the score:—

W. JENNINGS'S SIDE.—R. Dean, b C. Sargood, 20; J. Passy, b Horan, 1; W. Rhodes, c Holden, 19; J. Jennings, 1 b w, b Sargood, 36; W. Jennings, b Newell, 18; T. Small, c Stone, 4; R. Burnham, b Stone, 11; J. Harman, b Horan, 3; G. Weeden, not out, 12; A. Foster, b Sargood, 10; extras, 3; total, 137.

MR. J. NEWELL'S SIDE.—1st innings: J. Stone, b W. Jennings, 5; J. Newell, c R. Dean, 0; E. Huntley, b J. Harman, 0; C. Sargood, run out, 4; T. Horan, run out, 11; W. Absalom, b Harman, 0; A. Harris, b W. Jennings, 4; S. Simmonds, not out, 10; J. Holden, c R. Dean, 6; J. Nye, b J. Harman, 2; extras, 10; total, 52. 2nd innings: J. Stone, b W. Jennings, 0; J. Newell, b W. Jennings, 0; E. Huntley, b J. Jennings, 10; C. Sargood, not out, 7; T. Horan, b W. Jennings, 3; W. Absalom, b J. Jennings, 0; A. Harris, run out, 0; S. Simmonds, b W. Jennings, 5; J. Holden, b J. Jennings, 1; J. Nye, run out, 0; extras, 5; total, 31.

NEWLY-IMPORTED ORCHIDS.

KNOWING the risks incurred in purchasing and establishing newly-imported plants by those who have an imperfect acquaintance with orchids, I invariably advise amateurs to make a beginning with established examples obtained from a nursery. The cost of each will be higher, but, as I advise my friends, the gain is not so great as at first sight appears to be the case. There is no risk of examples that are well established or doing otherwise than continuing in a thrifty state, and gradually increasing in size and attractiveness, provided they receive proper care. But in dealing with those newly imported you are not sure that they will all grow even when bought with care, and a considerable period must elapse before they are sufficiently established to bloom freely. Those who are not conversant with the appearance of orchids as they arrive in this country are as likely as not to purchase plants possessing but little vitality, and they may fail to induce the most thrifty to grow because of their not being acquainted with the conditions most favourable to them immediately after their removal from the cases in which they are transmitted to this country. There are, however, many amateurs who are prepared to incur whatever risk may be attached to the purchase of newly-imported orchids, and from the letters which have recently reached me through the Editor it is evident that there is a very general desire for some information upon the subject. In complying with the wish that I should deal with the matter, I am not unwilling to acknowledge that considerable interest is attached to flowering orchids for the first time. The interest is, indeed, nearly as great as the raiser of florists' flowers takes in the flowering of his seedlings. In the case of the odontoglossums, *lælias*, *cattleyas*, *masdevallias*, and other genera, of which the species differ greatly in the size, shape, and colour of the flowers, the work is not without profit, as it may happen that a variety so good as to command a high price will turn up. It is not of course an every-day matter for a variety of *Odontoglossum Alexandræ* or of *Cattleya gigas* worth from twenty-five to fifty guineas to make its appearance in a small importation; but they do appear, and it would be an easy matter to give numerous examples in support of the assertion were it necessary to do so.

The classes of orchids purchased must of course be determined by the taste of the cultivator and the conveniences at command, and the point need not be discussed. It is, however, important that the plants bought should be alive, and whether those newly imported are so or not will at first perplex those who are only accustomed to them in a growing state. None of the kinds will present a very promising appearance as they are arranged in the sale-room, and many of them will appear nearly or quite dead until they are carefully examined. The *vandas* and *aerides* will have a much shrivelled appearance, but there will not be much trouble in determining whether or not they are likely to recover, and those that are not fairly promising should not be bought by the amateur with limited experience. *Dendrobiums* suffer less than most orchids from long voyages, when the care is taken to collect them at the proper moment, and it can be at once seen whether they are likely to start freely. *Odontoglossums*, *oncidiums*, *cattleyas*, and *lælias* occasionally perplex the experienced grower; but if care is taken to purchase those clumps only which are free from black half-rotten pseudo-bulbs the failures are not likely to be numerous. When the new growth is beginning to start, there is of course no difficulty, and the veriest tyro may feel himself perfectly safe in buying clumps on which green points may be seen pushing from the base of the pseudo-bulbs.

In starting newly-imported orchids, the chief matters to guard against are a relatively high temperature and an excess of moisture. Those which require the temperature of the East India house when established, the *saccolabiums* and the *phalanopsisids*, should not, until

they are making new growth, be subjected to a temperature exceeding that of the *cattleya* or Mexican house. All the others should have the assistance of a temperature similar to that in which the *odontoglossums* and the *masdevallias* thrive. A position in which they can enjoy a rather liberal degree of atmospheric humidity is required by all the kinds; for until they have begun to make new roots they must not be potted in sphagnum or peat, or whatever may be required for the roots to run in. The *phalanopsisids*, which are unquestionably the most valuable of the East Indian orchids, because of their blooming during the winter, and the great usefulness of their flowers in a cut state, should be attached to small pieces of wood, and be suspended in a shady position. A strip of deal about three-quarters of an inch in thickness and three inches in width by four inches in length will answer admirably, and it should not be planed, as the rough surface retains a moderate degree of moisture which is most beneficial to the plants. The strips should be suspended by the edge, so that no water can remain about the roots. They can remain on the strips of wood until the roots are beginning to extend, and new leaves are being produced, when they can be taken off and potted or put in baskets in the usual way. The *vandas* and others of a similar habit should be suspended by the base to prevent the moisture setting in the axils of the leaves, more particularly at the top. In from two to three weeks they can be put into pots or baskets, but until they show unmistakable signs of new growth they must have no more moisture than is necessary to keep the moss or peat just damp. More moisture than this will probably cause some of the roots to decay, and be otherwise injurious. Atmospheric humidity, on the other hand, will be most beneficial in assisting them into growth.

The *dendrobiums*, *odontoglossums*, *oncidiums*, *cattleyas*, and others with pseudo-bulbs, should be carefully examined and have all the pseudo-bulbs and roots that show any signs of decay removed before they are put in the house, and clumps of very large size should be divided into portions of moderate size. The parts of each clump should have some distinctive mark, so that if the flowers happen to possess special merit it can be at once determined how many plants there are. The tallies will also be useful if it should be desired to make up a large specimen with several parts without waiting until they have all bloomed. Thus prepared, place the plants upon a layer of damp sphagnum in a shady corner, and there leave them until they are beginning to make new growth, giving an occasional skiff from the syringe to maintain the moss in a nice moist state. The roots should rest upon the sphagnum and not be covered with it. *Dendrobiums* and the free-growing *oncidiums* may be placed on a bed of moss underneath the side tables when there is a pressure upon the space, and they will do as well there as in any other position, provided they are not saturated with drip from the plants above.

Very soon after they commence to make new growth they must be taken in hand and be put in pots or baskets, or on blocks according to their habits and requirements. In most cases it is desirable to break the clumps into pieces of moderate size, with from two to six breaks each, even where large specimens are required, for by so dividing them, and then growing them in separate pots for two years or so, it is possible to obtain specimens with a much stronger growth than is otherwise possible. It is an easy matter when they are established to arrange them in four plants to form an effective specimen, and when it is done with care and at the usual time of repotting none of the objections that are urged against made-up specimens will properly apply to them. Slender-growing *dendrobiums*, such as the exquisitely beautiful *Dendrobium Devonianum* and the pleasing *D. Pierardi*, appear to the greatest advantage when suspended from the roof, and as they do as well in baskets as in pots they should be put in them. Baskets of teak-wood are neat in appearance and have much to recommend them on the score of durability. *Cattleyas* and *lælias* should be put in pots or deep pans, with sufficient crocks to keep them well above the rim without a large quantity of peat about the roots, and the greatest possible care must be taken in watering, as when they are well rooted they do not require over much moisture. The smaller-growing subjects, such as the majority of the *oncidiums*, *odontoglossums*, *masdevallias*, *epidendrums* of small growth, *dendrochilums*, *Ada aurantiaca*, and others of a similar character, should be put in pots or shallow pans. The pans manufactured by Mr. Matthews specially for orchids are of special value for newly-imported orchids, and are now largely employed in the principal London nurseries. It is not surprising that they should be held in high esteem, for not only do the orchids succeed as well as could be desired in them, but they are cheap and can be packed in so small a space that the cost of carriage is trifling. To prepare the pans, fill them about one-half their depth with rather small crocks, and then cover with a layer of peat or moss as may be the most suitable for the plants to be put in them. Upon this place the plant, and pack the material firmly about the roots. The *phalanopsis*, it may be stated, do remarkably well in the pans. Pots, when employed, must, as for the *cattleyas*, be nearly filled with crocks. Water must be sparingly applied at first, and as growth proceeds the supply must be regulated by the progress made and the requirements of the several species. ORCHIDOPHILIST.

FAVERSHAM CHERRY CROP.—A few days since the fruit in several of the leading cherry orchards in the neighbourhood of Faversham was submitted to auction, and unusually good prices were realized. At the Boughton sale, the cherries in one orchard alone, which were sold last year for £110, now fetched £280, the price of other orchards being proportionately high. The cherries on the Noud's Estate, which are always an important feature of these annual sales, brought in £1,430 10s., or close upon £100 more than last year, when the amount exceeded that of the previous year by £524.

THE ARCHITECTURE OF THE WOODS.

NOTES OF AN OUTDOOR LECTURE.

By GEORGE MILNER.

In Heber's "Palestine" there is a passage—probably the best known in the poem—which describes the silent building of the ancient Jewish Temple, and uses as an image the growth of a tree—

Then tower'd the palace, then in awful state
The Temple roared its everlasting gate:
No workman steel, no ponderous axes rung!
Like some tall palm the noiseless fabric sprung.
Majestic silence!

I often think of these lines when I am walking through the green avenues of the forest. Noiselessly but surely and with unerring perfectness the multitudinous building is for ever proceeding.

Most people take some interest in the study of stone architecture, especially if it be ancient, and why not a similar interest in the architecture of the woods? It may be that the resemblances to Gothic architecture which are generally discoverable in the long colonnades, the diminishing vistas, and the pointed arch-branchings of a great wood, are entirely fanciful, and have no actual connexion with each other, but the likeness is there none the less, and it may present our subject in a new light if we pursue the idea of a parallel between the two kinds of building.

Let us ask, then, how the tree is built. First, the foundations are laid in the dark earth. Before a single fibre is allowed to appear above ground, the root tendrils are developed. These are few and rudimentary, but they are good for their office, and precede the superstructure. Afterwards the building of the two parts is contemporaneous, the foundations being widened and deepened just in proportion to the demands of the external erection. Next come the walls and broad pillars of the base—the strong bole or trunk, and from this rise the branches, which are the round, or the pointed, or the cusped arches of the building. And then comes the delicate tracery—the stems, the lithe twigs, the pendent leaves running hither and thither, and decorating the whole.

All good architecture implies the erection of a building for certain specific uses, and according to the principles of a certain style. The use is first and paramount, and if the building cannot be made to sustain fully the uses for which it was designed without breaking the rules of the style, it means either that the style chosen is a bad one intrinsically, or the wrong style for the particular purpose; or that the architect is himself inadequate for his work—a craftsman who is not master of his materials. But in this building of a tree both use and style are right and in harmony—the architecture subserves its purpose. First, the tree must have its hold upon earth. For that the root foundation is essential, and we have therefore a subterranean system of branches which cling to the soft earth, and lay hands, as it were, upon the hard rock. If you would understand how skillfully all this is accomplished, get into the bed of a mountain torrent in the dry season; and, where the winter floods have swept away the face of the bank, you will see exposed the mystery of the foundation, and learn how cunningly every fibre does its work, now burrowing downward, now spreading out vertically, and always, if possible, staying itself upon the biggest boulder in its neighbourhood. Of course the roots have another function—the nourishing of the tree; but that is not a part of our present subject. I am speaking of the tree only as a piece of nature-building, and pass on to the trunk, which has a twofold object. The root is for the earth alone, the trunk is both for earth and sky; it rests upon the one, but it aspires to the other; and to this end note how wonderfully strength is combined with flexibility, the power to hold with the power to yield.

In order to understand this you should carefully study the lines of growth in some great oak. Look, for instance, at some of those which may be seen at Trentham, and observe how wonderfully the curvature and twist of the lines in the trunk indicate the two objects—tenacious grasp of the earth—firmness as of the base of a lighthouse tower, and preparation for elasticity and grace above. If you wish to see an exemplification of strength alone, without the accompaniment of grace, look at the yew-tree in the churchyard at Darley Dale, the yew-tree which David Cox painted. Take the river bank at Rowsley and wander up the stream. You will see a thousand graceful trees on the way; observe their beauty and then stand before the grim giant at Darley, with its vast girth—thirty-three feet at the least—and its dark iron-like colour, and you will understand what is meant by monumental strength in tree-building.

Turning now to the branches, we observe that these are not for the earth at all. Branch and twig and stem are for sky and wind alone, and for setting forth in the eye of the sun, through spring, summer, and autumn, the flower, the leaf, and the fruit.

I ask you now to observe that, having these three main objects in view, each different species of tree has its own system of architecture; but so here, as with Gothic building, there is infinite variety within most definite limits. The Great Architect works according to precise law, and yet within the law, with unfettered freedom. An oak or a lime or an ash is always like others of the same kind, built on the same lines, according to the same style or plan, and yet none are ever alike. This is true beauty, beauty resulting from freedom within the bounds of law; and observe, all beauty is the same, whether it be that of nature or of art, of poetry or of life. A well-known writer has said that the growth of a tree is always in the direction of the unexpected. Now in a certain limited sense this is true; but in a wider sense it is not true. What strikes us most is that in the building of a tree the main lines are so rigidly obeyed. The seductions of a stream, the harsh resistance of a rock or a wall, the unpropitious blast of wind from some stormy quarter will change or warp the growth, and a grotesque effect will be the result; but through all this we see the native lines asserting themselves, and the tree doing its best to fulfil its own building according to the original plan.

Let me ask you now, in conclusion, to note some of the peculiarities of style in the trees by which we are just now surrounded. There is the willow, which combines, as you may see, great beauty of decoration in its foliage, with singular rigidity and awkwardness in trunk and branch; the sycamore, which makes the finest roof of leaves—to see that properly, however, you should stand with your back against the bole; the birch, which

shows the most delicate tracery; the lime, most beautiful and long-sweeping in its curves; the Lombardy poplar—the spire of the woods, and, like other spires, looking best in the twilight. The most perfect symmetry, however, and the especial beauty of clearness and simplicity is reserved, I think, for the young ash. Let those who have not hitherto studied the architecture of the woods dwell long on the beauty of a single twig, which may be cut from any one of these trees; familiarize the eye and the mind with each curve and turn until you understand its meaning and object, and then, setting it against the light, sketch, however rudely, what you see, and only what you see. By such study you will come to know and feel the full beauty of those groves which were God's first temples—

Ere man learned
To hew the shaft, and lay the architrave,
And spread the roof above them—ere he framed
The lofty vault, to gather and roll back
The sound of anthems.

Field Naturalist and Scientific Student.

ALLOTMENTS TO LABOURERS.

(From the "Law Times.")

A BILL, of which hitherto little notice has been taken, seems in a fair way to become law this Session. It is one of extreme importance to the rural communities, and one to which more general attention should be directed. Its object is to improve the law with regard to the letting of allotments to the labouring poor. So long ago as the second year of King William IV. the subject engaged the attention of the Legislature, and an Act was passed which, in parishes that had been enclosed under the provisions of various local statutes, authorized the letting in allotments to the industrious cottagers of good character of land which, at the time of the enclosure, had been set apart for the benefit of the poor, chiefly for the purpose of supplying, out of the rents of the same or otherwise, fuel for the poor in winter months. This Act was amended in the year 1873, by a measure which was intended to remedy various defects in the details of the former Act, without affecting the principle of it. These statutes, however, it will be observed, apply only to land set apart under some local Inclosure Act for the benefit of the poor, in lieu to a great extent of those commonable rights—chiefly rights of estovers, that is, of cutting wood for fuel—which they enjoyed before the common land was inclosed. There are, however, many parishes which contain certain pieces of land, sometimes called the poor's land, sometimes going by the names of the donors, which in times gone by have been assigned for the benefit of the poor, wholly independent of the Inclosure Acts. These are not affected by the statutes above mentioned, and it is intended by the Bill now before Parliament to extend the benefits of those statutes to all lands, whether cultivated or uncultivated, vested in or managed by trustees for the benefit of the poor, and whereof the rents or produce are distributed in gifts of money, doles, fuel, clothing, bread, or other articles of sustenance or necessity. The principle of such a Bill must commend itself to every one.

The Household.

STEWED TONGUE.—Cut up a slice of bacon as for larding; sprinkle the pieces with salt, pepper, chopped parsley, and a little allspice. Lard an ox tongue with these, and lay it in a saucepan with two slices of bacon, four small bunches of parsley, two springs of thyme, two carrots cut into small pieces, two small onions, a few cloves, salt, and pepper. Cover with stock to which has been added a glass of sherry. Simmer five hours, keeping the saucepan well covered while serving. Strain the sauce over the tongue.

JELLIED CHICKEN.—Boil a chicken in as little water as possible until the meat can easily be picked from the bones. Manage to have about a pint of liquor when done. Pick the meat from the bones in fair-sized pieces, removing all the gristle, skin, and bone. Skim the fat from the liquor, add an ounce of butter, a little pepper and salt, and half a packet of gelatine. Put the cut-up chicken into a mould, wet with cold water; when the gelatine has dissolved pour the liquor hot over the chicken. Turn out when cold.

CODFISH ROES.—Boil one or more roes, according to size, till quite set and nearly done. Take them out of the water, and when cold cut them into slices three-quarters of an inch thick. Now put into a small stewpan 1½ oz. of butter; when made liquid over the fire take it off, and stir into it the yolks of two eggs, a small teaspoonful of salt, a pinch of cayenne pepper, a grate of nutmeg, a dessert-spoonful of tomato sauce, or the vinegar from any good pickle. Mix all well together, and stir it over the fire for two or three minutes to thicken. Dip the slices of cod's roe in this sauce to take up as much as they will, lay them in a dish, pour over them any of the sauce that may be left, put the dish into the oven for ten minutes, and send to table very hot.

GUMBO SOUP.—Cut one large or two small chickens as for a fricassee; season with salt, pepper, dredge with flour, and fry with a large slice of pork (minced) until they begin to brown. Take them out of the pan and in the same hot fat fry two onions and two quarts of tender okra cut into slices. When the onions begin to look red, scrape the contents of the pan into the soup pot with the chicken and pork; add a pod of red pepper, very little salt, a gallon of cold water, and let it simmer slowly; after it has simmered for several hours, add a pint of Lima beans; let it simmer another hour, then add one or two young cymlins cut into slices, a quart of tomatoes scalded, peeled, and drained from their juice, and a cupful of potatoes pared and cut. Let it simmer several hours longer, until the chicken and vegetables are boiled to shreds. Strain, season to taste with Cayenne pepper and salt. Served boiled rice in another dish by the side of the soup tureen. Having put a ladleful of the soup in the soup plate, place a tablespoonful of rice in the centre.

Replies to Queries.

Names of Plants.—W.—The plant is *Thalictrum aquilegifolium*. The coleus is very attractive, but there are several varieties in cultivation of a similar style of colouring that are quite equal to it.

Exhibition Query.—Amateurs.—Orchids may undoubtedly be shown in a collection of stove and greenhouse plants, unless, as is sometimes the case, they are excluded by the rules. You ought not to exhibit more than one orchid in a collection of six, and it would be better to have only one.

Cucumber.—C.—It appears to be a bad case of cucumber disease, for which there is no effectual remedy. If all the fruits are in the same condition as the one received, the best course will be to destroy the plants and begin again with a fresh stock of plants and an entirely new bed.

Unhealthy Grape Vines.—R. R., Beckenham.—Grape vines do not require shading at any stage of their growth, and the vines under your charge have probably failed to produce a satisfactory crop this season, in consequence of an imperfect maturation of the wood last year. Knowing nothing of the condition of the border, we cannot offer an opinion as to whether it requires remaking.

Lady Downes' Grape.—Practical.—It is a rather frequent occurrence for the berries to be injured in the way described, and there is a general concurrence of opinion amongst first-class cultivators that it is in some degree due to insufficient ventilation, particularly early in the day. All that you can now do in the matter is to carefully cut out the injured berries and endeavour to prevent further loss by admitting air earlier in the morning and increasing the ventilation at other times of the day.

Cacti.—Amateur.—As the plants have occupied the same pots for three or four years, it is quite time that they were repotted. Use a compost consisting of turfy loam, fibrous peat, and coarse grit in equal proportions, and after they are potted place in a warm position to encourage them to make a vigorous growth, and to complete it before the end of the season. Immediately on the completion of the growth remove to a cool airy position and reduce the water supply.

Gloxinias.—A. W.—The gloxinias must have sufficient shade, and no more, to prevent the sun injuring the leaves, for when grown under a dense shade both the flower and the leaf stalks become so drawn and weakly that on the plants being moved they fall about and have an unsightly appearance, and they are, moreover, so tender that they are of but little value for the decoration of the conservatory. Liquid manure will be beneficial provided it is weak, and twice a week will be often enough to supply the plants with it.

Propagation of Violas.—R. W.—In some gardens the practice is adopted of cutting the violas back when they begin to decline in beauty, and as soon as they are well furnished with new growth to lift them and divide into two or three tufts. This is the most simple and least troublesome way of increasing the stock of these useful plants, but generally speaking it is far more satisfactory to propagate by means of cuttings, which, to ensure strong plants by the autumn, should be struck in July. Young shoots that have not flowered are alone suitable for the multiplication of stock.

Cucumbers.—B.—The cucumber plants which have been in bearing for some time past, and are showing signs of exhaustion, may be restored to a vigorous condition with but little difficulty. First remove the soil on each side of the bed to within ten or twelve inches of the stems, and replace with a mixture consisting of turfy loam and well-rotted manure, in the proportion of two to one, first cutting away a few of the longest shoots. When the roots begin to push freely in the new soil thin out the vines, and prune those remaining rather hard back, to afford room for new growth, without which the crop will be very light.

Bedding Lobelias.—W. S.—The finest of the lobelias for bedding purposes are Ebor, dark purple-blue; *Pumila magnifica*, indigo-blue; Brighton, bright blue; Omen, pink; and Princess of Wales, pure white; and from these you may select according to the colours required. As you are desirous of working up a stock for next season, we would recommend you to obtain a dozen plants of each of the selected varieties, and after the flowers have been cut off to plant them in a bed of rich soil in the kitchen garden. If they are not allowed to flower you will be able to obtain large numbers of cuttings in the course of August.

Orchids.—Amateur.—As you have not had any experience in orchid growing, the most prudent course will be to make a beginning with established plants of medium size, for some experience is necessary before much success can be ensured in purchasing and starting newly-imported plants. We would also advise you to be content at first with varieties of the respective kinds that are obtainable at ordinary rates. We do not recommend nurserymen, and cannot therefore afford you any assistance in the matter of making your purchases beyond referring you to our advertisement columns for the addresses of nurserymen who cultivate orchids.

Dahlias.—Amateur.—Many good growers adopt the very excellent plan of fixing the stakes in the stations marked before putting out the dahlias, and then planting against them. By so doing they avoid all risk of injuring the roots. When the stakes are not fixed first they should be put to the plants very soon after they are put out, for unless they have support from a very early stage there is some danger of their being more or less injured by the wind. Stakes of hazel, hornbeam, or ash from one to one and a half inches diameter when nicely trimmed are equal in appearance to painted deal stakes and more durable. Immediately the weather becomes warmer apply a mulch of half-rotted manure, and water liberally in dry weather. To trap the earwigs put a little dry hay in five-inch pots and turn them bottom upwards on the stakes. Later on it will be necessary to put two or three additional stakes to each plant to afford support to the side branches.

Decorative Pelargoniums.—Young Gardener.—The plants as they come from the conservatory should be placed in the shade for a week or so, and then be moved to a sunny position, where they should remain until the wood has become well ripened. As soon as the wood has become moderately ripe, as indicated by its assuming a brown colour, cut the shoots back to within two or three joints of the base. Until they are commencing to grow freely keep rather dry at the roots, and syringe lightly once or twice a day. They should remain in the same position, and when they have new shoots an inch in length turn them out, reduce the ball of soil to about one-

half, and repot, using a fresh compost, and pots of the same size as those from which they were taken. If the weather is wet at the time put them in a frame and ventilate freely night and day; otherwise stand the pots on a bed of coal-ashes in an open position, and there allow them to remain until the end of August, when it will be better to have them under glass.

Destroying Insects on Wall Trees.—A Sussex Gardener.—The fumigation of wall trees is a troublesome and comparatively wasteful way of clearing them of insect pests. It is, moreover, not necessary, for both black and green fly can be readily destroyed by tobacco powder, tobacco water, or any of the really efficient insecticides. Much may also be accomplished with pure water and a powerful garden engine, but the keeping down of insect pests with clear water alone is practicable only where there is a fair amount of labour at command. Tobacco powder should be applied when the leaves are moist, and unless the work is done early in the morning, whilst the dew is on the leaves, or immediately after a shower, the trees should be sprinkled with water immediately before the powder is applied. Tobacco water can be purchased more cheaply than it can be made at home, and in using it and other insecticides the shoots that are most infested should, as far as practicable, be dipped in it, and the trees then receive a careful syringing with the insecticide. Dipping the points of the shoots and then syringing the trees is far preferable to depending entirely upon the syringe, for the aphids so crowd the points that there is some difficulty in reaching the whole of the pests when the trees are syringed.

Law.

DAMAGE TO AN EXHIBITION PLANT.

At the Chelmsford County Court last Tuesday an action of interest to plant exhibitors was decided by Dr. Abdy, the judge. It appears that at a floral exhibition at Chelmsford in July last, a plant of *Phenecoma prolifera* Barnesii was exhibited by Mr. Duffield, solicitor, of Chelmsford, and gained a prize. Before it was removed from the exhibition, however, it sustained damage. Rewards were offered for the discovery of the offender, but without avail. Subsequently circumstances transpired which induced Mr. Duffield to believe that the injury had been inflicted by Thomas Simpson, gardener to Mr. H. Wells, J.P., Chelmsford, himself also an exhibitor and a member of the horticultural committee. An action was now, therefore, brought against him to recover the estimated value of the plant—£2. The defence was that the injury was caused through the carelessness of the plaintiff's own gardener in allowing it to fall. That person, however, declared that he had seen the plant sound at one time in the tent, and fifteen minutes afterwards had found it mutilated, no one having had access to it in the interim but the defendant. Judgment was found for the plaintiff, and an application for a new trial was refused.

Markets.

COVENT GARDEN.

FRUIT.

Apricots, per doz.	0s. 6d. to 1s. 6d.
Cherries, per lb.	0s. 4d. to 1s. 0d.
Figs, per doz.	5s. 0d. to 7s. 6d.
Gooseberries, Green, ½ sieve	1s. 6d. to 3s. 0d.
Grapes, per lb.	1s. 6d. to 4s. 0d.
Lemons, per 100	5s. 0d. to 7s. 0d.
Melons, each	2s. 0d. to 3s. 0d.
Oranges, per 100	4s. 0d. to 8s. 0d.
Peaches, per doz.	7s. 6d. to 15s. 0d.
Pine-apples, Eng., per lb.	2s. 6d. to 4s. 0d.
Strawberries, "	0s. 6d. to 1s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Beans, French, per 100	0s. 8d. to 1s. 0d.
Beet, per doz.	1s. 0d. to 1s. 6d.
Cabbages, "	0s. 9d. to 1s. 6d.
Carrots, per bunch	0s. 4d. to 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.
Cucumbers, each	0s. 4d. to 0s. 9d.
Endive, per doz.	1s. 0d. to 1s. 6d.
Garlic, per lb.	0s. 10d. to 1s. 0d.
Herbs, per bunch	0s. 2d. to 0s. 4d.
Horse-radish, per bundle	3s. 0d. to 4s. 0d.
Lettuces, Cabbage, per dz.	0s. 4d. to 0s. 6d.
Lettuces, Cos, "	0s. 4d. to 1s. 0d.
Mint, Green, per bunch	0s. 2d. to 0s. 4d.
Mushrooms, per basket	1s. 6d. to 2s. 0d.
Onion Spring, per bunch	0s. 4d. to 0s. 6d.
Parsley, "	0s. 4d. to 0s. 6d.
Peas, per quart	1s. 0d. to 2s. 0d.
Radishes, per bunch	0s. 1d. to 0s. 2d.
Small Salading, per pun.	0s. 3d. to 0s. 4d.
Spinach, per bushel	2s. 0d. to 2s. 6d.
Tomatoes, per lb.	0s. 9d. to 1s. 0d.
Turnips, per bunch	0s. 4d. to 0s. 6d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Bouvardias, per bunch	1s. 0d. to 1s. 6d.
Calceolarias, per doz. bun.	5s. 0d. to 10s. 0d.
Campanulas, per doz. bun.	4s. 0d. to 10s. 0d.
Carnations, per doz. blms.	1s. 0d. to 2s. 0d.
Coroniflowers, per doz. bun.	3s. 0d. to 4s. 0d.
Eucharis, per doz.	4s. 0d. to 6s. 0d.
Fuchsias, per doz. bun.	5s. 0d. to 6s. 0d.
Gardenias, per doz. blooms	1s. 6d. to 4s. 0d.
Gladioli, per doz. bun.	7s. 6d. to 10s. 0d.
Heliotropiums, sprays	0s. 6d. to 1s. 0d.
Lapagerias, per doz. blms.	1s. 0d. to 5s. 0d.
Lilium longiflorum, per doz. blooms	3s. 0d. to 5s. 0d.
Lilium candidum, per doz. blooms	1s. 6d. to 2s. 0d.
Marguerites, per doz. bun.	3s. 0d. to 5s. 0d.
Mignonette, "	3s. 0d. to 5s. 0d.
Pansies, "	1s. 0d. to 2s. 0d.
Ponies, per doz. blooms	1s. 0d. to 1s. 6d.
Pelargoniums, "	0s. 9d. to 1s. 0d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d. to 0s. 6d.
Pinks, per doz. bun.	3s. 0d. to 5s. 0d.
Pyrethrums, "	2s. 0d. to 6s. 0d.
Rhodanthos, "	5s. 0d. to 7s. 6d.
Roses, per doz.	0s. 6d. to 5s. 0d.
Roses, Tea, "	1s. 0d. to 2s. 0d.

FLOWERS—Continued.

Stephanotis, per dz. sprays	2s. 0d. to 4s. 0d.
Stocks, per doz. bun.	3s. 0d. to 5s. 0d.
Tropæolum, "	1s. 0d. to 2s. 0d.

CORN.—MARK LANE.

Wheat, Red, new, per qr.	35s. to 52s.
Wheat, White, new, "	35s. to 55s.
Flour, town-made whites, per sack of 280lbs.	40s. to 43s.
Flour, households, "	37s. to 39s.
Flour, country households, best makes	35s. to 41s.
Flour, Norfolk and other secondals	32s. to 34s.
Barley, Malt, per qr.	30s. to 50s.
Barley, Grinding, "	20s. to 30s.
Malt, English, "	35s. to 50s.
Malt, Scotch, "	35s. to 43s.
Malt, old, "	25s. to 35s.
Malt, brown, "	30s. to 32s.
Oats, English, "	22s. to 30s.
Oats, Irish, "	22s. to 26s.
Oats, Scotch, "	22s. to 30s.
Rye, "	42s. to 45s.
Beans, English, Mazagan, "	36s. to 40s.
Beans, Tick, "	38s. to 44s.
Beans, Winter, "	39s. to 44s.
Peas, Grey, "	30s. to 36s.
Peas, Maple, "	40s. to 45s.
Peas, White, "	30s. to 44s.

HAY MARKET.

WHITECHAPEL.

Prime Clover, per load	100s. to 135s.
Inferior do, "	70s. to 95s.
Prime Meadow Hay, "	100s. to 118s.
Inferior do, "	60s. to 90s.
Straw, "	30s. to 55s.

METROPOLITAN MEAT MARKET.

Beef, prime, per 8lbs. 5s. 0d. to 5s. 0d.	
Beef, middling, "	4s. 4d. to 4s. 8d.
Beef, inferior, "	3s. 8d. to 4s. 0d.
Mutton, prime, "	0s. 6d. to 6s. 8d.
Mutton, middling, "	5s. 4d. to 5s. 8d.
Mutton, inferior, "	4s. 6d. to 4s. 8d.
Lamb, "	6s. 4d. to 7s. 0d.
Veal, prime, "	5s. 0d. to 5s. 4d.
Veal, middling, "	4s. 0d. to 4s. 8d.
Veal, inferior, "	3s. 0d. to 3s. 8d.
Pork, prime, "	4s. 8d. to 5s. 0d.
Pork, middling, "	3s. 8d. to 4s. 0d.
Pork, inferior, "	3s. 4d. to 3s. 6d.

COAL MARKET.

East Wylm, per ton	15s. 0d.
Wallsend—Hutton, "	16s. 0d.
Hutton Lyons, "	14s. 6d.
Lambton, "	15s. 0d.
Original Hartlepool, "	16s. 0d.
Wear, "	14s. 6d.
Thornley, "	15s. 6d.

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Consols, 100½ to 100½	
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, 10 yrs. Childwick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths after Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. N.	DEG.		1882
2	S	4th Sunday after Trinity.	3 49	3 43	8 17	8 55	5 21	2 20	2 41	11 45	—	62·8	Buphthalmum cordifolium, n.	Yellow. 182
3	M	Dog days begin.	3 50	3 54	8 17	9 25	6 41	3 5	3 25	0 6	0 30	62·9	Campanula glomerata, n.	Puce. 184
4	Tu	Garibaldi born, 1807.	3 51	4 5	8 16	9 51	8 3	3 50	4 13	0 60	1 15	63·0	Cattleya Mossia, s.	Rose and Purple. 185
5	W	Princess Heloua married, 1866.	3 52	4 16	8 16	10 15	9 24	4 35	5 0	1 38	2 0	63·1	Ixora coccinea superba, s.	Scarlet. 189
6	Th	Princess Victoria Alexandra of Wales born, [1868.	3 53	4 26	8 15	10 41	10 45	5 22	5 47	2 25	2 47	63·1	Miltonia spectabilis, n.	White and Violet. 187
7	F	Last Quarter, 9h. 52m. after.	3 54	4 36	8 15	11 5	After.	6 10	6 37	3 12	3 35	63·2	Potentilla aurantinea, n.	Scarlet. 183
8	S	Oxford Trinity Term ends.	3 55	4 45	8 14	11 33	1 22	7 3	7 30	4 2	4 28	63·2	Tigridia pavonia, n.	Scarlet. 189

The Gardeners' Magazine.

SATURDAY, JULY 1, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, JULY 4.—NATIONAL ROSE SOCIETY.—Great Exhibition in the Gardens of the R.H.S., South Kensington.

TUESDAY, JULY 4.—BAGSHOT HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, JULY 5.—ROYAL BOTANIC SOCIETY.—Summer Exhibition.

WEDNESDAY, JULY 5.—TEDDINGTON HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, JULY 5.—WIMBLEDON HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, JULY 5.—NUNEATON HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, JULY 6.—ROYAL HORTICULTURAL SOCIETY OF IRELAND.—Second Summer Exhibition.

THURSDAY, JULY 6.—CANTERBURY ROSE SOCIETY.—Annual Exhibition.

THURSDAY, JULY 6.—BROCKHAM ROSE SOCIETY.—Annual Exhibition.

THURSDAY, JULY 6.—WANSTEAD HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, JULY 6.—IPSWICH AND EAST OF ENGLAND HORTICULTURAL SOCIETY.—Annual Exhibition.

FRIDAY, JULY 7.—SUTTON ROSE SOCIETY.—Annual Exhibition.

FRIDAY, JULY 7.—TENBRIDGE WELLS HORTICULTURAL SOCIETY.—Annual Exhibition.

FRIDAY, JULY 7.—LUDLOW ROSE SOCIETY.—Annual Exhibition.

FRIDAY, JULY 7.—TWICKENHAM HORTICULTURAL SOCIETY.—Annual Exhibition.

SATURDAY, JULY 8.—ALEXANDRA PALACE.—Rose Show.

SATURDAY, JULY 8.—WEST KENT HORTICULTURAL SOCIETY.—Annual Exhibition.

THE EXHIBITION OF THE PELARGONIUM SOCIETY on Tuesday last was the largest of the series inaugurated by this body, and at the same time the most comprehensive as regards the styles and varieties of this popular flower. The fact is worthy of note for several reasons, but more especially as it may be properly regarded as a vindication of the "special" system which has of late years been occasionally challenged and discussed. If we suppose the Pelargonium Society obliterated, we must also suppose the exhibition to be obliterated with it. In other words, if we had not the machinery we should not have the result. It has been contended by opponents of the "special" idea that floriculture would prosper as well without as with such aid as the special movements afford, but experience tells directly against this view as equally unsound and injurious. It is true the Royal Horticultural Society exists, and is eminently useful, but it cannot do everything, and one of the things it cannot do is to foster the interests that are taken special care of by the special societies. During a long term of years the florists groaned because of the neglect of floriculture by the great "all-round" corporations. The desponding ones amongst them said florists' flowers had lost their hold upon human regard, and were passing out of cultivation. But as desponding florists are few in number, the cause was not greatly injured by the wail of dolefulness. Certain hopeful ones amongst them adopted the hopeful course of putting to the test the fidelity of their brethren, and the Special notion became the pivot on which the movement turned. There came forth out of the void societies for the special encouragement of Roses, Carnations, Picotees, Auriculas, Pelargoniums, and even Potatoes. Before the present summer terminates the Dahlia will be placed before the public in a suitable manner for its vindication, by a committee formed for the purpose, and which, we trust, will acquire a permanent form for future usefulness.

No. 896, NEW SERIES.—VOL. XXV.

The difference between an All-Round and a Special society is so forcibly illustrated by facts with which all are familiar that it cannot be needful to analyze it minutely. The first has to grapple with everything, and by reason of the extent of ground it covers it is impossible it should do more than take general views of things. And in the consideration of its heavy responsibilities it is compelled oftentimes to be too anxious about money to give proper attention to the larger claims of science and art. "Will it pay?" is the question that takes precedence when any special feature of a programme is proposed; and thus it is that much is done to gratify what is called the "Fashionable World," and little perhaps in aid of genuine progress. The Special society concentrates its energies on its own "speciality;" it is but little concerned about the phases of fashion, or the possible loss of money by its undertakings. It appeals directly and forcibly to a sympathizing constituency, and scarcely makes appeal in any way to the world at large, except in the public demonstration of the final results of its labours. And this public demonstration does not fail to make an impression favourable to the cause, and consequently tending to augment the number of its supporters.

It is worthy of note, in connexion with the beautiful and extensive exhibition of pelargoniums on Tuesday last, that some trifling modifications of the schedule have encouraged cultivators who find it less difficult to put up six specimens instead of nine in a class. A modification in the schedule of the National Auricula Society, of another kind, but equally tending to encourage exhibitors who cannot compete in large classes, resulted in a very considerable augmentation of the exhibition, as also of the number of visitors who by their presence testified their appreciation. Let us have classes for the "big men," but let us also take care of the "little men," remembering that big and little often change places, and that in a special exhibition quality is of primary importance, and mere quantity of no account at all. When we can have both, as we had on Tuesday last, the special idea is amply vindicated, and the specialists may take comfort of the evidence that they have not laboured in vain.

As we have referred to the Royal Horticultural Society in the foregoing remarks, we might appear wanting in proper taste and feeling were we not to add that this "all-round" corporation has generously assisted several of the special societies; thus manifesting its sympathy with their aims, and at the same time tacitly acknowledge its inability to do the work these societies have been formed for. It is, we think, a happy circumstance that the exhibitions of auriculas, carnations, roses, and pelargoniums that have within the past few years characterized the "revival of floriculture" have been held in connexion with the Royal Society, and in some degree by its aid, directly and cheerfully afforded. The Pelargonium Society is as deeply indebted to the larger body as any of the many special movements that have been encouraged at South Kensington, and there are none more ready to acknowledge the indebtedness than the persons who were more particularly concerned with the exhibition that gratified so many on Tuesday last.

OXFORD ROSE SHOW will be held in the Lime Tree Walk, Trinity College Gardens, on Thursday next, July 6.

EVESHAM FLOWER SHOW, in connexion with the regatta, will take place on Wednesday, July 12.

BRISTOL CHRYSANTHEMUM SHOW will be held in the Victoria Rooms, Clifton, November 15 and 16.

MAIDEN HEAD FLOWER SHOW will take place in Kidwell's Park, August 17.

SOUTHAMPTON SUMMER SHOW AND GALA will be held in Bannister's Park, August 5 and 7.

MESSRS. J. B. BROWN AND CO., of Cannon Street, E.C., have been awarded a gold medal at the Christchurch (New Zealand) exhibition, for the excellency of their galvanized wire netting.

HAGGERSTON RECREATION GROUND represents the wholesome fashion of converting disused churchyards into cheerful gardens for recreative purposes. This new ground was opened to the public on Saturday last with a religious service and a procession. Mention was made of special aid in this work rendered by Lord and Lady Brabazon and other friends. The "conversion" of the enclosure from a graveyard to a garden was effected by Mr. W. Holmes, of the Frampton Park Nurseries, Hackney.

VAN GEERT'S ICONOGRAPHY OF INDIAN AZALEAS for June contains figures of *Deutsche Perle*, a large semi-double white flower; *Vicomte de Forceville*, a peculiar and beautiful flower resembling an abutilon, the colour brilliant rosy red; *Comte de Chambord*, a large show flower of fine form, deep rosy pink, with white margin.

RESEARCHES IN PROTOPLASM.—The Royal Society of Göttingen offers two prizes, of the value respectively of £85 and £34, for comprehensive researches into the anatomical and micro-chemical structure of vegetable protoplasm. The essays, in Latin, English, German, or French, must be sent in before August 31, 1884. The prizes will be awarded on March 11, 1885.

"PAXTON'S FLOWER GARDEN," Part 23, contains coloured figures of *Lælia autumnalis*, v. *atro-rubens*, somewhat opaque in colouring; and the extremely pretty *Bryanthus erectus*, admirably depicted. Amongst the minor figures the group of *Sarracenia* pitchers at page 42 may, we think, be studied by artists with advantage. As they stand, six in number, they might serve as designs for vases, ewers, and urns, at once elegant, fantastic, and capable of endless variation.

THE ROYAL AGRICULTURAL SHOW.—The preparations for holding the great agricultural show of the Royal Society are now rapidly approaching completion, and everything is well forward for the opening of the show at Reading on the 10th. The site, about 70 acres in extent, is just outside the borough boundary. The Prince of Wales has officially intimated his intention of visiting Reading on the occasion.

HOLIDAY HANDBOOKS of a superior order are in course of preparation by editors selected for their knowledge of the several districts to be dealt with, and will be published at a penny each at 125, Fleet Street. The first of the series is entitled "A Trip to the Ardennes," comprising interesting scenes in southern Belgium. We can heartily reciprocate the remark of Mr. Percy Lindley, the editor, who says, "In Belgium it is sufficient that you are an Englishman to secure kindness from most, courtesy from all."

VEGETABLES, FRUITS, AND DAIRY PRODUCE FROM ITALY reach the London markets in increasing quantities. In view of the traffic which the opening of the St. Gothard Tunnel is diverting to Antwerp, the Great Eastern Railway Company commence a daily service between Antwerp and Harwich on the 1st of July. Their steamers will lie at the New South Quay at Antwerp, where the trains will eventually run alongside, and through tickets will be issued *viâ* the St. Gothard to the chief Italian cities. During the first five months of this year no less than 5,000 tons of Italian produce have been brought to Harwich.

EMPLOYMENT OF ANTS IN HORTICULTURE.—Professor C. V. Riley, the eminent American entomologist, states, on the authority of a Chinese correspondent, that in some parts of the province of Canton the orange trees are injured by certain worms, and to rid themselves of these pests the inhabitants import ants from the neighbouring hills. The hill people throughout the summer and winter find the nests of the species of ants—one red the other yellow—suspended from the branches of various trees. The "orange ant breeders" are provided with pig or goat's bladders baited inside with lard. The orifices of these they apply to the entrance of the bag-like ants'-nests, when the ants enter the bladder and become at once "a marketable commodity at the orangeries." The trees are colonized by placing the ants on the upper branches, and long rods are laid from tree to tree to afford them easy access all over the orchard. This remedy has been in use ever since 1640 at least, and probably dates from a much earlier period.

THE LATE MR. CHARLES DARWIN'S WILL was proved on the 6th ult. by William Erasmus Darwin and George Howard Darwin, the sons, the executors, the value of the personal estate amounting to upwards of £146,000. The testator leaves to his son William Erasmus the family portraits and papers, all medals, the silver candlesticks presented to him by the Royal Society, his manuscript of the "Voyage of the Beagle," and his manuscript autobiography; to his son Francis his scientific library; to his wife, Mrs. Emma Darwin, £500, all his furniture, plate, books, effects, horses and carriages, and his residence at Down for life; and to his friends, Sir Joseph Dalton Hooker and Thomas Henry Huxley, £1,000 each, free of legacy duty. The residue of his real and personal estate is to be held upon trust for his wife for life, and at her death as to twelve 74th parts for each of his five sons, and as to seven 74th parts for each of his two daughters; certain advances made to his children are to be brought into account on the division.

ORANGE CULTURE.—It is remarked by *Land* that California, the Garden of the West, must surely be that "land where the citron blooms" which presented itself to the poetic imagination of Goethe. Orange culture in the "Golden State" is extending rapidly, and well it may, looking at the immense profit which it yields. A fair return is said to be procured from the second crop, while the third is said to be worth £2 per tree, which works out at from £200 to £400 an acre. One orchard in this prolific land produces its owner an annual income of £10,000. These large profits are accounted for, to a considerable extent, by the smallness of the labour bill. One man and a pair of horses are said to be all the staff that is necessary to efficiently cultivate a grove of ten acres, with generally about 500 trees. At harvest time half a dozen men are required; but "Chinese cheap labour"—which does not ruin everybody—is so plentiful that wages do not rule higher than a dollar a day.

SCOTTISH PANSY SOCIETY.

THE thirty-eighth annual competition of the above society took place on June 23, in the Royal Scottish Society of Arts Hall, Edinburgh, and was a great success. The weather during the fortnight prior to the exhibition was very stormy and wet; but, from the quantity and quality of blooms shown, the utmost care and attention must have been given by growers to those charming flowers. Several new competitors appeared from well-known pansy growing districts in the west, notably John Stewart, of Campsie, and R. Millar, of Paisley, who were very successful.

In the competition open to nurserymen the society's silver medal was awarded to Messrs. W. Paul and Son, florists, Paisley, who showed magnificent blooms of *Artemis*, Captain Knowles, Alexander Watt, J. P. Barbour, Peter Lyle (seedling), John Stewart (seedling), dark selfs; Mr. Galloway (seedling), Silverlight, white selfs; George Rudd, Dr. Campbell, yellow selfs; Miss Barr, Miss Baird, Gertrude, Mrs. James Millar (seedlings), Miss Meikle, Mrs. D. Wallace, Mrs. Mackenzie, white grounds; Robert Pollock, Wm. Robin, Dr. Livingstone, James Buchanan, A. Cameron, A. Henderson, Bailie Cochran, yellow grounds. William Dickson, Paisley, second prize, in whose lot were good examples of H. A. Hawkins, Rev. J. Morrison, Mauve Queen, Robert Black, dark selfs; D. Daglish, Sir W. Collins, Thomas Ritchie, D. R. Barr, J. B. Robertson, yellow grounds; Tickler, Jeannie Grieve, Captain Spiers, Mrs. Mackenzie, white grounds; J. Ormiston Jedburgh, third prize.

The nurserymen's competition for twenty-four fancy pansies brought out nine or ten stands of brilliantly-coloured flowers, the silver medal being awarded to Messrs. Downie and Laird, Edinburgh, who had large and well-grown specimens of the following:—Countess of Home, Jas. Gardner, May Tate (seedling), Mrs. W. Brown, John Murray, Mrs. Forsyth, Miss Tofts, W. Cuthbertson, Miss Bliss, Maggie Bell, Mr. J. Cocker, General Grant, Mr. J. Watt, Mrs. Barrie, Ruby (seedling), Peter Nicol, Mr. Wolff Murray, R. Laird, Mrs. Taylor, Catherine Agnes, Mrs. G. Grant, and three seedlings.

Mrs. Taylor, Woodhine Nursery, Costorphine, had second prize with neat blooms, including Mrs. Mitchell, James Grieve, Mrs. H. Wood, Robert Dunlop, Geo. Ross, Mrs. A. Cuthbertson, Mrs. Jamieson, Maggie Taylor, Wm. Lawrie, Mrs. Taylor, Jupiter, Nancy Lee, and several seedlings. John Ormiston receiving third prize; conspicuous in his stand were, Miss Reeve, Mrs. Ogilvie, Prizetaker, Catherine Agnes, Mrs. Taylor, Robert Cowan, J. H. Borrowman, Mrs. J. Watt, Jas. Grieve.

For six seedling show and six seedling fancy pansies Messrs. W. Paul and Son were awarded the silver medal, the blooms being of splendid quality and distinct markings.

Messrs. Downie and Laird carried off the premier prize for twenty-four bunches of bedding violas, which were one of the principal features in the exhibition.

The following were among the principal prizetakers in [the] gardener, amateur, and open classes:—Mr. R. Millar, Paisley; Mr. R. Cuthbertson, Corstorphine; Mr. D. Findlay, Lennox Castle; Mr. J. Stewart, Campsie; Mr. A. Borrowman, Beeslack; Mr. R. Ritchie, Cresswell; Mr. D. Malcolm, Kirkintilloch; Mr. J. Ritchie, Denny; Mr. W. Storie, Lenzie; Mr. J. Black, East Calder; Mr. James Barr, Paisley; Messrs. W. Paul and Son, Paisley; and Mr. G. Ross, Laurencekirk, who was the winner of the President's Medal, given to the competitor taking most prizes.

Captain Thompson, of Exeter, exhibited a number of pansies in pots. The plants were dwarf in habit, and the blooms of good quality. The gallant captain deserves praise for coming such a distance with his exhibits.

First-class certificates were awarded Captain Thompson, Exeter, for show pansy *Ralph Sanders*; Messrs. Downie and Laird for fancy pansy *May Tate*; Messrs. Dickson and Co. for fancy pansy *Jessie Dunlop*; Mr. McCombe, Lauriston, Montrose, for fancy pansy *Mrs McCombe*.

THE BELGIAN VISITORS.

THE representatives of horticulture in Belgium and France commenced their tour of inspection on Monday last at Swanley in Kent, travelling thence to Bexley through a fruitful and beautiful country. The nurseries of Mr. Ladd and Mr. Cannell were glanced at, and the fruit farms were surveyed, and a rather heavy day's work was got through pleasantly, although much interrupted by rain. On Tuesday the party visited the exhibition of the Pelargonium Society at South Kensington, and partook of luncheon in a tent in the gardens of the Royal Horticultural Society. Lord Aberdare presided, and made an admirable address of welcome, which was responded to by Count Oswald de Kerchove. In the evening the Belgian gentlemen dined with Mr. H. J. Veitch at the Royal Exotic Nurseries, Chelsea. The dinner was every way worthy of the occasion and the place. Mr. Veitch welcomed his visitors in a capital speech in French. Amongst the guests who spoke were Count Oswald de Kerchove, M. E. Rodigas, M. H. J. Van Hulle, Ed. Pynaert-Van Geert, M. R. Tynan, Dr. Hogg, Mr. Shirley Hibberd, and Mr. Thomas Moore. On Wednesday the way of the pilgrims was westward, comprising Cliveden, Dropmore, and Slough, the nurseries of Mr. Charles Turner being taken as an "accident" by the way. Thursday was made a short day in the market gardens of Middlesex, and our friends were with us at the dinner of the Gardeners' Royal Benevolent Institution.

A GARDEN PARTY AT OLD TRAFFORD.

ONE of the most brilliant assemblages in the form of a garden party made merry on Saturday last in the Manchester Botanical Gardens. It was promoted by Manchester manufacturers as an occasion for a display of British printed cottons, the ladies being for the most part dressed in prints. Before the gates were opened 5,000 tickets had been sold, and at four o'clock, when the throng was greatest, there were between 7,000 and 8,000 persons present. The dresses, our confidential reporter informs us, were awfully wonderfully beautiful, but they were outshone by the higher beauty and mental brightness of those who wore them, so that this, being a feast of reason and a flow of soul, was also a harlequinade of colours and a parliament of human beatitudes. There was music enough to render that of the spheres inaudible, and Miss Allen recited an address in verse, written by Mr. J. Fox Turner; and Kato Greenaway's children in calico dresses so abounded that people playfully likened her to the little old woman who lived in a shoe, and it is quite a question now what responsibilities may result from the playful gyrations of an original, happy, and inventive pencil in the hands of a lady artist. A calico garden party in a shining nook known as the garden of the R. B. S. would awaken London from the sleep of a thousand years.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

THE CLIPPING OF THORN HEDGES

Should now be completed without delay. In the case of old hedges the form they have already taken cannot be altered, but where there are young hedges they may be now clipped into any desired form or shape. The majority of old thorn hedges we see are very wide at the top and narrow, and almost destitute of branches at the bottom. This is not as it should be. The form, in fact, should be reversed; but this cannot be done unless the management is right when the plants are young. When we began to make our boundary hedges we thoroughly prepared the soil by deep digging, and mixing up with it a good quantity of rotten manure. A single line of thorns was then planted six inches apart. These were allowed to grow their own way for two years. They were then cut down to within six inches of the bottom. The ground was then cleared of all weeds, and a layer of short rotten manure was laid on the roots on each side, and a little soil put over it. The next summer the plants grew amazingly. In the winter we cut them down to within fifteen inches of the bottom, at the same time just cutting off the tops of any straggling side growths. After this we allowed the height to increase about eight inches every year. This is done by cutting off the leading shoots, and this cutting off of the tops induces a strong undergrowth, so that by the time the hedge is four feet high the bottom is well filled up. By allowing the main side shoots to extend out over the bottom our hedges are wide at the bottom and narrow at the top. We clip our thorn hedges about the first week in July, and run over them again in October to cut off any straggling growth that may be made after the first clipping. I find the principal thing to attend to in the case of young thorn hedges is to keep the ground near the roots clear of weeds.

Yew, Laurel, Box, and Holly hedges should be clipped about the end of August; a week or two later will be better than doing it earlier, as evergreen hedges should not be pruned more than once a year.

LIME FOR THE KITCHEN GARDEN.

I have long since proved that an application of lime to the soil is very beneficial, but to get the full benefit it should be used in the summer when the ground is dry. If put on when the soil is wet it soon works into mortar, and instead of becoming well incorporated with the soil, it lies in lumps which the roots cannot penetrate. I cannot go further into the action of lime in the soil than to say that it is known to render soluble all vegetable matter with which it comes in contact. Therefore it must increase the amount of plant food wherever it comes in contact with any such substance. I find in practice a dressing of lime in a rather heavy soil, if applied once in three years, does more good than a light coat of manure. The way we manage it is to get home a waggon-load of lime early in the month of July, and put it under cover in an open shed, where it is allowed to slake itself. As the crops of early peas, potatoes, and cauliflowers are cleared off the ground, the different plots are dug up, and the slaked lime spread on the surface. We put on enough to whiten the ground all over, and then it is forked in.

SOOT AS A MANURE.

The value of soot as a fertilizer for all growing crops is undisputed. I call attention to its value here because it sometimes finds its way to the dustbin, where it is wasted. Soot applied between rows of turnips, lettuce, peas, carrots, or indeed between any green crop, will do a deal of good. There should be no more put on than will just colour the ground. Directly after it is applied the surface should be hoed over with a Dutch hoe, which will mix it up with the soil, and the next shower will soon wash down to the roots the fertilizing matter it contains. The application may be repeated at intervals of a fortnight to all strong-growing crops. Soot also makes a capital liquid manure. A couple of pounds of soot put into a canvas bag and the bag placed in about four gallons of water makes a good and cheap liquid for pot plants, and also for crops in the kitchen garden. Once a week will be often enough to use it. It should be made three or four days before using and should be quite clear, especially when given to pot plants.

THE REFUSE OF THE GARDEN.

At this time of the year the accumulation of refuse from the garden is always considerable, and it is better to convert it into vegetable mould than to let it be taken away to benefit other people. Even in small gardens an odd corner can be set apart to receive it, not only at this time of year, but at all times. As near as possible the position for the rubbish from the garden should be at the extreme end of the grounds farthest from the house, to prevent the access of any unpleasant smells arising from it. A few square yards of ground in any bye corner, and a laurel hedge surrounding it, are all that is wanted. At this season of the year there will be large quantities of vegetable refuse accumulating. If it is laid in a heap and covered over with a layer of soil it will effectually prevent any unpleasant odours. Any one not versed in the management of a garden would be surprised at the quantity of refuse collected in the space of a few months, and no doubt they would be equally surprised if told the value of the mould after it has had time to ferment and decompose. I look upon it myself as a very valuable compost, and for many years we have grown our early potatoes in pits in no other soil, and we always get very good crops. We are always careful to collect all the pea haulm, cauliflower and cabbage stumps, the prunings of trees and hedge clippings, and in fact everything that is discarded from the garden goes to the heap. In return we find we have every year several cart-loads of good stuff, which costs nothing, to use for any

purpose where a light rich mould is required. I do not know anything but what will grow in it in the most luxuriant manner.

DIGGING AND TRENCHING.

I often feel sorry that the press of other matters does not admit of our paying more attention to this kind of work during the summer months. I am satisfied that what I have been able to accomplish has been of great benefit to the soil. It may not perhaps be so important in light sandy soils, but all soils that contain a good proportion of clay or stiff cold loams will be much benefited if they can be turned up rough and deep and exposed to a few weeks of summer sun and air. It will, of course, in dry weather be harder work to move such land about, but the result I feel sure will justify any extra outlay. Where slugs are plentiful the stirring up of the land to a good depth in dry weather, and a dressing of lime at the same time, will reduce their number as effectually as anything I know of. Summer trenching should always be practised in badly-drained soils for all crops that have to remain on the ground all the winter, as it provides a means of escape for superfluous water below the roots of the plants.

LATE CROPS OF PEAS.

A good deal depends upon the season whether late crops of peas will be of much value or not. If we get a favourable autumn, with not too much rain, nor a long drought, they will probably do well. However, I think they are worth the risk, for a dish of green peas in October is always valued. The soil and climate should be considered in fixing the date for the last sowing. In all favoured districts they may be sown as late as the end of June with a fair prospect of securing a medium crop. Most cultivators have their favourite peas, but in any case for the last sowing an early kind should be selected, such as Kentish Invicta, Day's Early Sunrise, or William the First. All these are very good table peas, and they come into bearing quickly, and are very productive.

PLANTING IN TRENCHES

Such crops as late peas, lettuce, kidney beans, and endive, that are either sown or transplanted in the month of July, should have shallow trenches provided for them, and where the ground is poor a layer of rotten manure should be put in the bottom of the trench. The trench is formed by digging out a space to the depth of six inches, a layer of manure is then put in, and on the manure a little soil. The remainder of the soil is left on each side, which forms a trench. This plan saves much labour in watering, as the plants or seeds obtain the benefit of all the water.

NOTES ON VIOLAS.

By WILLIAM BRADBURY.

OWING in some degree to the mild winter and cool moist weather which has prevailed up to this time the violas have bloomed magnificently this season, and the majority of examples in the borders are at the present moment as bright with flowers as could possibly be desired. They have, indeed, contributed very much to the attractions of the flower garden since early in April, and the masses of blue, violet, and gold formed during May and the early part of June a rich foreground to the single and double pyrethrums, which bloomed most satisfactorily this as in previous seasons. In alluding to the violas now it is not my intention to reiterate the many arguments that have from time to time been advanced in their favour, but it may be useful to many amateurs not well acquainted with them to state that they form a most valuable group of plants for the embellishment of the flower garden during spring and the early part of the summer, for they are quite hardy, easily multiplied, and afford colours not found in other plants blooming at the same season. In many districts they may be had in full bloom throughout the summer, more especially in the north on deep cool soils. Where they do well they form most effective summer beds; indeed, some of the beds of violas that I have seen in various parts of Yorkshire and in the southern and western parts of Scotland have been unsurpassed in richness and effectiveness. The statement as to their hardiness must be taken with the reservation that they are liable in some places during the winter to suffer, not from cold, but from an excess of moisture. The soils on which losses are likely to occur are those which are heavy and undrained. In summer they are liable to be severely injured if the weather happens to be hot, both in very light and very heavy soils, and speaking in a general way they afford the greatest amount of satisfaction when employed for spring bedding and for the embellishment of the mixed borders from March till June.

One essential point in their culture is to maintain a continuous succession of young plants by striking a stock of cuttings annually. Upon this too much stress cannot be placed, for although old plants seldom bloom satisfactorily, and are liable to die off at any time, many allow the plants to remain as long as there is any life in them. The practice of renewing the stock for beds by division is almost as objectionable as leaving the old plants in the border until they die, for those so propagated lack the vigour found in young examples obtained from cuttings. In raising a stock for both beds and borders July is the best month in which to strike the cuttings, which, under ordinary circumstances, may then be obtained in abundance. To make sure of obtaining sufficient cuttings at the proper moment, I have adopted a plan which is not less simple than it is satisfactory. When the plants are lifted from the beds previous to their being filled with the summer occupants they are planted in nursery beds in a shady position. They are well watered in, and have the assistance of two or three waterings afterwards if considered necessary. At the end of two or three weeks the growth is cut rather hard back, and in a very short time they commence to break freely, and produce a

plentiful crop of cuttings. A good supply of cuttings may also be ensured by cutting back a few of the plants of each variety in the borders.

The young shoots that push from the base are alone suitable for propagating purposes, and these should be taken when about two inches in length. To prepare them it will suffice to cut close under a joint and remove the lower pair of leaves. The number of cuttings of each variety will determine in some degree the next step to be taken; and if we have a few dozen cuttings only of any of the varieties which we are desirous of increasing to the utmost they are inserted in pans or boxes as may happen to be the most convenient, and then put in a cold frame. But large numbers are inserted in a nicely-prepared border occupying a shady position, and covered with hand glasses, or a bed is made up in a cold frame and the cuttings put therein. Wherever inserted they require to be screened from sunlight and to be carefully watered, light sprinklings with a pot to which a very fine rose has been attached being sufficient until they are struck. Generally speaking, they should be sprinkled once a day. Cuttings may also be struck in the open border, and be protected with any spare lights that may be available. The border in which the cuttings are to be struck is dug over, and when dry beaten moderately firm with the back of the spade. The surface is next covered with about half an inch of coarse sand and watered moderately. When lights are to be used for the protection of the cuttings mark out the exact width of the lights and lay down bricks for them to rest upon. Two courses of bricks laid on the flat will be required for the back, front, and ends. It is preferable to have the beds and frames in a position so well shaded that protecting materials will not be required; but when shading has to be employed it should be so well looked after that the cuttings are not burnt up at one time and kept in darkness at another. For the first week keep the frames quite closed, during the second admit air at night only, and at the end of the fortnight ventilation both night and day will be required. Immediately the cuttings can bear the exposure remove the lights altogether, and it may be well to bear in mind that anything in the way of coddling will be most injurious.

It is important to remove them from the cutting bed before they are very firmly established, and the practice of lifting and transplanting to nursery beds immediately they are struck is the best that could be adopted. As the beds and borders in which they are to bloom will, in the ordinary course, be fully occupied at the time they are ready for removal, they should be put into nursery beds in which they can remain until September. To promote a free growth and an abundance of roots, the soil should be moderately rich and light. Soils that are heavy may with advantage have a liberal dressing of well-rotted manure and leaf-mould in equal proportions, and a moderate quantity of coarse sand or grit. Sufficient manure or leaf-mould to cover the surface to a depth of three inches and of grit to form an inch layer will form a very suitable dressing. Stir the soil to a depth of about eight inches, and plant three inches apart in rows, with a space of six or seven inches between them. Two or three waterings when first put out, if the weather happens to be dry, will be necessary; but beyond this, and keeping them quite free from weeds, no attention will be required until September, when they ought to be transferred to the beds or borders in which they are to bloom. They can be replanted as late as the end of October, but not so successfully as early in the month first mentioned, as there is not so long a period in which to become established previous to the cold weather putting a stop to growth. In the beds a distance of six inches apart each way will be the most suitable, and in the borders they may be arranged in lines or clumps of separate colours. When planted in lines they should be six inches apart, and the lines be from ten to twelve inches from each other. The clumps may be formed with three or four plants, each clump to consist of a distinct colour, and the distance apart to be regulated by the position of other subjects in the front line. It is not in many instances practicable to prepare either beds or borders specially for the violas, but it may be useful to state that the addition of a moderate quantity of manure, supplemented in the case of heavy soils with sand or other grit, will be beneficial. Those in beds which are filled with tender subjects during the summer season must of necessity be removed every year; but those in borders may remain in the same position for two and sometimes three, if the precaution is taken of cutting them back at the end of June or early in July, to induce them to break freely from the base.

To employ the violas successfully for summer bedding, strike the cuttings early in August, and when struck plant three or four inches apart in a bed, either in a frame or where protection can be readily afforded in severe weather. On heavy soils raise the bed a few inches above the surface to avoid all risk of injury from an excess of moisture. In April or May, according to the time the beds are vacant, plant in the summer quarters. The soil cannot well be too rich for those to flower during the summer, and unless it is moderately so the results will in all probability fall short of expectations. From six to seven inches will be a good distance at which to put them apart.

Amongst the many fine varieties available for the cultivator, the following have been found of exceptional merit:—*Lutea grandiflora* major, rich yellow, one of the earliest and most effective for spring bedding, usually commencing to bloom early in March. *Sovereign*, deep yellow, has large flowers and is as early, or nearly so, as the first mentioned. *Spring Beauty*, dark blue, and *Minchen's Blue Bedder*, bright blue, are capital varieties in their respective hues for spring bedding, because of their earliness and freedom. For flowering from the end of March or the beginning of April, according to the weather, there are none to surpass *Beauty of Clyde*, deep blue, in the way of *Queen Victoria*, but superior to it. *Cremorne*, bright yellow, very fine and continuous in blooming. *Lottie*, bright blue. *Pilgrig Park*, pure

white. *The Favourite*, blue-purple; and *Warrior*, indigo, an improvement upon the *Tory*. The most useful for summer bedding are *Admiration*, violet-purple; *Blue Bell*, violet-blue, very fine and continuous in flowering; *Lothair*, indigo-blue, very rich and effective; *Lady Gertrude*, white; *Sir Walter Scott*, purple, and *Violet King*, bronzy-purple.

SEASONABLE NOTES ON LATE GRAPES.

By WILLIAM COLE, The Grove Vineyard, Feltham.

OWING to the low temperature which has prevailed for some time past, both early and late crops of grapes have required considerable assistance from artificial heat, and it is now still necessary to keep the fires burning somewhat briskly to afford the vines a suitable degree of warmth for bringing their crops to perfection. At the present moment it is impossible to predict the character of the weather we shall have during the next two months, which form an important period for the late grapes, and I shall not attempt it. I hope, in common with other grape growers, and, in fact, with all who take an interest in the productions of the garden and the farm, that it may be all that can be desired. But we have now passed Midsummer Day, and we have had but little summer weather, either as regards the temperature or the sunlight. I do not venture to make any prediction, neither do I anticipate an unfavourable season; but it appears advisable, nevertheless, to direct the attention of those grape growers who have not had much experience to the importance of maintaining a proper degree of warmth in the vinery during the summer season, when the temperature is so low as to render the assistance of much fire heat necessary. I am induced to do this because of the unsatisfactory results that were obtained in many instances during the past two or three years, in consequence of the vines suffering from an insufficiency of warmth during the time they were swelling and ripening their crop. More especially did the late crops afford grave cause for anxiety, and it was not possible to mix much with growers without hearing complaints of the grapes intended for supplying the table during the winter months not keeping so well as could be desired, and of their not being quite up to the mark in point of flavour. This indifferent flavour and early decay was, briefly stated, the result of an immature state of the fruit at the end of the autumn, when the season's growth ceased; and this can only be avoided by taking steps early in the summer to ensure perfect maturity by the beginning of the autumn.

For a long time it was supposed by grape growers that vines from which it was intended to draw the late supplies should be retarded or be allowed to come along so slowly that the grapes would not be ripe until quite the end of the autumn. It was erroneously thought that if the grapes attained maturity before this period they would shrivel and undergo considerable deterioration. But a better acquaintance with the conditions under which grapes can be kept during the winter has shown that it is much easier to keep in a sound state berries containing sugar than those filled with water. In consequence, the practice of all growers of experience has undergone considerable modification, and there is now a general concurrence of opinion as to the advisability of having the finishing touches put to the ripening process by a very early date. According to my experience all grapes to be sent to the table from the beginning of November to the following spring should be quite ripe by the end of September. If the weather happens to be dry and bright in the early part of October it will be possible to complete the ripening in that month, but it is not prudent to speculate upon the ability to do so, for it is not usual to have sufficient sunshine in that month to be of much service so far as the grape grower is concerned, excepting that it will be favourable to the free ventilation of the vinery.

We have now to consider the temperature most suitable between the present time and the end of September, and as I know space is valuable just now I shall deal with the matter as briefly as possible. The black grapes, such as *Lady Downes* and *Alicante*, should have a day temperature ranging from 70 degrees to 75 degrees, and a night temperature of about 70 degrees, when the house is maintained wholly by fire heat. But the day temperature may be allowed to rise to 80 degrees with the assistance of solar warmth, provided due care is taken to ventilate freely. When the house is closed in the afternoon a rise to 85 degrees will be beneficial if accompanied by an abundance of atmospheric humidity, such as would be obtained by pouring water on the walk and sprinkling the walls and surfaces of the borders. The night temperature given above will suffice also for the *Muscat of Alexandria*, but from the time the berries are set until the crop is ripe the day temperature should be between 80 degrees and 85 degrees, with a rise of five degrees during periods of bright sunshine; this rise, as in the case of the black kinds, to be accompanied with rather liberal ventilation. That noble black grape *Gros Colmar* requires a temperature intermediate between that of the other black sorts and the *Muscat of Alexandria*. It is usually planted with *Lady Downes* and others requiring a similar temperature, and in consequence it is not properly ripened, although of good colour, and complaints are made in consequence. The flavour is not first class, but it is far superior to what it is considered to be, and I would strongly advise those who are partial to this grape, because of its splendid appearance, but are not satisfied with its quality, to try it in the muscat house; I am quite sure they will be well satisfied with results if they do so. When planting *Gros Colmar* in the muscat house a position at the coolest end should be selected, and if there is no alternative but to grow it in a structure with the *Alicante* and others of like character, let it have the warmest corner available.

The ventilation must be regulated by the weather, but it should

be rather liberal, and a little air be admitted at night. In wet weather the ventilators must be closed, or nearly so, especially towards the autumn, when the crop is approaching maturity, as the admission of air highly charged with humidity will be by no means beneficial. The temperatures advised for the respective kinds must not be continued after the crop is ripe, or the grapes will soon be converted into sweetmeats. Therefore, as the grapes approach maturity the progress made must be closely watched, and the temperature reduced as soon as the ripening is completed. In a general way a temperature of about 50 deg. will be the most suitable from the time the grapes are ripe until the vines lose their leaves, and when defoliation occurs a fall of from 5 deg. to 10 deg. will be advisable. Excepting for the purpose of keeping out frost and drying up damp no fire heat will be required. The vineries should as far as practicable be kept cool and dry, as these two conditions are the most favourable to the preservation of the berries in a nice plump state. As far as practicable, the fire heat required for drying up damp should be employed in dry weather, when the ventilators can be opened without risk of admitting either damp or fog.

THE POTATO CROP.

FROM the horticultural papers I learn that disease has appeared in some quarters. I have therefore been carefully noticing the crops in this district, and have not as yet been able to detect what can be called the disease. I have in some cases noticed the rust on the leaves; but from my experience in former years I do not consider that is in any way a symptom of our old enemy, although I am inclined to believe that by many this may be mistaken for it, and gives rise to the cry of the disease so early in the season. No doubt the weather lately has been favourable for the development of the murrain, and if rain continues much longer we may expect to be visited by it. Potatoes have lately made much haulm, and even with wide planting will want all the space for air and sun. When close planted they must suffer. In my own case the strong growers, although planted 3 ft. 6 in. between rows, and 2 ft. between sets (with only one and two eyes), quite cover the ground. I refer to Woodstock Kidney, Vicar of Laleham, Purple King, Reading Russet, Mr. Bresee, Prizetaker, Fiftyfold, Late Beauty of Hebron, Schoolmaster, Rector of Woodstock, American Purple, Climax, Bresee's Prolific, Wiltshire Snowflake, Matchless, Early Rose, Adirondack, and White Star. Some of these may not be counted rank growers, but with me they would require 4 ft. between rows this season, and will suffer for having less. Of course, if we have fine dry weather, this will to some extent stop the excessive growth of haulm. I am not one of those who cry wolf until there is an actual necessity for it, and see no reason why we should not have a good potato crop this season. I notice roots suffering from wireworm, slugs, and other vermin; in fact, I have never seen slugs buried in the tubers in the same degree as I have done this season. I have the last two weeks been digging up sickly roots to find out the cause, and in almost every case vermin is the cause; but no disease.

Penge.

P. MCKINLAY.

BUILDERS, SPARE OUR TREES!

WE have never ceased to fight against the thoughtless destruction of greenery which, in most instances the growth of many generations, it would be impossible to replace. There is more than one side to the question; there is something more than the sentimental view to be taken of the steady advance of our metropolis on the green fields that within the memory of even youngsters have been covered with long streets, with acres of crescents, of squares, and of gardens,—gardens in which, let it be noted, sickly shrubs are replanted where, perhaps, grew before stately trees; in which imported sods are made to replace the meadow grass that preceded the work of the builder. Londoners of the West End have cause to be grateful to the careful regard with which in and about the neighbourhood of the Redcliffe and "Boltons" estates the noble old trees have, in so many cases, been preserved, and we have only to contrast this portion of the suburbs with those in the north-east of the metropolis, where such terrible devastation has been committed, to recognize the enormous advantage obtained by so worthy and proper a regard for nature.

There is, we repeat, another than the sentimental view to be taken of this thoughtless plan of destroying the old trees on an estate "to be laid out for building purposes." Is it not the very love of greenery, of the open air, of plants, that tempts yearly thousands of inhabitants from the crowded city to reside in the suburbs, even at inconvenience to themselves? To how many of these thousands is not his garden the chief pride, to which he hurries home at night, for which he buys his seeds, his rose-bushes, from which he brings to town his flowers, in which he gathers his hardly-grown strawberries, and those red currants and raspberries which in the Sunday tart taste as no other currants and raspberries in the world? A love of greenery is deeply implanted in the bosom of undefiled human nature. If it be true, as some of our scientists have asserted, that the origins of our species are clearly indicated in the love which all children show for grubbing in the earth, it is equally noteworthy that this love does not fade with growing years; and yet with the acknowledged fact we see tree after tree vanish round the metropolis before the steady advance of bricks and mortar.

There are, in addition to the sentimental regrets for the disappearance of our old trees, other reasons why such unthinking action should be prevented where possible. The hygienic value of trees has long been explained: their power to absorb the vitiated air, and apparently to breathe out a healthy atmosphere—a property possessed by many trees, but, as far as we know, most strongly developed in all the *Eucalypti*. But there is another argument in favour of the trees being spared in those neighbourhoods which are now so rapidly being swallowed up by the necessities for housing our increasing population. Did but the builders and land-owners fully understand that many a hesitating tenant might be secured by the presence of an old tree before his door or in his garden, or even, for the

matter of that, in his neighbour's garden, we should, we suspect, hear less of the destruction of the trees which are still scattered round the capital. More than one of our readers would doubtless be able to mention instances of a similar nature to those which we might bring forward, to show the existence on the part of tenants of very decided views regarding the trees on their property. We remember the case of an expiring lease, the renewal of which was a matter of debate, decided by the thoughtless destruction by the landlord of a lovely tree; though it may be urged that this was the sentimental expression of a tenant who could afford to pay for his sentiment, such feelings actuate none the less the occupants of those acres of bricks and mortar with which our industrious builders are belting our metropolis and cutting us off more and more from the green country outside, which but a few years ago stretched into our very midst.

Why is it that at this moment the proposed park at Paddington is receiving such attention? It is because it is feared that a large tract of greenery may disappear, and its value to the people is greater than the money they would obtain from the capitalists. To what purpose is it that we expend enormous sums on the purchase of breathing spaces in our cities? To what purpose is it that heavy rates are levied for the beautifying of our public gardens, that trees are planted,—where unthinking opposition is not opposed to their beneficial presence,—while we are allowing the free gifts of nature, gifts which have taken centuries to mature, to be destroyed about us?—*Builder*.

A CHAT ABOUT ROCKWORK.

WE all love rocks, and like to imitate them in our gardens, but the materials at our disposal are very few, and not easily managed. Brick burrs most of us have had a turn at, but, do what we will with them, we cannot somehow make them look like anything but what they are; so we stick in plants as thick as we can and trust to Providence to cover them up as quickly as possible.

Then they are so heavy that we want quite a formidable foundation to support them, and if we want them for our conservatory floor we must carefully examine our supports before we venture on the extra weight. Do what we will, they won't look like rocks. Rocks have no rectangular edges; rocks are not all $4\frac{1}{2}$ by 3 melted together, of a dirty yellow colour, with black patches here and there; so brick burrs, having answered their purpose until structural alterations have become necessary, are smashed up at last, mixed with mortar, and pitched in for foundations, for which they are excellently well suited.

Then cork had its season. Quite barky and rustic it looked; everybody was delighted; bundles of cork might be seen going in all directions; easily fixed, light, of a capital colour and surface. We all cried "Eureka!" and thought the problem solved at last.

Well, after a bit we began to question our gardeners in this fashion. "How is it," said we, "these seedlings are all eaten, and those young shoots all gone?" "Can't help it," says our gardener; "shall never get anything to grow as long as that cork stays there." "Cork!" say we; "what's the matter with that?" "Just look here, sir," says our gardener, pulling down a piece. "Stand on one side, or you will be covered with insects." We do as we are bid, and to our disgust we see at the back of our beautiful cork dozens of creeping things running in all directions. "Take it all down carefully, gardener," say we. "Don't shake it; put it all in the fire, and give the place a good lime-whiting."

We have heard of the Smithsonian system of rockwork, so we inquire about it. Nothing in nature is half so wonderful. Nature only makes a waterfall here and there; peaks and ravines are miles and miles asunder, lakes and snow-clad mountains are scattered over the earth's surface; but by the Smithsonian system all the wonders of the world can be produced in a back garden fourteen feet by ten, at so much a foot super.

Look what it saves in travelling—the hotel expenses, the loss of time. By this system when you want to see Niagara you have only to turn a tap, and you produce Mont Blanc with a pail of whitewash and a map.

Then the cost. We are not all Mr. Mantalinis; we must consider that. The cost is our stumbling-block, so we must leave the Smithsonian system to our millionaires, and see if we can't find something cheaper. What we want is something light, so as to be easily handled; porous, so as to hold water and mould; of an irregular shape, so as not to suggest waste building materials, that can be adapted to any circumstances, and fixed by any one, and not expensive, or we shall not be able to afford it, and that can be produced in any quantity.

Well, I have been pottering at the matter for some years, and I really think I have at last got the very thing, and I fancy the best way will be to produce it in blocks about a foot across and one half the height, of an irregular conical shape. I have seven colours—black, brown, dull red, bright red, grey, dull yellow, and white—and I think I can sell these blocks, which will contain about half a cubic foot, at sixpence each.

There will be a show of horticultural matters at the Agricultural Hall next month, from July 24 to August 5, and I have engaged a space in the centre of the hall, where I shall show amongst other matters the rockwork I speak of, and as it might be easily overlooked I have drawn your attention to it. Some samples I will also send to my place in the Poultry, No. 35, and some to my shop in Bunhill Row, No. 121; so that if you are interested in the matter you will know where your curiosity can be gratified.

If you have any taste for rockwork buy the raw material and see what you can do with it. If you don't like it you can break it down and build it up again. Put the dark rocks at the bottom, and perhaps in time, if nature has blessed you with genius, even the Smithsonian system itself may not be beyond the reach of your ability.

W. H. LASCELLES.

INUNDATION OF VINEYARDS.—M. Faucon, a leading and successful vine-grower in the Bouches-du-Rhône, writing in the *Journal d'Agriculture*, declares submersion to be the surest phylloxera remedy yet tried. The conditions of success are that the whole area shall be kept constantly under water for an unbroken period of thirty-five days at least, and that the least depth of water above the surface of the ground during that period shall not be less than twelve to eighteen inches. The quantity of water actually required for a given area will depend greatly on the hygrometric properties of the soil.

TWO FINE PITCAIRNIAS.

THE two Pitcairnia here figured are the finest examples of the genus for a limited collection of stove plants. Bromeliads obtain so little attention that, with the exception of the pine-apple, they are practically unknown in English gardens. Nevertheless their very distinct characters, interesting growth, and brilliant—sometimes singular—appearance when in flower give them a claim to consideration when the stove house is furnished with plants representing many different orders of tropical plants. *Pitcairnia alba* is regarded by the director of the Royal Gardens, Kew, as “the finest for horticultural purposes of all the Pitcairnia of the *bromeliifolia* group, as it has an in-

FILMY FERNS.

So beautiful and interesting are the filmy ferns, when cultivated with a fair measure of success, that a collection of the most distinct and attractive species will afford much gratification, particularly during the summer season, when their deliciously cool and refreshing appearance seldom fails to secure for them a large amount of appreciation. Growing naturally, as they mostly do, in dark ravines where their fronds are constantly maintained in a saturated state by the spray of the waterfall above or the moisture rising from the water below, they require conditions widely different from those under which ferns of the ordinary type thrive. They require, for instance,



PITCAIRNIA ALBA.

florescence five or six feet in height, made up of numerous racemes of flowers, in which both calyx and corolla are a brilliant coral-red.” (*B.M.*, t. 6,606.) Both this and *P. corallina*, which produces a pendent raceme, have been in cultivation many years, but have been appreciated by comparatively few amongst the many who are more or less familiar with such plants. Professor Morren, of Liège, who possesses an extensive collection of bromeliaceous plants, reckons it of special value for its distinctive habit and high colour. Should we be favoured, as we hope, with a monograph on the order which he has so long and patiently studied, we shall expect a prominent place to be assigned to the Pitcairnia now before us, because of their fine characters as ornamental plants.

a position in which the light is more or less subdued, and where they can be kept very close to prevent currents of air passing over them, and constantly moist both at the roots and overhead. At first sight it may appear that a compliance with these requirements is beyond the means of the average amateur; but it is not so, as a very few words will suffice to show. Providing them with suitable accommodation is neither difficult nor expensive, and a very considerable number of the finest kinds now in cultivation may be grown with the aid of contrivances of the most simple and inexpensive description. Several very beautiful species may indeed be grown with great success in an indoor apartment with the aid of a case of the usual construction, or, failing that, a cheap bell-glass. And one of the

objects in now referring to them is to suggest that they might with advantage be grown more generally in the dwelling-house. Especially are they suitable for rooms with a north aspect, as in these they grow equally as well as the most vigorous of the ordinary kinds, and present so beautiful an appearance that they seldom fail to at once arrest the attention of visitors. Some of the finest of the filmy ferns require the temperature of the plant stove, and they should not be overlooked by those who are able to afford them suitable accommodation. But those who are not able to grow ferns requiring a greater degree of warmth than is afforded by the greenhouse or cool fernery will find a sufficient number of kinds to afford them entertainment that may be grown in either of these structures, when proper provisions have been made for them.

sisting of two or three dozen plants the preferable arrangement will be to enclose one end or corner of the house by means of a glass screen in which the woodwork is as light as possible. The glass immediately over the compartment should be covered with some rather thick textile fabric, or be washed over with a suitable mixture, to exclude the sun and subdue the light. In addition, a blind should be provided during the spring, summer, and the early part of the autumn for letting down in front of the screen in bright weather. The sides and the end opposite the screen may be fitted up with a little sandstone to give the interior a somewhat rustic appearance and provide stations above the general level for a few of the plants, as when some are raised from three to fifteen inches above the others the effect is materially enhanced. The stones should be arranged with



PITCAIRNIA CORALLINA.

There is no necessity in commencing the cultivation of these ferns to incur a heavy outlay in providing them with suitable quarters. The close atmosphere and the abundance of moisture so essential in their cultivation are decidedly hurtful to other classes of ferns, and where a well-constructed fernery exists it will be necessary to separate them from the general stock. This may be done by covering them with bell-glasses or enclosing them within a case, which may be plain or ornate according to the taste of the cultivator; but a plain case of wood and glass such as could be made by any carpenter is in some respects preferable. When a few kinds only are grown it will suffice to set apart a shady corner for them, and cover with bell-glasses proportionate to the size of the plants. In dealing with a collection con-

a little soil between them, and a few tufts of the free-growing *Selaginella denticulata* be inserted here and there, as its bright green colour brings out the dark green of the ferns in pleasing relief. As this *Selaginella luxuriates* under the conditions most conducive to the welfare of the other occupants, it will be necessary to adopt repressive measures at rather frequent intervals, to prevent its overrunning everything and doing much mischief. The *Selaginella* will only be admissible in cases in which the ferns are to be grown in pots, as were both to be grown in the same bed much mischief would in all probability be done by it. In fitting up the space insert empty pots at suitable intervals, and in these the pots containing the plants can be placed. The most suitable sizes will be those five and six inches in diameter, and when the pots to

be put in them are very small it will be an easy matter to put a few crocks in the bottom and fill the space round the side with moss.

In preparing an enclosed space, when the ferns are to be planted out, a gradual but irregular slope from back to front, and from the sides to the centre, should be provided, and in forming the pockets for the various plants the spaces should be large enough to hold about as much soil as a five-inch pot. Mere crevices are not sufficient, and if a space happens to be too large for any particular plant it will be an easy matter to put a few extra crocks or pieces of sandstone in it. Before the bed is formed, the platform on which it is to rest should be covered with a layer of rather large crocks to a depth of three inches, to carry off superfluous moisture. Although the filmy ferns require an abundance of moisture, it is essential to their welfare that the soil should not become sour in consequence of its being charged with stagnant water. In various parts of the bed a few pieces of rather soft sandstone must be placed at intervals, and in such a way that they project a few inches above the soil, as those with creeping rhizomes make a more satisfactory growth when they can spread over a raised surface of stone soft enough to hold a comparatively large quantity of moisture. The compost in which the majority of the filmy ferns can be grown most successfully is one formed with fibrous peat, sphagnum, and lumps of sandstone, or medium-sized crocks, and the most suitable proportions are four parts of peat, two parts of sphagnum, and one of the sandstone or crocks.

When filmy ferns are grown under bell-glasses the pans and glasses must be rather large in proportion to the size of the plants, to afford room for the proper development of the fronds. Generally speaking, the best way of dealing with them is to grow them in pots of a suitable size, and then plunge the pots in pans that will receive glasses just large enough to allow the fronds to grow naturally. In fitting up a pan place in the centre a pot one size larger than that in which the plant is growing; then fill in with a mixture of peat and sand, and cover it with a layer of live sphagnum, excepting in the case of the strong-growing *Todeas*, and in the pans for those may be planted the *selaginella* of which the name is given above. Those of spreading habit should not be planted very deep, as the growth is decidedly more satisfactory when the rhizomes can spread along the surface or immediately under it.

One of the most important matters in the general management is to keep the plants well supplied with water. During the spring and summer season they will require a light sprinkling over the fronds daily, or nearly so, and at other seasons as may be required to maintain them in a nice moist condition. The water should be of the same temperature as the house or apartment, and perfectly clear, and be applied by a pot or syringe to which a very fine rose has been attached, as dashing the water in a violent manner over them is by no means beneficial. It must not be supposed because they require to be kept close that a little air occasionally will be hurtful to them. On the contrary, the compartment or case in which they are grown should be ventilated at intervals to ensure the maintenance of the atmosphere in a pure state, but, to avoid injury from sharp currents, air should be admitted only when the house is closed. In the case of those grown in dwelling houses the windows should be closed when the glasses are removed or the case opened for the purpose of watering or airing.

A large collection should not be formed until their cultivation is properly understood, and at the beginning species of striking character and free growth should be selected. The following can be specially recommended for general cultivation, for whilst handsome in appearance and not difficult to cultivate, they succeed admirably in a cool house:—*Hymenophyllum chilense*, *H. demissum*, *H. pulcherrimum*, *H. tunbridgense*, *H. Wilsoni*, *Todea Fraseri*, *T. pellucida*, *T. superba*, *T. Wilkesiana*, *Trichomanes humile*, *T. radicans* and its varieties, and *T. venosum*. The three most useful of the above are *Todea superba*, *Trichomanes radicans*, and *Hymenophyllum tunbridgense*.

G. S.

VEGETABLE FOOD SUPPLY OF THE PRIMITIVE NEW ZEALANDERS.

A PICTURE OF PREHISTORIC HUSBANDRY.

A PAPER on the "Vegetable Food of the Ancient New Zealanders," by Mr. W. Colenso, F.L.S., a veteran colonist, whose personal acquaintance with the Maoris dates back to a period a good many years antecedent to the establishment of the colony in 1840, appears in the last published volume of *Transactions of the New Zealand Institute*, and, both historically and horticulturally, is of more than ordinary interest, as illustrating the progress made in the arts of Raising and Preparing Food by savages unacquainted with the use of metals, in a country where the food resources were ostensibly few, and under climatic conditions closely resembling our own.

The tales repeated by successive travellers, from the days of Cook to the present, that the New Zealanders were oftentimes in dire straits for food, although countenanced in some measure by their practice of cannibalism, is shown by Mr. Colenso to be utterly opposed to facts. The primitive Maoris, he says, had abundance of good wholesome food, but such only as was to be obtained by labour, almost unremittent, in one shape or another. Nature to them had not been lavish, as to their kinsmen in the tropical isles of the Pacific, where the breadfruit, the banana, the cocoa-nut, and the plantain grow spontaneously, and yield their fruits to man without toil. Yet, such constant labour and industry were doubtless in their favour, helping to the "survival of the fittest," and leading to the development of a finer race, intellectually as well as physically. The old Maoris were great fishers and fowlers, hunters, too, in their diligent snaring of the fat frugivorous native forest rat, their only game animal; but they differed from the mere hunter and fisher—the true savage man of ancient and modern times—in being industrious and skilful tillers of the soil.

It is indeed doubtful if any primitive people, unacquainted with the use of metals, ever advanced so far in the same direction. Many pertinent proverbs in the Maori tongue refer to agricultural subjects, as do likewise many of the native legends, such as that of their favourite and beneficent hero, Maui, catching and binding the sun to prevent his travelling so fast, "that man might have longer daylight to work in;" and that of another mythical personage, by name Tamatea, "who first set fire to, and burned off, the tangled weeds and bush, that man might have a clear space wherein to grow food.

Their plantations were scattered and oftentimes half hidden in out-of-the-way spots; but this was on account of the danger to which the owners were constantly exposed of a sudden visit of a *tana* or war party, not unseldom composed of their own friends and relations, to demand satisfaction for some supposed insult or breach of *tapu* (taboo), in which case the crops, being personal property, were sure to suffer. Besides private allotments, or gardens, they had others, which may be described as tribal or communal, often of a few acres each in extent. They never hedged in their plots, the laborious construction of heavy wooden fences having only become necessary after the introduction of the pig by Captain Cook; but they put up light fences and screens of reeds to break the force of the winds, which are very strong in summer, and apt to beat down the slender stems of the *Kumara* plants (*batates*) and to rip the leaves of the *taro* (*Caladium esculentum*). In their plantations, in the olden days, all worked alike, the chief, the lady, the slave; all while so engaged being under a rigid law of ceremonial observance or *tapu*, Levitical in its minuteness of detail. Tobacco, that fruitful source of idleness with native field hands, was to them then unknown. In single rank, side by side, stark naked but for a small mat slung across the loins, they worked with their long-handled narrow wooden spades, stepping backwards, like ourselves, in digging, and keeping time with a low monotonous chant, in the chorus of which all joined. Of the spells and incantations performed by their priests to ensure a bounteous crop; of the neat, profusely-carved and ornamented storehouses to be found in each village, the labour expended on which, in days when the use of iron was unknown, must have been enormous, and of other points of interest there is no room here to speak. One peculiarity must, however, be noted, in which Mr. Colenso believes the Maoris to have differed for all other agricultural races—the non-use of manure of every kind. Their whole inner man revolted at the idea; and when the early missionaries first used such substances in their kitchen gardens the practice was brought against them as a charge of high opprobrium by their cannibalist converts. Even in their potato grounds, in later years, when large quantities of that root were raised for shipment, they would not use anything of the sort, although they saw the beneficial effects in the gardens of the missionaries, preferring to fell and clear new soil on the skirts of the forest, and go through all the trouble of fencing, rather than have recourse to the abominated manure. Neither did they ever water, even in times of drought, and when the crops close to streams might thus have been saved. The only sort of amelioration of the soil practised by them was the annual surface dressing of the *kumara* (*batate*) lands with clean fresh gravel, brought up from the water-courses, in woven baskets, at considerable expenditure of labour.

The vegetable food products of New Zealand in the olden time may be considered under two heads: (1) Cultivated Plants; (2) Wild food, plants and fruits.

Cultivated Plants.—Of these the most important was the *batate*, or sweet potato (*Ipomoea chrysorrhiza*), known by the natives as *kumara*, a tender annual, the cultivation of which, as native legends show, has come down from prehistoric times. It is set at equal distances, in rows, in light dry soil, and earthed up from time to time during growth. Some 45 years ago the finest plantations existed near the volcanic lakes of Rotorua, where the subterranean heat and the lightness of the soil favoured the growth. The crop had one formidable foe—the caterpillar of one of the largest moths, which was kept down by hand-picking and burning, a task always peculiarly distasteful to the natives. They believed these caterpillars were rained upon the crops. The crop was dug, like our potatoes, in autumn, and stored with much observant care to avoid mouldiness. Only new baskets were used in the gathering, the tubers were carefully picked over, and the sunniest days chosen for the work. Many marked varieties of the tuber exist, and have existed time out of memory. Lists collected by Mr. Colenso during a period of 35 years show for the northern districts 32 distinct varieties, all recognized by separate native names. Like common potatoes, all exhibit distinctive characteristics in shape and texture. Some are rough-skinned, some smooth, some are globular, some oblong, some angular. Of the above 32 varieties, 14 have white skins and flesh, 3 white skins and pink flesh, 7 red skins and flesh, 8 purple skins and dark flesh. In the eastern districts 16 named varieties are known, including only 5 of those above mentioned. Like potatoes, all come true to the "setting," for seed, in the proper sense of the word, there is none. No Maori has ever heard of the plants flowering, although they are never harvested until after the stems die down. All that is known is that the different varieties have been handed down from generation to generation of growers. Possibly, in ancient times, the plants did flower, and the permanent varieties may have been raised from seed, as it is known that, previous to the European settlement, the natives of the Northern Island had in this way obtained some new varieties of the common potato, which was originally introduced by Captain Cook. The enormous quantities of the *batate* grown by the Maoris, more especially before the cultivation of the imported potato became general, exceed belief. At their great tribal feasts—now long abandoned—as well as at less important festivities, the ostentatious profusion of food was amazing. The food was generally built up in the form of a pyramid, sometimes 80 to 90 ft. in height and 20 to 30 ft. square at the base! For this purpose a tall straight tree was brought from the forest to the proposed scene of the feast, and there dubbed down, and set upright, with other poles planted round, to which stages were attached at 7 to 9 ft. apart. The intermediate spaces were then filled in with baskets of eatables, so as to form one solid mass of food, the effects of which, olfactory and other, can better be conceived than described. The getting up of these feasts took a long time, sometimes a year, and the labour expended on them was enormous. At a tribal feast—comparatively a small one, and one of the last held—given at Waimate, in the Bay of Islands, in 1835, 2,000 one-bushel baskets of *batates* were consumed. At a similar feast, given by the famous warrior-chief Te Waharoa, in 1837, the bill of fare, according to a European eye-witness, included 20,000 dried eels, several tons of sea-fish (chiefly young sharks,

a Maori dainty), many fat hogs, 6 albatrosses, 19 large calabashes of shark-oil, and baskets of vegetables beyond number. But we must return to our subject.

Next in importance to the sweet potato ranked the *taro* (*Caladium esculentum*). This was also raised from tubers, but being a perennial was always "in season," and usually dug as it was wanted. Of this plant there were over twenty distinct and well-marked varieties, besides at least one known to have been obtained since the date of Cook's visit. These varieties all differ in the size, texture, colour, and qualities of their tubers. There is no knowledge of the plants ever flowering—the property having presumably been lost in the course of cultivation, as in the case of the batate. Both the tubers and the thick fleshy stems of the plant were eaten, but only after cooking, as the acid juices in an uncooked state produce burning and constriction of the throat. This esculent played an important part in many native ceremonial observances, as at the naming of a new-born child of a chief, the death of a chief, or the exhumation which always followed a certain time after interment.

Third in importance among cultivated vegetables came *huc*, a fine sort of gourd. This useful plant was really raised from seed, and it is noted as a curious fact that the only vegetable grown by the Maoris which flowered and fruited under cultivation; it was likewise the only cultivated species which exhibited no variation. The seeds, wrapped in fern fronds, were always steeped for a few days in running water before sowing. The fruit, like *kumara* or *taro*, was baked, or perhaps it would be more correct to say steamed, in the earth oven before eating, and thus prepared the pulp, either hot or cold, was in high esteem during the summer months, when the batates were still unfit for digging. From the gourds the natives likewise obtained their calabashes for holding water, oil, &c.

Tiparu, a species of cordyline, samples of which, provisionally named *C. edulis*, were sent by Mr. Colenso to Dr. Hooker in 1850-52, was another Maori vegetable. The plant was propagated by off sets and suckers, and was never known to flower. The succulent stem, resembling a magnified cabbage-stalk, was the part baked and eaten. A smaller variety was grown for the sake of its root. *Corynocarpus lavigata*, or *koraka*, and *Solanum aviculare*, or *kahoho*, were also cultivated plants.

The paper mulberry and the New Zealand flax were both grown for textile use.* Of these many interesting and much-prized varieties existed, but whether they were of Maori origin remains undetermined.

Wild Food Plants and Fruits.—In the face of the belief heretofore entertained, that as regards supporting life New Zealand in its primitive state was next akin to a desert, Mr. Colenso's list affords a sufficiently striking example of the erroneous conclusions respecting the food resources of a country which may be arrived at from an imperfect survey, even by the most competent observer. Foremost among wild products must be ranked *aruhe*, or *zoi* or *monchi*, the famed fern-root (*Pteris esculenta*), first described by Cook's naturalist, Forster. Good edible fern-root was not everywhere to be found. In some districts, especially in the north, it was scarce, and had to be carried many a weary mile on the people's backs from the digging places to their seaside homes. The best roots were produced in loose rich soil which had remained undisturbed for years. All good digging places were carefully marked and preserved, and no tribal trespassings permitted. There were fixed seasons for digging, and the old Maoris would no more have dug it out of season than we should lift potatoes. Special precautions were observed in burning off the fronds, a practice which in August, but only during that month, was held to improve the roots. The latter were dug with the long wooden spade or paddle in spring and summer, and sorted and air-dried. For use, the roots were steeped in water, lightly roasted on the embers, and then pounded in a large mortar with a heavy pestle of wood or whalebone. The black outer skin came off in this process, and the better sorts acquired the appearance and consistency of soft dough, which by evaporation became hard and brittle, like fine biscuit. When prepared in large quantities it was made into a pounded mass, the enormous quantities of which in the native forts along the coast excited the wonderment of Captain Cook and his companions. In the spring of the year the young shoots were eaten like asparagus, the old Maoris being especially fond of them as an accompaniment with fresh fish, then always abundant. Pigs fed on fern-root made prime pork, a fact well known to the settlers in the days before the introduction of beef and mutton. Mr. Colenso considers fern-root to be highly nutritious, and expresses a belief that the trials made in England some five-and-twenty years ago failed owing to want of discrimination of the difference between the English form (*Pteris aquilina*) and the New Zealand (*Pteris esculenta*), which are very marked in the root, and also, perhaps, to the root having been tried fresh, instead of dried in Maori fashion.

The flesh of the succulent fruit of *Corynocarpus lavigata*, a genus peculiar to New Zealand, was also eaten, the flesh when fresh and ripe, and the seeds after cooking, which destroys the highly poisonous principle they contain. Every autumn the Maoris—men, women, and children—resorted to the *koraka* thickets, to collect the fruit and prepare the kernels. The fruit was gathered in great baskets, and placed therein in large earth-ovens, where it was baked for a considerable time. The baskets were then drawn and stood in running water, by which the pulp was washed away, leaving the kernels deprived of their poisonous properties by the baking, and which were forthwith dried and stored. For use they were softened by roasting, like chestnuts, and were esteemed very wholesome.

The fruit of the *hinau* (*Elæocarpus dentatus*) was also eaten. It hangs in loose racemes, presenting the appearance of a sloe, with something of the taste of an acorn. Here the culinary ingenuity of the Maoris was particularly manifest. The ripe and windfallen fruit was gathered in baskets and placed in water, in the hull of a canoe or other similar trough. There, after long steeping, the fruit was well rubbed, and the husks, stalks, &c., run off, leaving a grey pulpy mass behind, which was kneaded and baked in the form of a huge cake. A cake of twenty to thirty pounds weight took two days to bake. It was a large, satisfying, "cut and come again" mess, unlike any other native vegetable dish, and of it both the Maoris and the rats are exceedingly fond.

The *puwha*, or sow-thistle (*Sonchus oleraceus*), of which there was one,

if not more, native species quite distinct from the more recently-introduced European one, was used as a vegetable. The young tops and leaves, steamed in the earth ovens, were the parts generally used; sometimes the stems were bruised and mashed, to get rid of highly acid juice, and used likewise. Eaten with fresh fish, the plant was very palatable and wholesome.

The roots of *pohue*, the common bindweed (*Convolvulus sepium*), were dug up and cooked, but not much esteemed. Mr. Colenso mentions a curious fact, which he brought long ago to the notice of Dr. Hooker, that in New Zealand the roots of this plant, said to be identical with the British species, are perfectly wholesome, whereas in England and elsewhere they exhibit highly purgative properties.

The fine frond-like stems of the *korau*, or black tree-fern (*Cyathea medullaris*), furnished a sago-like substance, which was eaten; so also were the blanched head-shoot and the young leaves of the *titi*, the cabbage-tree of the settlers (*Cordyline australis*); so, too, was the blanched heart of the *nikau* (*Arca sapida*), the palmist of Mauritius.

Another curious article of vegetable food was the yellow pollen of the flowers of the common bulrush, which was collected in the swamps in summertime, when the flowers are open. Kneaded with water into cakes, it much resembles coarse gingerbread. The natives of Scinde use it in a precisely similar way.

The plum-like drupes of *Nesodaphne tawa* were eaten baked. The bract-like pieces of root of *Marattia salicina* were likewise sometimes partaken of. *Karenga*, a species of seaweed abounding on the flat clayey tidal shores of the east coast, stewed with other algae and the sweet juice of the *tutu* (*Coriaria ruscifolia*), makes an excellent blanchmango-like food, which was eaten cold with great avidity.

Several species of fungi were likewise eaten in the summer season, such as the two large terrestrial species called *pukurau* (*Lycoperdon Fontanesii* and *L. giganteum*), the *harore* (*Agaricus adiposa*), the *hakehakeha* (*Hirrida auricula judæa*), and the *parunhatelei* (*Ileodictyon cibarium*). The sudden appearance of the last-named species after thunderstorms, and the offensive stench emitted by it when it bursts, appear to have suggested its strange Maori appellation of "thunder-excrement." It is only eaten before the bursting of the outer shell, ignorance of which fact, Mr. Colenso points out, has led the Rev. Mr. Berkeley into the error of describing it in somewhat exaggerated terms as an "execrable article of food, which would be used nowhere except under great scarcity."

Our space will not allow us to enumerate in detail all the remaining edible substances mentioned by Mr. Colenso, but among them may be noted the thick fleshy roots of the New Zealand lily (*Arthropodium cirrhatum*), which are baked and eaten; the leaves of various plants, as *Solanum nigrum*, still occasionally seen as greens on colonists' tables; the cabbage introduced by Cook; the rich wholesome juice of the berry-like petals of *Coriaria ruscifolia*, which is kept cool in calabashes ready for use; the thick fleshy bracts of the climbing *Freyinetia Banksii*; the fruit of various timber-trees, as *Podocarpus totara*, *P. dactyloides*, *P. spicata*, *Dacrydium cupressinum*, and others; the purple berries of *Fuchsia excorticata*, which when ripe are pleasant even to a European palate; the orange currant-like berries of *Myrtus pedunculata*; the small white fruit of *Gualtheria antipodea*, var. γ ; and sundry other wild fruits. To the list must be added the honey-like fluid secreted by the perianth of the New Zealand flax, which is largely consumed alike by young and old, and is esteemed very wholesome.

H. M. C.

The House, Garden, and Apiary.

ANOTHER LOVER.

I HAVE another lover loving me,
Himself beloved of all men, fair and true.
He would not have me change although I grieve
Perfect as light, because more tenderly
He loves myself than loves what I might be.
Low at my feet he sings the winter through,
And never won I love to hear him woo.
For in my heaven both sun and moon is he,
To my bare life a fruitful-flooding Nile,
His voice like April airs that in our isle
Wake sap in trees that slept since Autumn went,
His words are all caresses, and his smile
The relic of some Eden ravishment;
And he that loves me so I call Content.

A. MARY F. ROBINSON (*Athenæum*).

THE HOUSE.

THE practice of embellishing fireplaces in the principal apartments is steadily increasing, and much might be said in its favour, for, when the plants are appropriate and tastefully arranged, they present a far more attractive appearance than any of the so-called grate ornaments. The most useful plants are such as afford striking forms and pleasing tones of green or variegated foliage. The palms, dracænas, grasses, and miscellaneous "foliage" plants of neat and, generally speaking, light habit should predominate—lumpy plants presenting large surfaces are not suitable—and there must be a fair proportion of colour to light up the group. For this purpose the flowers should be choice as well as showy. A general objection may be urged against all kinds of bedding plants as unsuitable: the same principle should be followed in selecting the flowers as the leaves, form and a certain airiness of style being of great importance. Hence a neat tuft of white marguerites peeping out from amongst grassy leafage will be far preferable to a scarlet geranium. Many greenhouse plants answer admirably for this kind of decoration, which never need be costly, but must always be tasteful and combine richness and delicacy without any strong display of colour. Sometimes a mere strip of looking-glass placed at the back of the grate and leaning against the register will, when the plants are nicely grouped before it, make a wonderful difference. A more simple procedure that may or may not answer, as the case may be, consists in covering the back of the grate with cheap thin paper of a very dark green colour, and putting it on as much crumpled as possible, so as to be practically invisible, to afford a kind of distance rather than a background, its real purpose being to conceal ugly ironwork and prevent the intrusion into the midst of

* Among the purposes to which the bark of the paper mulberry was applied was the manufacture of kites, kite-flying being as favourite a pastime with grave and reverend Maoris in the olden days as with elderly Chinamen in the present.

the plants of any such features. The plants must all be clean and dry when placed in position, but the soil in the pots should be moist enough to carry them through for a few days, when a change must be made for the sake of the plants.

THE GARDEN.

AFRICAN LILY, as the agapanthus is sometimes called, to have abundance of water while throwing up flower-heads, and until the bloom is over; then to be repotted; or, if becoming too large, to be shaken out and parted, and the strongest crowns selected for next year's bloom. Put these clumps, consisting of three or four crowns each, into medium-sized pots. The compost should be sandy loam, rotten dung, and peat, in equal quantities.

ASPARAGUS.—Beds that have not had much attention should be at once pointed in with a fork, all weeds raked off, and the surface covered with a mulch of half-rotten dung. Manure rotted to powder should never be used as a mulch; there is no strength in it.

BROCCOLI must now be put out to furnish a supply during autumn. Manure liberally, and if the planting is done in dry weather give water as abundantly as possible. Better, however, to make the ground ready and wait for showers, both to save labour and to give the plants a better start, for a free natural growth is especially requisite with broccolis and cauliflowers. Transplant from the seed bed to a piece of rich light soil the plants from the late sowings. Small clubs just appearing on the roots may generally be removed with the thumb-nail, but where clubs are formidable, from the size of the plants, throw the plants aside and burn them.

CAULIFLOWER.—Plant out, and remember that for this crop the soil cannot be too rich: they will actually grow well in dung only, if well rotted. Hoe between those coming forward, but do not earth up the stems except of such as are loose at the collar.

CARNATIONS, PICOTEEES, and PINKS to be propagated largely now from layers and pipings, both easy and certain methods.

CELERY should have a heavy watering where the ground is dry. If the fly has attacked the leaves, pick them off and burn up; generally a few leaves only are touched, and they can be spared. But as no crop will bear to be entirely disleafed, where the grub has got the upper hand it will be in vain to expect much produce.

CONSERVATORY must be ventilated night and day, unless there are many stove plants, in which case shut up while the sun is on the house. Use water in plenty and liquid manure wherever it seems to be required.

CUCUMBERS must have steady bottom heat to produce fine fruit. It is a common fallacy that when the weather becomes warm the beds may be left to cool down, but it is rarely fine fruit are cut from frames that are never lined after the first heat is out. Maintain a moist atmosphere, for cucumbers absorb immensely by their leaves.

FRUIT GARDEN.—As they attain maturity put netting over currants, gooseberries, and cherries, to keep the birds from the crops. To retard or keep hanging currants and gooseberries, cover with mats. Strawberry runners to be pegged down in pots, and the superfluous runners to be cut away an inch or two from the stools.

LETTUCE is too much neglected after the early part of the season, through the tendency of the plants to bolt in hot weather. This may be prevented by planting in a rich cool soil, and giving some amount of shade.

HARD-WOODED PLANTS that are in need of a shift this season must have it at once, or the time will go by for them to derive full benefit from the operation. The most important matter of all is to secure good drainage, and to use the compost in as rough a state as possible consistent with the size and nature of the plant.

THE APIARY.

Those who have a considerable number of hives will have plenty to occupy their attention just now in watching for and housing late swarms, and in attending to the swarms that were secured in May. As the throwing of casts or second swarms more or less weakens the hives, it should as far as practicable be prevented, and the best means of accomplishing the desired end is to carefully examine the combs at the beginning of the month and cut away all but one of the queen cells. Supers that were placed on strong stocks early in May should be examined at suitable intervals, and immediately they are well filled with properly-sealed comb remove and replace with others. The form and size of the supers may in some degree be left to the judgment of the apiarian. Glasses large enough to hold from two to four pounds have a very attractive appearance, and are not to be despised; but sectional supers, made of wood and large enough to hold from one to two pounds, are decidedly preferable. They are cheaper to purchase, more readily arranged upon the hives, and they hold a quantity of comb that, as a rule, can be the most readily disposed of. In addition they can be packed and sent long distances without much risk of the comb being broken or otherwise damaged. The combs of frame hives filled with new swarms should be examined two or three times within the first fortnight for the purpose of regulating the building of the combs, for if they are much out of the perpendicular it will be difficult to move later on the frames for the examination of the bees or the taking of the honey. The feeding bottle should not be used at this season excepting in the case of swarms that are subjected to a period of wet and cold weather immediately after they are put in the hives. Artificial food ought certainly not to be supplied with a view to the filling of the combs, for sugar is not honey, and the apiarian who feeds with a view to the augmentation of bulk will not be long before he experiences a difficulty in disposing of the products of his apiary; for consumers are not readily deceived.

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Exhibitions and Meetings.

CHERTSEY AND DISTRICT HORTICULTURAL SOCIETY, JUNE 22.

IN all but the weather, which was most unfavourable, the exhibition of the Chertsey and District Horticultural Society, held on the above date was exceptionally successful, and did honour alike to the energy of the management and the cultural skill of the exhibitors. This season the beautiful and interesting grounds of Oatlands Lodge, Weybridge, the residence of Sir William Blake, K.C.B., were obtained for the purposes of the show, and in a lower part of the pleasure grounds, amid beech and other trees of the most magnificent character, were pitched the four or five tents required for the accommodation of the numerous collections brought together in competition for the large array of prizes. A more suitable site could not have been desired, nor could the exhibition have been more satisfactory, and as the whole of the subjects exhibited were the production of cultivators within a few miles of Weybridge it was made evident that cultural skill of a high order prevails in the district. The schedule comprised between sixty and seventy classes, in which provisions were made for all classes of plants, fruits, flowers, and vegetables peculiar to the season, and as these were all well filled, and the productions generally of good quality, it will be readily understood that the exhibition was thoroughly representative. Not less remarkable than the number and excellency of the productions were the arrangements, which were admirably carried out, and the indefatigable and courteous secretary, Mr. Rawlings, and the members of the executive are deserving of high praise.

STOVE and GREENHOUSE PLANTS in bloom and remarkable for the beauty of their foliage were well represented both in point of numbers and quality. The chief exhibitors in the classes provided for these telling subjects were Mr. J. Cornhill, gardener to L. Pettit, Esq., Oatlands Park, and Mr. Povey, Fairlawn, Oatlands Park. In the class for eight plants in bloom Mr. Cornhill occupied the first place with excellent specimens of *Allamanda Chelsoni*, *Anthurium Scherzerianum*, *Vinca rosea*, and other good things. For four Mr. Povey was first with a capital group comprising *Statice profusa*, *Bougainvillea glabra*, and *Kalosanthes coccinea*, which, by the way, makes a telling specimen when shown as in this case. In competitions for the prizes for a collection of twelve flowering and fine-foliage plants Mr. Cornhill occupied the post of honour with a group in which *Azalea Grand Crimson*, a valuable late variety, *Lapageria rosea*, and *Begonia Weltoniensis* were conspicuous. In a similar class for eight Mr. Povey was first with a collection, in which *Kalosanthes coccinea* and *Rhynchospermum jasmoides* were made note of as being particularly good. Mr. Sutton, Ashley Park, Walton, was second with a group possessing much merit, and including fine specimens of *Allamanda Hendersoni* and *Imatophyllum miniatum*. The premier award in the class for a single specimen plant in bloom was made in favour of Mr. Cornhill, who had a large well-flowered example of *Erica ventricosa magnifica*.

PALMS in collections of four were admirably shown by Mr. Cornhill, Mr. Gray, The Ferns, Weybridge, and Mr. Sutton, who were awarded the prizes in the order in which the names are here placed.

The class for six fine-foliage plants contained several capital collections. Particularly good was the first-prize collection from Mr. Cornhill, which contained a grand specimen of *Buonapartea juncea*, a well-coloured *Croton Weismanni*, and capital examples of *Cycas revoluta*, and other equally well-known subjects; Mr. Dibben a good second with a collection in which a splendidly-coloured *Croton interruptum* was conspicuous. For four fine-foliage plants Mr. Povey and Mr. Gray were first and second respectively. *Caladiums* were staged in excellent condition by Messrs. Povey, Reed, and Sutton, who were awarded the prizes in the order of their names. The prizes for twelve plants suitable for the decoration of the dinner table brought out a strong competition, and the collections were so evenly matched that the making of the awards was no easy task. Eventually Mr. Povey was placed first for examples of a most suitable size and well grown. Mr. Sparrow was second with plants exceptionally well grown, but decidedly too large.

SOFT-WOODED PLANTS in bloom had about twenty classes set apart for them, the largest number being for fuchsias and pelargoniums. Zonal pelargoniums with single flowers made a brilliant display of colour, and in the leading class for six Mr. Plowman, gardener to C. L. Smithe, Esq., Walton, was first with well-flowered specimens. The prizetakers for four were Mr. Gray and Mr. Mann, Beecheroff, Oatlands. The best collections of six double zonals were those shown by Messrs. Plowman and Taylor, who were first and second respectively. Messrs. Povey, Plowman, and Reed were the prizetakers for a single specimen zonal, and in the two classes for tricolor and bronze zonals Messrs. Millican, Plowman, Reed, and Cornhill were the most successful exhibitors. The first prizes for six fancy and six show pelargoniums were awarded to Mr. Povey, who staged neat, even, and well-flowered specimens. Mr. Gray exhibited well in the class for four fancies and secured the premier award. *Petuniums* were rather unequal in merit, the best being those from Mr. Millican, who was awarded the first prize. Fuchsias were contributed in large numbers and in a condition that left but little to be desired. In the class for six in twelve-inch pots Mr. Povey and Mr. Mann were first and second respectively, and in other classes Messrs. Reed, Povey, Gray, and Mann were the prizetakers. The plants were chiefly of large size, and splendidly developed, both flowers and foliage being good. Amongst other varieties shown was *Beacon*, a very free-growing dark variety of elegant habit and producing large and handsome flowers; it is exceedingly valuable for specimen culture and deserves to be better known.

EXOTIC and BRITISH FERNS mustered in strong force, and included many fine collections. At the head of the competitors in the class for six exotic kinds was Mr. Cornhill, with large, fresh, and well-finished specimens of *Adiantum macrophyllum*, *Alsophila australis*, and other good kinds. Mr. Reed and Mr. Mann were second and third. For four exotics Mr. King was first with superb specimens of *Adiantum concinnum latum*, *Gymnogramma chrysophylla*, *Nephrolepis exaltata*, and *Alsophila excelsa*; Mr. Dibben a close second, and Mr. Reed a good third. Hardy ferns were represented by good collections from Mr. Cornhill, Mr. Povey, and Mr. Gray, and the first prize for six British kinds was awarded to Mr. Millican. The exhibitor last mentioned was first also for six selaginellas with a collection comprising one of the finest examples of the pretty dwarf-growing *S. apoda* ever exhibited. *Gloxinias* made a fine display of themselves, and the finest collections were those from Messrs. Povey, Sparrow, Waite, Plowman,

Sutton, and Gray. Achimenes were well shown by Messrs. Waito, Cornhill, and Taylor, and the exhibitor last mentioned presented a fine collection of lilies, for which he received the premier award in the class. Tuberous begonias were considerably above the average, and the collections from Messrs. Povey, Scott, Gray, and Plowman, were deserving of the highest praise.

CUT FLOWERS were largely shown, and included numerous good stands of roses. In the classes for roses the chief prizes were awarded to Mr. Sparrow, Mr. Waite, Mr. Thatcher, Mr. Cornhill, and Mr. Taylor, and in the remaining classes for cut flowers Mr. Povey, Mr. Sparrow, Mr. Plowman, and Mr. Taylor were the most successful. The stands for the dinner table and for the drawing room were characterized by much taste, and Mr. Plowman was awarded the first prize in the two classes, the other prize-takers being Messrs. Sparrow, Sutton, Taylor, and Millican.

FRUIT made an excellent display and formed an important feature. Mr. Sutton had a splendid Queen pine and was awarded the first prize. Mr. Frankis, Mr. Scott, and Mr. Taylor were first, second, and third for black grapes, with superb dishes of Black Hamburg. For white grapes Mr. Taylor and Mr. Cornhill were first and second with Buckland Sweetwater, large, in bunch and berry and well ripened, and Mr. Mann third. Strawberries were good, and Mr. Taylor was first with British Queen, Mr. Sparrow second with Sir Joseph Paxton, and Mr. Waite third. Melons, peaches, and nectarines must also be mentioned for their excellency. The prizes for a collection of six kinds were also well contested, and Mr. Taylor was first with a collection in which the grapes were particularly good, and Mr. Sutton a very close second with a collection in which occurred an especially fine Queen Pine.

VEGETABLES were splendidly shown and chief amongst the prizetakers in the several classes were Mr. Waite, Mr. Cornhill, Mr. Hill, Mr. Thatcher, Mr. Green, and Mr. Millican.

GROUPS ARRANGED FOR EFFECT sufficed to fill a spacious tent, and formed a feature of great importance. In competition for the liberal prizes offered by the President, G. F. Wilson, Esq., F.R.S., Messrs. Plowman, Millican, Waite, and Reed were the prizetakers, and in the class for a group in which the prizes were provided by the society the awards were made in favour of Messrs. Cornhill, Sutton, and Povey.

MISCELLANEOUS CONTRIBUTIONS included a beautiful collection of cut lilies from G. F. Wilson, Esq., F.R.S., and several charming bouquets of skeletonized leaves, seed vessels, and ferns from Mr. Millican, a skeleton leaf of *Monstera deliciosa* being particularly noteworthy.

The judges were Mr. E. Baker, Mr. J. Futtick, Mr. J. Douglas, and Mr. George Gordon.

CHISWICK AND TURNHAM GREEN HORTICULTURAL SOCIETY, JUNE 22.

This young and well-managed society held its annual exhibition on the date given above in the gardens of the Royal Horticultural Society at Chiswick, and both in extent and the quality of the productions it evinced a remarkable advance on the show held at the same place last year. The plants and cut flowers were arranged in a long tent pitched on the lawn by the old council room, and the plants were placed on the turf along the sides, and the cut flowers and plants for the decoration of the dinner table were upon a broad table in the centre, the effect being remarkably good. The fruits and vegetables were arranged in a large marquee in another part of the grounds, but as the competition was not very spirited in some of the leading classes for these important subjects the tent was but thinly furnished. The financial results were, as at Weybridge, injuriously affected by the weather; nevertheless there was in the latter part of the day, when the rain held up, a fairly good company.

The most important features in the exhibition were those formed by the groups arranged for effect and the table decorations. In the trade class for groups Messrs. Hooper and Co., Covent Garden, were first with a collection consisting of valuable plants arranged in the most tasteful manner. Messrs. Fromow and Sons, Chiswick, and Mr. W. Brown, Richmond, were second and third; and Mr. G. Stevens, Putney, received an extra award. In the corresponding class for amateurs Mr. A. Wright, Chiswick, was first, Mr. J. Donaldson second, and Mr. H. Pearks third. The only exhibitor of six stove and greenhouse plants in bloom was Mr. C. Bown, but in the corresponding class for fine-foliage plants there was a very spirited competition, and Messrs. Hooper and Co., Mr. W. Brown, and Messrs. Fromow and Sons were the prizetakers in the order of their names. Ferns were remarkably good, and Mr. G. Stevens and Messrs. Fromow staged excellent collections in the open class for six; and Mr. Coombes, The Gardens, Sheen House, Sheen, Mr. Watts, and Mr. C. Bown, had well-grown specimens in the class set apart for amateurs. Coleus were plentiful, and most of the specimens were well coloured, particularly those staged by Mr. Pearks, Mr. Watts, and Mr. C. Bown. Caladiums comprised admirable collections from Mr. Pearks and Mr. J. R. Starling. Lycopodiums were admirably done, and the most noteworthy collections were those from Mr. Watts, Mr. C. Bown, and Mr. Starling.

Fuchsias, which have been shown in an exceptionally fine condition at the majority of the exhibitions held this season, were but poorly represented, the best collection being that from Mr. Watts. Mr. C. Bown was awarded the first prize for three variegated pelargoniums, and received also the premier award for twelve begonias, with Mr. Starling second for the latter. Gloxinias in collections of twelve were presented in good style, the plants large and the flowers of excellent quality, by Mr. Starling, Mr. G. Stevens, and Mr. W. Brown. Mr. Howell, Hammersmith, showed these attractive flowers well in the smaller class for six. The prizes for plants adapted for the decoration of the dinner table were contested with much spirit, and were awarded to Mr. Pearks, Mr. J. Donaldson, and Mr. C. Bown, in the order of their names.

The vases and other cut flowers made a pleasing feature, for they were both plentiful and good. Chief amongst the exhibitors in these classes were Mr. Pearks, Mr. Watts, Mr. Donaldson, and Mr. Starling. In the open classes for three bouquets Mr. W. Brown, Mr. J. Prewett, Hammersmith, and Mr. J. Curtis, Richmond, were successful in securing the awards; and in the class for one bouquet Mr. Watts was first. Very spirited was the competition for the prizes for stands or vases of flowers, and in the open class the prizetakers were Mr. W. Brown, Mr. S. Abbott, and Mr. J. Curtis.

If the classes for fruit and vegetables were not so well filled as might have been expected, they were not wanting in productions of a meritorious character. Grapes were well shown by Mr. B. Hardy, Mr. J. Coombes, and strawberries by Mr. Donaldson, and Mr. Coombes staged a capital melon.

The prizes offered by Messrs. Sutton and Sons for a collection of vegetables did not bring out a very spirited competition, and the premier award was made in favour of Mr. J. Coombes, who was first also in the society's class for nine dishes, with Mr. Watts second. The first prize for six kinds was awarded to Mr. Richardson, Boston, Lincolnshire. It was evidently too early to secure a spirited competition for Messrs. Carter and Co.'s prizes for peas, as only two exhibitors put in an appearance: these were Mr. Richardson and Mr. G. Williams, Rye, Sussex.

The miscellaneous collections were exceedingly numerous and contributed very materially to the attractions of the gathering. Amongst the exhibitors deserving of special mention were Messrs. Osborn and Sons, Messrs. Leo and Son, Mr. C. Turner, Mr. B. S. Williams, Mr. Prestridge, Mr. May, Mr. Roberts, and Messrs. Hooper and Co.

ROYAL HORTICULTURAL SOCIETY.—EXHIBITION OF PELARGONIUMS AND VEGETABLES, JUNE 22.

THE proceedings at South Kensington on Tuesday last comprised the exhibition of the Pelargonium Society, the competition for the liberal prizes offered by various seed firms for vegetables, and the prizes for fruit packing, and the entertainment of the Belgian horticulturists on a visit to this country at a luncheon by the Royal Horticultural Society and the Pelargonium Society. The exhibition of the Pelargonium Society was in many respects the most satisfactory show of pelargoniums that has yet been held, and, having regard to the spirited competition, the high-class character of the majority of the collections, its comprehensive character, and the completeness of the arrangements, may be pronounced a splendid success. The vegetables were abundant and remarkably good in quality, and formed a feature of great importance and interest. The packed fruit, although the competitors for the prizes were not numerous, was not wanting in interest, and certainly did not fail to attract the attention of the practicals present. The luncheon (to which upwards of sixty sat down, under the presidency of the Right Hon. Lord Aberdare) was admirably arranged, and evidently afforded much gratification to the Belgian guests, and no little satisfaction to the large body of English horticulturists who assembled to meet them. Fortunately the weather was eminently favourable, and in consequence the exhibition was attended by a large body of visitors.

EXHIBITION OF THE PELARGONIUM SOCIETY.

The pelargoniums staged in competition for the prizes and in the miscellaneous class sufficed to fill about two-thirds of the long tent, extending from the council room to the exhibition ground, and produced an exceedingly rich and splendid display of colour.

SHOW PELARGONIUMS were staged in splendid style by Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, and Mr. Charles Turner, Slough. In the important class for six large specimens Mr. Wiggins was first with examples of immense size and grandly finished of Victory, a beautiful variety, the flowers of splendid shape, the lower petals salmon-pink, the top deep maroon; Setting Sun, deep red, a telling variety, but wanting in quality; Claribel, [white] with rose-coloured spot on top petal; Prince Leopold, scarlet with dark top, very effective, and well suited for specimen culture; Illuminator, brilliant scarlet with dark top, the habit good, one of the very finest of the high-coloured varieties for specimens; Sultana, deep rose with dark top petals, an excellent and thoroughly distinct variety. Mr. C. Turner, a good second with medium-sized and well-finished specimens, comprising Amethyst, amethyst-purple lower petals, dark top petals, the habit neat and free branching, exceptionally valuable for its distinct and rich colouring and its splendid habit; Prince Leopold, Claribel, Illuminator, Victory, and Modesty, deep rose with dark top petals. Mr. Hammond, gardener to J. Hunt, Esq., York Lodge, Stamford Hill, third.

The competition for the prizes for eighteen varieties in six-inch pots was very spirited, and as the examples comprising the several collections were exceedingly well grown and flowered, and included many beautiful varieties that are not usually seen at public exhibitions, the class was particularly interesting. Mr. C. Turner was first with dwarf examples, which were furnished with dense heads of bloom about fifteen inches in diameter, and represented the following varieties:—Ruth, deep rose, black top, the habit dwarf and free, a superb variety for exhibition specimens; Illuminator, Invincible, orange-red lower petals, dark top, effective; Martial, crimson lower petals, top petals maroon, very rich in colour; Florence, lower petals red with dark spot, top petals blackish maroon; Magician, Victory, Ritualist, lower petals pink, maroon top petals, very pleasing; Amethyst, Sir W. Scott, Joe, dark red, distinct and good; The Baron, lower petals deep red, top petals dark; Fortitude, salmon-pink, large and fine; Countess, Rayon d'Or, scarlet, dark maroon blotch on top petals; Modesty, Royal Review, and Chivalrous. Mr. Wiggins a very close second with a superb collection, in which occurred Formosa, Amethyst, Hermit, Faust, Thebais, Fortitude, Snowflake, Joe, Rosalind, Emperor William, Claribel, Fireball, scarlet, a high-coloured and excellent variety; Ruth, Dauntless, and Gloriana. Mr. Hammond third.

FANCY PELARGONIUMS were admirably represented, and in the class for six Mr. C. Turner was first with large and splendidly-finished specimens of Mrs. Pope, Electric Light, Mrs. Hart, Lady Carington, Princess of Teck, and Mrs. Porter. Mr. Wiggins second with large and excellent specimens, a trifle past their best, of Mrs. Graham, Mrs. Hart, Lucy, Pilgrimage, Mrs. Alfred Wigan, and Mrs. Porter.

DECORATIVE PELARGONIUMS were contributed in large numbers, and produced a very rich and striking effect. In competition for the prizes for six, in eight-inch pots, Mr. Wiggins was first with specimens of the most magnificent character: the varieties were Duchesse de Morny, Robina, deep salmon-pink; Harlequin, red with dark blotches; Madame Thibaut, bright vermillion with white centre and margin; Duchesse of Edinburgh, still one of the best of the light varieties, Triomphe, and Improved de St-Mande. Mr. C. Turner second with fine specimens of Digby Grand, an old but useful light variety; Duchess of Bedford, Princess of Wales, blush veined and washed with purplish rose; Venus, white with rose spots, the flowers large and coarse, and Duchesse of Edinburgh. Mr. W. Brown, Hendon, third with rather small but beautifully-flowered varieties of Attraction, Mermerus, Fascination, Eclipse, and T. A. Dickson, five beautiful dark varieties raised by the exhibitor, and Mrs. Dodd, white with dark blotches.

The class for eighteen varieties in pots not exceeding six inches in diameter possessed special interest from the spirited character of the competition and the large number of beautiful varieties represented in it. Mr. Wiggins was first with densely-flowered and highly-finished examples of Prince of Wales, first with a darker colour; Multiflora, deep red, a richly-rose veined and blotched with a darker colour; Ponteau, purple, the petals coloured flower of the T. A. Dickson type; Ponteau, purple, the petals spotted with maroon; Claude Bernard, bright vermillion, with white margin and centre; Comtesse H. de Choiseul, white with small purple blotches, flowers large and fine; Braclet, salmon-pink with dark spots; Improved Triomphe de St-Mande, crimson, a very telling variety; Defiance, blush, the blotches maroon passing into purple; Volonté Nationale, vermillion, the upper petals marked with dark blotches, the margin and centre blush, very attractive; Lady Isabel, mauve, a very distinct and striking colour; Blushing Bride, pale pink, the top petals maroon, passing to salmon; like Venus, staged by Mr. Turner, a bad show flower rather than a decorative variety; Robina, a deep red; Marie Malcot, blush with red spots; Reamic, deep scarlet, habit particularly good; Sir J. Outram, white with large wedge-shaped blotches of maroon-purple on each petal, in the way of Kingston Beauty, upon which it is a decided improvement; Madame Thibaut, and Digby Grand. Mr. C. Turner second with very excellent plants of Decoration, Miss Alice, Mrs. Ashby, Duchess of Bedford, Rosy Morn, Robina, Rosetta, Kingston Beauty, Mr. Ashby, Mrs. J. Hayes, Mr. John Hayes, Duchess of Edinburgh, Dr. Masters, Delicata, Lady Isabel, Nellie Hayes, Volonté Nationale, Madame Favart. Mr. W. Brown was a good third.

ZONALS made a splendid display, the plants in six-inch pots contributing very materially to the general effect. In the class for six in eight-inch pots Mr. J. Catlin, Finchley, was first with splendidly-flowered convex-trained specimens of immense size of Fanny Thorpe, bright salmon; Rev. T. Atkinson, rich crimson-scarlet; Cymbeline, orange-scarlet; Alice Barlow, Ouida. Mr. Wiggins was second with examples in six-inch pots, which were perfect in development; the plants were grown in dwarf bush form, and furnished with about twelve magnificent trusses each. The varieties were, Hetty, Mrs. Patchett, Olive Carr, pink; Ivanhoe, Atala, and Gathorne Hardy. Mr. Meadmore, Romford, second with specimens trained in the orthodox style. The premier award in the class for six double varieties in eight-inch pots, Mr. Catlin was first with specimens large in size, but hardly so well bloomed as those he staged last year. The varieties were, Gorgeous, Député Voix, Madame Thibaut, Lovely, Devotion, and Dauntless. Mr. Meadmore second.

Very spirited was the competition in the classes for eighteen single and eighteen double varieties, and the plants were on the whole highly meritorious. For eighteen single zonals in six-inch pots Mr. Wiggins was first with specimens of the same character as those staged in the class for six. The varieties, which had been selected with much judgment, were Prima Donna, pure white; Fanny Catlin, Sophia Birkin, salmon; North Star, deep scarlet; Polly King, salmon; Leander, Guinea, Golden Glory, Marshal McMahon, Madonna, Aphrodite, Mrs. Bennett, Advance, Irene, Rigoletta, and Evening Star. Mr. Meadmore and Mr. J. Weston, Clapham Park, second with very excellent groups. In the corresponding class for double varieties Mr. Wiggins was first with a grand group, comprising Barthélemy St.-Hilaire, Gambetta, Uranie, Denfort de Rochereau, Grand Chancelier de Faidherbe, Mr. Gladstone, Roi des Violettes, Jules Simon, Henri Cannell, Dr. Jacoby, J. C. Rodbard, Aglaia, Eugène Baudouin, Hero, Paul Berli, Mons. C. Lowagie, and E. V. Raspail. Messrs. Saltmarsh and Son, Chelmsford, second with a very excellent collection, in which their splendid and comparatively new varieties, Mrs. Arthur Lattey and Lord E. Cecil, were conspicuous, by reason of their rich colouring and high quality. Mr. Meadmore third.

IVY-LEAVED PELARGONIUMS were staged in a higher state of development than on any previous occasion, and the large array of well-flowered specimens attracted much attention. In the class for nine Mr. Wiggins was first with beautifully-flowered pyramidal specimens, about thirty inches in height and of a proportionate diameter. The varieties were Sarah Bernhardt, Mrs. H. Cannell, Madame Crousse, Madame Jean Wouters, A. F. Barron, Madame Boringe, Madame Emile Baltet, Anna Pfitzer, and Gloire d'Orléans. Messrs. H. Cannell second with splendidly-flowered specimens, trained in bush form, of Viscountess Cranbrook, Comtesse Horace de Choiseul, Rosa plena, Madame Crousse, Gloire d'Orléans, Eurydice, Sarah Bernhardt, and Anna Pfitzer.

CUT FLOWERS were shown in larger numbers and in finer condition than at any previous exhibition, and the numerous stands produced a fine display. Mr. Charles Turner was first for thirty-six show varieties; Messrs. Saltmarsh and Son first for twenty-four show varieties; Messrs. H. Cannell and Sons were first for thirty-six double zonals, first for thirty-six single zonals, and first for twelve ivy-leaved varieties; Mr. Duffield, Winchmore Hill, first for twenty-four single zonals, and Mr. Wiggins first for twelve single zonals and first for twelve show varieties.

NEW PELARGONIUMS were rather plentiful, and a large number of first-class certificates were awarded. For three fancy varieties not in commerce Mr. C. Turner was first with *Indian Chief* (Turner), a distinct variety, the flowers large and of a rich purple-crimson colour, with clear well-defined white throat; *Irene*, an exceedingly pleasing variety, remarkable for its distinctness, the flowers of medium size, the top petals pink with red blotches, the lower petals blush; *Florence Thompson*, rich purple rose. For three show pelargoniums not in commerce Mr. Turner first with *Zealot* (Foster), a large and telling flower, the lower petals brilliant scarlet, the top petals dark maroon with bright red margin; *Veteran* (Foster), a large flower of splendid form, the lower petals bright salmon-red, the top petals blackish maroon; *Royal Review* (Foster), a large and striking flower, the lower petals light salmon-red veined with dark red, the top petals deep maroon. For one show variety not in commerce, Mr. C. Turner first with *Cromwell* (Foster), a beautiful and effective flower, the lower petals bright orange-red, the top petals very dark. In the class for three decorative varieties not in commerce Mr. Wiggins first with *Rose Superb*, deep magenta-red, the top petals maroon shading to scarlet; *Brilliant*, lower petals glowing scarlet, top petals maroon shading to red; *Aurora*, lower petals pink, top petals red with dark blotch. For three single zonals not in commerce Mr. George, Putney Heath, first with *Emperor* (George), bright scarlet, the flowers large and borne in noble trusses; *Favourite* (George), bright reddish salmon, flowers large and of fine form; *Edith* (George), deep pink suffused with purple, the flowers of excellent shape and borne in noble trusses. For one zonal with single flowers Mr. Wiggins first with *Emily Little* (Little), bright pink, the flowers of splendid shape and the habit most excellent. In the class for one double zonal Mr. J. King, Rowsham, near Aylesbury, first with *Charles Barnard* (King), a magnificent variety, the flowers beautifully formed, borne in exceedingly fine trusses, and of a bright scarlet colour.

The following First-class Certificates were awarded:—

To Messrs. H. Cannell and Sons, Swanley, for *Improved White Clipper*.—A dwarf-growing and exceedingly free-blooming single zonal, the trusses of good size, and the flowers of the purest white, evidently a valuable variety both for bedding and pot culture.

To Mr. Catlin, Finchley, for *Lynette* (Denny).—A remarkably pleasing single zonal, the flowers very large, smooth, and circular, the trusses of good size, and the colour delicate pink.

Lovely (Denny).—A splendid double zonal, the flowers of a delicate salmon colour shading to white.

To H. Little, Esq., Hillingdon Place, for *Aglaia* (Pearson).—A very beautiful single zonal, the flowers large, perfect in form, and borne in grand trusses; the colour rich purplish crimson.

Grand Chancelier Faidherbe (Lemoine).—A magnificent single zonal, the flowers large and of superb shape, the trusses of noble proportions, and the colour deep crimson.

Gambetta (Lemoine).—A very fine single zonal, the flowers very large and the trusses of grand size, the colour an effective shade of light red.

Little Pet.—A very effective decorative variety, the flowers of large size and produced very freely in trusses of good size, the colour deep red with narrow light margin, and dark blotches on the top petals, habit very dense and free.

To Mons. Lemoine, Nancy, for *Comte Horace de Choiseul* (Lemoine).—A very beautiful ivy-leaved variety; the flowers of full size and produced in large trusses, the colour bright pink.

Comtesse Horace de Choiseul (Lemoine).—An exceedingly attractive ivy-leaved variety with double flowers of a pleasing pink colour and of splendid quality.

To Mr. J. R. Pearson, Chilwell Nurseries, Notts, for *Edith Little* (Pearson).—A lovely single zonal; the flowers perfect in form, borne in grand trusses, and of a pale pink colour, equalling in delicacy the flowers of the peach.

Mrs. Gordon (Pearson).—A telling single zonal of high class quality the flowers extra large and borne in grand trusses, the habit compact and free branching, the colour brilliant scarlet with pure white eye.

To Mr. W. Brown, Hendon, for *Vesuvius* (Brown).—A showy decorative variety of much merit; the flowers of full size and borne most profusely in large trusses, the colour deep reddish crimson, the habit dwarf and compact.

To Mr. Charles Turner, Slough, for *Madame Marie Knecht* (Lemoine).—A valuable decorative variety; the flowers pure white marked with rose-coloured spots, the petals beautifully fringed, and the habit dwarf and free.

Irene (Turner).—An exquisitely beautiful fancy variety; the flowers of medium size, the top petals pink blotched with red, the lower petals blush spotted with rose; valuable for its distinctness as well as for its great beauty.

Royal Review (Foster).—A very telling show flower of large size and grand form; the lower petals salmon-red painted with deeper red, the top petals deep maroon.

Diadem (Foster).—A brilliantly-coloured show flower of superb quality and immense size; lower petals scarlet veined with crimson, top petals blackish maroon.

Morning (Foster).—A richly-coloured show flower of extra size, but as shown hardly so smooth as could be desired; the lower petals glowing crimson, the top blackish maroon with deep red margin; will probably be valuable for large specimens.

To Messrs. Saltmarsh and Son, Chelmsford, for *Duchess of Albany* (Saltmarsh).—A distinct and beautiful variety, producing large well-formed trusses of a deep pink colour.

To Mr. J. George, Putney, for *Miss Blanche* (George).—A superb single zonal; the flowers of splendid shape, borne in immense trusses, and of a bright pink colour.

COMPETITION FOR PRIZES FOR VEGETABLES.

The competition for the liberal prizes for vegetables offered by Messrs. J. Carter and Co., Messrs. Hooper and Co., Messrs. Sutton and Sons, and Messrs. Webb and Sons was very severe, and the various collections formed a large and very interesting exhibition.

Messrs. Sutton and Sons' prizes for a collection of vegetables, twelve distinct kinds, were very keenly contested, and all the collections staged were more or less good. The first place was occupied by Mr. Miles, gardener to Lord Carington, Wycombe Abbey, Bucks, with superb examples of Leviathan Longpod beans, Brown Cos lettuce, Nantes Horn carrot, one of the finest of the early types, Walcheren cauliflower, Canadian Wonder bean, Maud cucumber, Flat Tripoli onion, Telegraph pea, Pine-apple beet, Veitch's Ashleaf potato, Veitch's Cabbage lettuce, and Snowball turnip. Mr. Haines, gardener to the Earl of Radnor, Coleshill, Berks, was a close second with a very excellent collection, in which Kingsholm Cos lettuce, Suttons' Woodstock Kidney potato, and the Purple-top Early Munich turnip were particularly good. Mr. Beckett, Esher, third; Mr. Mead, Beckett Park, Shrovenham, fourth; Mr. Waite, Esher, fifth, and Mr. Ward sixth.

Messrs. E. Webb and Sons' prizes for a collection of vegetables, six distinct kinds, were contested with much spirit, and at the head of the exhibitors was Mr. Miles, who staged capital dishes of Victoria Ashleaf potato, White Tripoli onion, Walcheren cauliflower, Snowball turnip, and Stratagem pea. Mr. Haines, who was second, had a collection of great merit; and Mr. Phillip and Mr. Waite, who were third and fourth, staged collections deserving of high praise.

There were twelve entries for Messrs. J. Carter and Co.'s prizes for their four famous peas, Stratagem, Pride of the Market, Telephone, and Telegraph, and the majority of the samples were of grand quality. The prizetakers were Mr. Richardson, Boston; Mr. Phillips, Meopham, Kent; Mr. Miles, Mr. Marriott, Boston; and Mr. Meindoe, in the order of their names.

Nine competitors contested the prizes offered by Messrs. Hooper and Co. for a dish of Earliest of All pea, and the awards were made in favour of Mr. Marriott and Mr. Williams, who were first and second respectively.

PRIZES FOR PACKED FRUIT.

The liberal prizes offered by Messrs. Webber and Co., Covent Garden, for fruit packing were hardly so well contested as might have been expected, and no new system of packing fruit for conveyance by railway was represented. The prizes were offered for given quantities of grapes, peaches, and strawberries.

to be sent by railway to South Kensington, and the test of merit was the condition in which they were in when the packages were opened. There were three competitors, and the first prize was awarded to Mr. Coleman, Eastnor Castle, whose fruit was remarkable as much for its high quality as for the excellent condition in which it was received. The whole of the fruit was packed in boxes just deep enough to receive one layer of bunches or fruits, as the case may be. The grapes were packed in boxes lined with a thick layer of clean dry moss and soft paper. The bunches were arranged with the shoulders outwards, and it appeared that the moss which formed the side linings was put in after the bunches were placed in the box by working it down between the paper and the woodwork. The boxes in which the peaches were packed was four or five inches in depth, and the fruits were wrapped separately in cotton wool. The box for the strawberries was about two inches deep, and the fruits were placed in a single layer with strawberry leaves, or rather portions of the leaves, so placed as to keep them separate. The second and third prizes were awarded to Mr. Waterman, Aylesbury, and Mr. Eldridge, Saffron Walden.

MEETING OF FLORAL AND FRUIT COMMITTEES.

The contributions submitted to the Floral Committee included several important collections and numerous interesting objects of minor importance. Messrs. H. Cunnell and Sons, Swanley, exhibited a large and wonderfully attractive collection of cut pelargoniums and violas. Mr. Barron sent from Chiswick a large and well-grown collection of pelargoniums, comprising many of the most interesting of the Cape species, and a collection of the various strains of mignonette now in cultivation, conspicuous amongst which was Helmsley's Giant White, a selection remarkable for the large size of the spikes and the whiteness of the flowers. Mr. B. S. Williams contributed an attractive group of stove and greenhouse plants. Messrs. J. Laing and Co. exhibited a beautiful group of begonias. From Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, came a very fine collection of lilies in a out state; and Mr. R. Dean contributed a stand of blooms of a very excellent strain of Canterbury bells.

Messrs. J. Veitch and Sons, Chelsea, brought before the Fruit Committee a large collection of peas, and Mr. Hardy, Stour Valley, Essex, and Mr. Phillips, contributed two samples of peas said to be new. There were, as is customary at this season of the year, several so-called new melons, but none were considered of sufficient merit to justify an award.

The following First-class Certificates were granted:—

To Mr. B. C. Williams, Victoria and Paradise Nurseries, Upper Holloway, for

Paphinia rugosa.—An attractive orchid, bearing flowers profusely spotted with chestnut-red on a yellowish ground.

Croton Princess of Waldeck.—A distinct variety with lobed leaves, bright yellow in the centre.

Lycaste Deppei punctatissima.—A beautiful form, remarkable for the rich spotting of the flowers.

To Messrs. J. Carter and Co., High Holborn, for

Gaillardia picta Lorenziana.—An effective variety bearing large globular flower heads of a bright red and rich yellow colour.

To Mr. J. Hudson, Gunnersbury, Acton, for

Gloxinia Mrs. Atkinson.—A beautiful erect variety; the flowers extra large, of grand form, and richly spotted with purple on a pure white ground.

To Mr. J. Salter, Streatham, for

Pescatorea Dayana.—A handsome species; the sepals creamy white tipped with purplish red, the labellum crimson.

To the Royal Horticultural Society for

Reseda odorata pyramidalis grandiflora.—A distinct type; remarkable for its short roundish spikes, the bright red of its anthers, and its powerful odour.

A Second-class Certificate was granted to Mr. Stacey, Dunmow, for

Pelargonium Lady Brooke.—A showy decorative variety, bearing large purplish flowers with frilled petals.

EVENING FETE OF THE ROYAL BOTANIC SOCIETY.

The weather began to improve just in time to save the evening fete in the gardens at Regent's Park, and in consequence there was a great assemblage, and the entertainment was of the most enjoyable nature. One striking feature was a comparative trial of electric lights, respecting which particulars were given in printed papers for the use of visitors. The principal lights in use were the Maxim incandescent, the Western Arc, and the Gulcher, and all were excellent in their way. As regards the last, however, we must remark that it was employed to illuminate the great tent, in which Mr. Anthony Waterer's rhododendron exhibition is the main attraction, and the success was so complete that we can say without hesitation this grand display has never been so well lighted before. The Gulcher light appears to combine intensity, softness, and steadiness in a remarkable degree.

The display of floral decorations was extremely interesting and dinner tables were prominently attractive. In this department displays of special merit were made by Mr. W. Wood, of Conduit Street; Messrs. Phillips, of Oxford Street, and Mr. Fennell, of Fairlawn, Tonbridge. There were also dinner tables tastefully and effectively dressed by Mrs. Seale, Vine Nursery, Sevenoaks, and Mr. Chard, of Clapham Common. Floral arches for side-boards and looking-glasses were contributed by Miss Gardiner, Park House, St. John's Wood; Mr. Buster, St. Mary's, Cray, Kent, and Miss Sperling, Regent's Park. Amongst many baskets of plants and flowers shown, one containing ferns from Miss Williams, Sutton House, Upper Holloway, was much admired. Other baskets were contributed by Messrs. Henry and Co., Victoria Street; Mr. Parmley, Albert Gate, Mr. G. Wheeler, and Messrs. Dick Radclyffe and Co. Messrs. Paul and Son, Cheshunt, put up in the centre of the great tent some beautiful collections of pot roses; Messrs. Cutbush and Son contributed floral dressings for a ball-room, and Messrs. E. G. Henderson and Son, of Maida Vale, made a charming display of filmy ferns and orchids.

The illuminations in the gardens were rich, various, and tasteful. A pagoda of coloured lanterns on the lake had a magnificent effect. Soon after ten Prince Leopold, the Princess Mary, Duchess of Teck, and the Duke of Teck arrived, and were received in the conservatory, from which shortly after they went on a tour round the grounds, which were then crowded with a fashionable throng.

BROMELIADS.

Of late years increased attention has been paid to the *Æchmeas*, the *Billbergias*, the *Tillandsias*, and other of the choicer bromeliads, to the advantage of cultivators, and the gratification of those who take an interest in the occupants of the plant stove. But as yet their cultivation has not extended so widely as those who are conversant with them could wish, for whilst so thoroughly distinct in character from the stove plants with which we are all so familiar, a comparatively large number are remarkable for their bold appearance, their elegance of growth, or for the attractiveness of their inflorescence. Many there are which must be regarded as mere botanical curiosities, but the number of really attractive kinds is more than sufficient to materially enhance the interest and beauty of the structure to which they belong, and this number is being steadily augmented by the efforts of our leading nurserymen. To the amateur with but little space at disposal they are of much value, for a large proportion of the most attractive kinds take up but little room even when fully developed, and by omitting three or four of the strongest growers a good collection could be cultivated in a house ten feet in width by twenty feet in length. But interesting as they are when grown in a structure by themselves, they appear to greater advantage, and generally speaking afford a higher degree of pleasure, when associated with other subjects thriving under similar conditions.

In commencing the cultivation of bromeliaceous plants it is essential to recognize the fact that they are mostly epiphytical, and consequently must, with a few exceptions, be provided with a light mixture or compost, and be so placed that the moisture can pass readily away. Some of the kinds of slender growth, such as *Tillandsia usneoides* and *T. tenuifolia*, grow remarkably well, and appear to great advantage when in baskets or on blocks of wood to which a little moss has been attached; but those with erect foliage, such as the *Æchmeas*, the *Pitcairnia*s, and the *Nidularium*s, should be grown in pots unless planted out in the stove. The first point in growing them in pots is to provide a sufficiency of drainage, and this may be secured by filling the pots to about one-third of their depth with crocks broken rather small. The small-growing kinds should be potted in a mixture of peat, sphagnum, and nodules of charcoal; the medium growers should have tough fibrous peat with a sprinkling of small crocks, and those of strong growth will require a substantial compost. *Æchmea Mariea Reginae* and *Tillandsia Zahnii* may be mentioned as types of the strong-growing kinds, and they and others of a similar character should be provided with a compost consisting of turfy peat and fibrous loam two parts each, and leaf-mould and coarse sand one part each. The loam selected must be full of fibrous matter and silky in texture, and that taken from an old closely-cropped pasture to a depth of one or two inches is decidedly preferable. In potting those requiring peat and moss, the base of the plant should be slightly above the level of the rim of the pot; but those grown in peat, or in a mixture of peat and loam, should be potted low enough for the surface soil to be kept about one inch below the rim, to enable them to be readily watered. They are not particular as to the position occupied in the stove, provided they receive a fair share of light, and are not from the beginning of March to the end of August exposed to the direct rays of the sun. During the autumn and winter a moderate amount of moisture will suffice, but throughout the spring and summer the supplies of water should be liberal, and those of which the leaves are arranged in a rosulate manner will derive immense benefit from having their vase-like centres kept constantly full of water. Not only is the water of assistance in promoting the growth of the plant, but it effectually prevents the lodgment of mealy bug in the axils of the leaves, a point of no small importance where that pest abounds.

The bromeliads also succeed admirably planted out, and when a suitable position can be afforded and some little taste shown in their arrangement they have a most pleasing appearance. When it is determined to plant them out a rockery should, if practicable, be built against the end or back wall of the stove with a few burrs or sandstone as may be the most convenient. It should be simple in construction, and form as it were an irregular face to the wall, the projections in no case to exceed two feet. For the reception of the plants provide pockets large enough to hold about as much compost as a five-inch pot, with the exceptions of a few at the lower part, to afford accommodation for some of the larger-growing kinds, and these should be about equal in capacity to an eight-inch pot. Over the surface should be arranged in positions suitable to the character of the respective kinds the bromeliads, with *Selaginella denticulata* and live sphagnum to clothe the bricks or stone. A few plants of *Adiantum capillus-veneris* dotted here and there will add to the effect. The quick-growing *Ficus repens* may also be planted. Those of medium growth may be cultivated against the wall of a stove without the expense of a rockery. To hold them in position, fix stout galvanized netting of large mesh at a distance of four or five inches from the surface of the wall, and for the convenience of filling in the intervening space the netting should be about twenty inches in width and fixed horizontally. On the lower strip of netting being fixed, fill the space with peat broken up roughly, first placing a layer of live moss next the netting to prevent the peat falling through the meshes, sphagnum being preferable. Then fix the second strip, and as many more as may be required for covering the wall to the desired height, and fill in with soil and moss as each one is fixed. To strengthen the netting stout galvanized wire should be stretched along it at a distance of a foot or so apart. When the netting has been fixed, the bromeliads can be readily planted, first divesting the roots of the greater portion of the soil. To enhance the general effect, plants of the common maiden-hair fern and tufts of *Selaginella denticulata* can also be planted. A few of the bromeliaceous plants, those of erect

habit being the most suitable, may be grown in receptacles of virgin cork, so made as to be readily affixed to the wall; and if they are placed in suitable positions they will, in combination with those planted in the peat and moss, have a very attractive appearance. It is not necessary in any case to cover the whole of the wall, and, generally speaking, it should not be covered to a greater height than eight or nine feet. When planted out, the watering must be carefully attended to, and, in a general way, the syringe will be found of most service in supplying them with the requisite degree of moisture.

There are about ten genera of bromeliaceous plants, from which selections may be made with advantage, and if we take about thirty kinds from them we shall have sufficient to form a most excellent collection. The *Echmeas*, which are erect in growth and bold in habit, form a very important and attractive group, and afford at least half a dozen kinds of great beauty. The most meritorious are *Echmea distichantha*, a bold-growing species, the flowers bright rose set in bracts of a rich carmine-red. *E. fulgens*, a well-known kind, producing blue flowers and scarlet bracts. *E. Glazinovi*, a bold and elegant species, producing large and handsome spikes of flowers. *E. Marie Regine*, a strong grower, suitable only for houses of rather large size, and adapted for pot culture alone; the flowers are dark blue, and the bracts with which the lower part of the flower spike is furnished are of a rich magenta colour. *E. Veitchei*, a recently-introduced species, has also a striking habit; the leaves are bold and elegant and richly blotched, and the massive spike, which stands well above the foliage, is formed with red and white flowers set in scarlet bracts.

A comparatively large number of Billbergias are remarkably beautiful, and of these the following can have the strongest recommendation:—*Billbergia Baraquiniana*, an erect-growing species, producing elegant drooping racemes of greenish yellow flowers and bright red bracts. *B. Morelliana* has highly-ornamented leafage, and has deep purple flowers and rose-coloured bracts, which form elegant drooping racemes. *B. miniata rosea* has rose-coloured flowers and red bracts, which are borne in erect spikes. *B. Quesneliana*, a bold species producing its flowers in erect spikes; the flowers are deep rose with pale pink bracts. *B. vittata* is robust in growth and has drooping racemes, the flowers blue and the bracts red. *B. zebrius* is well worth growing for the beauty of its foliage, which is richly marbled with deep bronzy green on a greyish green ground.

Very valuable is the charming *Encholirion corallinum*, which produces during the latter part of the autumn or early in the winter erect spikes of yellow flowers and crimson bracts; it has an elegant habit, and is one of the finest plants of its class for the amateur. *E. roseum* and *E. Saundersi* are also desirable for large collections. *Guzmania picta* and *G. tricolor* have broad handsome leaves arranged in rosulate form and very attractive flower spikes. *Nidularium Innocenti* is deserving of culture for its handsome foliage, which is green on the upper and purplish on the under surface; the flowers are of a brilliant red, and retain their beauty for a considerable period. *N. Laurenti* has green leaves and blue flowers, and forms a capital companion to the preceding species. *Pepinia aphelandraflora* is exceedingly elegant in habit, and has bright red flowers.

The Pitcairnia include several highly attractive species that should find a place in the smallest plant stove. The most ornamental are *Pitcairnia alta*, a very elegant species bearing erect branched spikes of red flowers; *P. corallina*, a comparatively strong and beautiful species furnished with drooping racemes of red flowers; *P. bracteata*, an effective species with scarlet flowers and red bracts; *P. staminea*, a graceful form with red flowers; and *P. undulatifolia*, a distinct species with white flowers.

The Tillandsias are the most useful of all for basket culture, and some of them are well suited for growing on blocks of wood. Those possessing special merit are: *T. pulchella*, *T. recurvifolia*, *T. tenuifolia*, and *T. xiphioides*, four small-growing and graceful forms; *T. Lindenii* and its varieties, which have large handsome flowers of the richest blue and an exceedingly graceful habit; *T. musaica*, a distinct species with large beautifully-marked leaves; *T. tessellata*, a handsome form of a similar character to the last-mentioned; and *T. Zahni*, a striking species of large growth, the centre leaves amber and red and flowers yellow and the bracts scarlet.

W. K.

Replies to Queries.

G. H., Knutsford.—Your nectarine is Violette Hâtive.

Inquirer.—We cannot name your fuchsias and pelargoniums, for we never attempt to name florist's varieties.

Tomatoes.—C. W. M.—We cannot explain why your tomatoes cast their fruit, but we suppose they are either too wet or too cold at the roots. The tomato usually is a most manageable plant, but it must have light and warmth, and these are the two primary requisites of its existence. If your plants are much overshadowed, or the soil is sour and cold, the fruit will fall, especially in such cold weather as we have had for some weeks past.

T. Neal.—The differences in the blooms of *Maréchal Niel* that you have noticed are the result simply of peculiarities of conditions and treatment. In some places the flowers are creamy or amber tinted, in others buttercup yellow, but the plant is the same. As a matter of course, the produce of the open wall differs in colour from that grown under glass. Lapagerias in pots may have liquid manure if they need help, but it must be very weak and quite clear.

Rust on Grapes.—J. C.—The berries sent are badly rusted, and you can do but little now to save the crop. Judging by your statement of the case, we imagine the roots have been too wet and cold after the crop was set. The unfavourable character of the season probably accounts for this case, and it

illustrates the advantage of having the roots within the house, and completely under control. Mr. W. Thomson is of opinion that the use of sulphur while the vines are in bloom, or soon after the crop is set, will cause rust, and therefore he advises that sulphur should not be used until the stoning period.

Names of Plants.—J. N., Bickley.—5, *Dactylis glomerata*; 6, a *Luzula* that cannot be named without the leaves; 7, *Agrostis vulgaris*; 8, *Bromus commutatus*. June.—The fern is *Pteris gigantea*, the lycopod is *Selaginella caesia*. R. Roberts.—1, *Callicarpa purpurea*; 2, *Borbonia ciliata*; 3, *Cestrum latifolium*; 4, *Chorozeia ilicifolia*. J. H. B.—We might give what you call "English names" in many instances, but they would be of little use. Suppose we were to describe *Tritoma uvaria* as the "torch lily," you would then ask what is the torch lily, and we should have to reply, "*Tritoma uvaria*." This would be like the schoolmaster we visited lately. To display the brightness of his boys, he asked, "What is tin?" and the reply was given at once, "Stannum." Then he asked "What is stannum?" and the reply came "Tin." The boys were none the wiser, but we were well amused, and in that respect the game *did* pay for the candle. When we give you the name of a plant you should at once refer to a book of some authority and read the description of the plant. The chief use of a name is that it affords a key to the place of a plant in any sufficient botanical treatise or dictionary.

Obituary.

ON the 20th ult., JOHN SHERRATT, of Spring Grove, Biddulph, aged 53 years. His remains were interred at Biddulph parish church, June 23. Mr. Sherratt was gardener at Biddulph Grange at the time when Mr. James Bateman was an exhibitor and active worker at South Kensington. He afterwards went into business as a nurseryman.

ON the 25th ult., at Tunbridge Wells, Mr. ROBERT ARTHUR OSBORN, aged 27 years. The deceased gentleman was widely known and respected as the last surviving representative of a celebrated house, and his always pleasant face will be greatly missed at meetings of horticulturalists.

Markets.

COVENT GARDEN.			CORN.—MARK LANE.		
FRUIT.					
Apricots.....	per doz.	0s. 6d. to 1s. 6d.	Wheat, Red, new.....	per qr.	35s. to 52s.
Cherries.....	per lb.	0s. 4d. to 1s. 0d.	Wheat, White, new.....	per qr.	35s. to 55s.
Figs.....	per doz.	4s. 0d. to 6s. 6d.	Flour, town-made whites, per		
Gooseberries, Green, sieve		1s. 6d. to 3s. 0d.	sack of 280lbs.....		40s. to 43s.
Grapes.....	per lb.	1s. 6d. to 4s. 0d.	Flour, householders.....		37s. to 39s.
Lemons.....	per 100	5s. 0d. to 7s. 0d.	Flour, country households, best		
Melons.....	each	2s. 0d. to 3s. 6d.	makes.....		35s. to 41s.
Oranges.....	per 100	4s. 0d. to 8s. 0d.	Flour, Norfolk and other secondals		32s. to 34s.
Peaches.....	per doz.	7s. 6d. to 12s. 0d.	Barley, Malting.....	per qr.	30s. to 50s.
Pine-apples, Eng.....	per lb.	2s. 6d. to 4s. 0d.	Barley, Grinding.....		20s. to 30s.
Strawberries.....		0s. 4d. to 1s. 0d.	Malt, English.....		35s. to 50s.
VEGETABLES.			Malt, Scotch.....		38s. to 43s.
Artichokes, Globe, per dz.		3s. 0d. to 6s. 0d.	Malt, old.....		28s. to 35s.
Beans, French.....	per 100	0s. 8d. to 1s. 0d.	Malt, brown.....		30s. to 32s.
Beet.....	per doz.	1s. 0d. to 1s. 6d.	Oats, English.....		22s. to 30s.
Cabbages.....		0s. 9d. to 1s. 6d.	Oats, Irish.....		22s. to 26s.
Carrots.....	per bunch	0s. 4d. to 0s. 6d.	Oats, Scotch.....		22s. to 30s.
Cauliflowers, Eng., per dz.		2s. 0d. to 4s. 0d.	Rye.....		42s. to 45s.
Cucumbers.....	each	0s. 4d. to 0s. 9d.	Beans, English, Mazagan.....		36s. to 40s.
Endive.....	per doz.	1s. 0d. to 1s. 6d.	Beans, Tick.....		38s. to 44s.
Garlic.....	per lb.	0s. 10d. to 1s. 0d.	Beans, Winter.....		39s. to 44s.
Herbs.....	per bunch	0s. 2d. to 0s. 4d.	Peas, Grey.....		30s. to 36s.
Horse-radish, per bundle		3s. 0d. to 4s. 0d.	Peas, Maple.....		40s. to 45s.
Lettuces, Cabbage, per dz.		0s. 4d. to 0s. 6d.	Peas, White.....		36s. to 44s.
Lettuces, Cos.....		0s. 4d. to 1s. 0d.			
Mint, Green.....	per bunch	0s. 3d. to 0s. 4d.	POTATO MARKETS.		
Mushrooms.....	per basket	1s. 6d. to 2s. 0d.	BOROUGH AND SPITALFIELDS.		
Onion Spring.....	per bunch	0s. 4d. to 0s. 6d.	Old Victorias.....	per ton	130s. to 140s.
Parsley.....		0s. 4d. to 0s. 6d.	New Jersey Kidneys.....	per cwt.	12s. 0d.
Peas.....	per quart	1s. 0d. to 2s. 0d.	Rounds.....		9s. 0d.
Radishes.....	per bunch	0s. 1d. to 0s. 2d.	Cherbourg Flukes.....		12s. 0d.
Small Salading.....	per pun.	0s. 3d. to 0s. 4d.	Rounds.....		8s. 6d.
Spinach.....	per bushel	2s. 0d. to 2s. 6d.	The imports of potatoes into London last week included 10,226 packages and 100 tons from Jersey, 156 packages 1 cask Malta, 123 packages Lisbon, 11 packages Boulogne, 1,760 cases 614 boxes Cherbourg, 400 cases 416 boxes Barfleur, 270 cases St. Vaast, 70 cases Naples, 57 cases Cadix, 36 casks Hamburg, 1,693 baskets St. Nazaire, 190 baskets Rotterdam, and 90 tons St. Malo.		
Tomatoes.....	per lb.	0s. 9d. to 1s. 0d.	METROPOLITAN MEAT MARKET.		
Turnips.....	per bunch	0s. 4d. to 0s. 6d.	Beef, prime small, per 8 lbs. 5s.	2d. to 6s. 6d.	
FLOWERS.			Beef, prime large.....	4s. 8d. to 6s. 2d.	
Abutilons, per doz. blooms		0s. 3d. to 0s. 6d.	Beef, middling.....	4s. 0d. to 4s. 8d.	
Bouvardias.....	per bunch	1s. 0d. to 1s. 6d.	Beef, inferior.....	3s. 0d. to 3s. 8d.	
Calceolarias, per doz. bun.		5s. 0d. to 10s. 0d.	Mutton, prime.....	5s. 4d. to 6s. 4d.	
Campanulas, per doz. bun.		4s. 6d. to 10s. 0d.	Mutton, middling.....	4s. 8d. to 5s. 4d.	
Carnations, per doz. blms.		1s. 0d. to 2s. 0d.	Mutton, inferior.....	3s. 8d. to 4s. 4d.	
Cornflowers, per doz. bun.		3s. 0d. to 4s. 0d.	Lamb.....	6s. 0d. to 6s. 8d.	
Eucharis.....	per doz.	4s. 0d. to 6s. 0d.	Veal.....	5s. 0d. to 6s. 4d.	
Fuchsias.....	per doz. bun.	5s. 0d. to 6s. 0d.	Pork, small.....	4s. 4d. to 4s. 8d.	
Gardenias, per doz. blooms		1s. 6d. to 4s. 0d.	Pork, large.....	3s. 10d. to 4s. 4d.	
Gladioli.....	per doz. bun.	7s. 6d. to 10s. 0d.	COAL MARKET.		
Heliotropiums.....	sprays	0s. 6d. to 1s. 0d.	Wallsend—Hotton.....	per ton	16s. 0d.
Lapagerias, per doz. blms.		1s. 0d. to 5s. 0d.	South Hutton.....		16s. 0d.
Lilium longiflorum, per			Lambton.....		15s. 6d.
doz. blooms.....		3s. 0d. to 5s. 0d.	Original Hartlepool.....		16s. 0d.
Lilium candidum, per			Tees.....		16s. 0d.
doz. blooms.....		1s. 6d. to 2s. 6d.	Chilton Tees.....		15s. 0d.
Marguerites, per doz. bun.		3s. 0d. to 5s. 0d.	Hawthorn.....		14s. 9d.
Mignonette.....		1s. 0d. to 2s. 0d.	Hotton Lyons.....		14s. 6d.
Pansies.....		1s. 0d. to 1s. 6d.	Wear.....		14s. 6d.
Paeonies, per doz. blooms		1s. 0d. to 1s. 6d.	MONEY MARKET.		
Pelargoniums.....		0s. 9d. to 1s. 0d.	Consols.....	99½ to 99¾	
Pelargoniums, Zonal, per			Reduced 3 per cent.....	99½ to 99¾	
doz. trusses.....		0s. 4d. to 0s. 6d.	"SPRING'S DELIGHTS" can only be actually realized by those who live in healthy houses, and who combine known sanitary measures for the prevention of such infectious diseases as smallpox, scarlet fever, and measles. The remedy actually becomes a luxury when the washing of Toilet, Bath, and Nursery is conducted with WRIGHT'S COAL TAR SOAP. Refuse all imitations, which are but dangerous counterfeits. [ADVT.]		
Pinks.....	per doz. bun.	3s. 0d. to 5s. 0d.			
Pyrethrums.....		2s. 0d. to 6s. 0d.			
Rhodanthe.....		5s. 0d. to 7s. 6d.			
Roses.....	per doz.	0s. 6d. to 5s. 6d.			
Roses, Tea.....		1s. 0d. to 2s. 0d.			
Stigmatis, per doz. sprays		2s. 0d. to 4s. 0d.			
Stocks.....	per doz. bun.	3s. 0d. to 5s. 0d.			
Tropeolum.....		1s. 0d. to 2s. 0d.			
HAY MARKET.					
WHITECHAPEL.					
Prime Clover.....	per load	100s. to 135s.			
Inferior do.....		70s. to 95s.			
Prime Meadow Hay.....		100s. to 118s.			
Inferior do.....		60s. to 90s.			
Straw.....		30s. to 55s.			

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg. of 10 yrs. Chil- wick	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.
			Rises.	Sonths after Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		
9	S	5th Sunday after Trinity.	3 56	4 54	8 14	—	2 37	7 58	8 30	4 55	5 23	63.2	Blandfordia nobilis, G.	1882
10	M	London Bridge burnt, 1212.	3 57	5 3	8 11	0 5	3 48	9 2	9 40	5 55	6 27	62.3	Bouvardia angustifolia, G.	190
11	Th	The Tongue Lightship run down, 1877.	3 58	5 11	8 11	0 43	4 62	10 17	10 55	7 6	7 42	63.3	Erica Devoniana, G.	191
12	W	Prince Imperial buried at Chislehurst, 1879.	3 59	5 19	8 12	1 30	5 49	11 30	—	8 20	8 55	63.3	Erica ventricosa grandiflora, G.	192
13	Th	John Cooper (actor) died, 1870.	4 0	6 27	8 11	2 22	6 37	0 5	0 35	9 30	10 0	63.3	Passiflora princeps, S.	193
14	F	Bastille destroyed, 1789.	4 1	5 34	8 10	3 22	7 16	1 0	1 25	10 25	10 50	63.3	Salvia patens, G.	194
15	S	St. Swithin. ● New Moon, 7h. 1m. morn.	4 2	5 40	8 9	4 23	7 43	1 43	2 10	11 13	11 35	63.4	Veronica longifolia subsessilis, H.	195

The Gardeners' Magazine.

SATURDAY, JULY 8, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

- Exhibitions and Meetings for the Ensuing Week.
- MONDAY, JULY 10, AND TUESDAY, JULY 11.—BEESTON HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, JULY 11.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

WEDNESDAY, JULY 11.—CHRISTLETON ROSE SOCIETY.—Annual Exhibition.

WEDNESDAY, JULY 12.—EALING AND DISTRICT HORTICULTURAL SOCIETY.—Summer Exhibition.

WEDNESDAY, JULY 12.—CARDIFF ROSE SOCIETY.—Annual Exhibition.

THURSDAY, JULY 13.—ST. IVES (HUNTS) HORTICULTURAL SOCIETY.—Annual Exhibition

THURSDAY, JULY 13, AND FRIDAY, JULY 14.—BIRMINGHAM ROSE SHOW, in Aston Lower Grounds.

THURSDAY, JULY 13.—SALTERSHEBLE ROSE SOCIETY.—Annual Exhibition.

FRIDAY, JULY 14, AND SATURDAY, JULY 15.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Rose Show.

THURSDAY, JULY 14.—ABINGDON.—Cottagers' Show.

SATURDAY, JULY 15.—BIRKENHEAD ROSE SOCIETY.—Annual Exhibition.

EXPERIMENTS IN POTATO CULTURE have been carefully carried out during the years 1880 and 1881 on the Munster Farm and Dairy School of the Cork Agricultural Society, and a series of reports thereupon have been published by Messrs. Purcell and Co., 124, St. Patrick Street, Cork. No. IV. of these reports, drawn up by Mr. Thomas Carroll, illustrates in an instructive manner two very important points, namely, the relative values of varieties and the relative values of manures. In the trial of varieties the committee were aided by Messrs. Sutton and Sons, of Reading, who forwarded for the purpose the collection of potatoes shown by them at the International Potato Exhibition the previous year, thus enabling the committee to compare in growth and produce some of the newest with many of the older well-known sorts. Thus in the year 1881 there were 107 sorts under trial. The trial of manures was not only of a comprehensive nature, but was ingeniously arranged and diversified to bring out in the most decisive manner their several effects, both separately and in various combinations.

In the year 1880 the average gross weight of the potato crop on the trial plantation was 8 tons 1 cwt. the acre. In 1881 the average gross weight was 10 tons 10 cwt. 1 qr. the acre. In the year 1880, in a plantation of twenty-nine varieties, there were only two free of disease; but in the more productive season of 1881 there were nine varieties free of disease. On the other hand, the disease was more virulent where it occurred in 1880. The varieties that suffered most from disease in 1881 were Reading Abbey, International, Victoria, and the German and French varieties generally. In respect of these last the report says: "So far as our experiments go, it would appear that most of those German and French varieties are not worthy of cultivation in this country, and

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it is questionable whether it is worth while to make further trials with them." It does not appear from this report that the age of a variety has any direct relation to its liability to become diseased; but it does appear that from a diseased stock a healthy crop may be secured. This agrees with our own experience, and with the views we have in consequence advanced in these pages. The report says: "The planting of the ordinary small seed of the country shows results similar to those of 1880, namely, a fair immunity from disease, so that I fear not much light is thereby thrown upon the theory of inheritance or transmission of disease in varieties. The lots planted in 1880 were procured from a district where it was supposed new varieties had not reached, and were themselves more or less tainted with disease at the time of planting, and yet the acreable yield of diseased tubers of this kind was less in 1881 than in 1880." This is an important statement, because, as above remarked, the disease was, wherever it appeared, more virulent in 1881 than in 1880.

Another matter of question that derives light from these trials is that of contagion, for it is generally assumed that the disease spreads by neighbourhood or contact. Here, however, we have perfectly healthy crops and very much diseased crops on the same ground, exactly as in thousands of instances the same suggestion of the non-contagious character of the disease has come from observation. A very useful note occurs in connexion with this part of the subject on the storage of seed potatoes. If kept damp the fungus is encouraged, and therefore when packed for travelling such materials as damp hay, moss, &c., &c., should not be employed. Indeed, we have always to keep in mind that stagnant humidity, whether in the field or in the store, is deadly to potatoes, because favourable to the growth of fungi.

In a plantation of thirty-five varieties grown in large plots at the Munster Farm in the year 1881, the following were found "entirely free of disease," namely, Magnum Bonum, Redskin Flourball, Moray Blue, White Rock, Skerry Blue, Brown Black, Blue Round, Prince Frederick Charles, Pousse Debout, Black Apple, and Fortyfold. It may be well to remark on these before we proceed any further. They are all vigorous growers save Blue Round. As regards the colour of the flowers, they are all purple or pink save Pousse Debout and Brown Black. In respect of table qualities the best are Magnum Bonum, Redskin Flourball, Skerry Blue, and Fortyfold. As regards their cropping values in 1881 they stand as follows:—

	Gross Weight.			Marketable.		
	10 tons	5 cwt.	...	6 tons	5 cwt.	...
Pousse Debout ...	8	12	"	5	14	"
Blue Round ...	8	15	"	3	16	"
Fortyfold ...	10	5	"	6	19	"
Prince Frederick Charles	9	7	"	8	1	"
Black Apple ...	14	0	"	11	4	"
Magnum Bonum ...	12	14	"	11	17	"
Redskin Flourball ...	7	0	"	4	19	"
Brown Black ...	9	14	"	7	19	"
Moray Blue ...	11	16	"	8	11	"
White Rock ...	9	19	"	6	7	"
Skerry Blue ...						

In the year 1880 these same varieties were almost exempt from disease, save Moray Blue, Blue Round, and Prince Frederick Charles, which were diseased to the extent of from one-seventh to one-sixth of the gross produce. Thus for eight out of eleven varieties we have favourable evidence from two seasons in which the disease extensively prevailed. We will now tabulate a few varieties selected from Table III. :—

	Gross Produce.		Gross Produce.		Diseased.		Diseased.	
	1880.	1881.	1880.	1881.	1880.	1881.	1880.	1881.
	Tons cwt.	Tons cwt.	Tons cwt.	Tons cwt.	Tons cwt.	Tons cwt.	Tons cwt.	Tons cwt.
Suttons' Magnum Bonum	10 3	14 0	0 1	0 0	0 0	0 0	0 0	0 0
Beauty of Hebron	1 0	8 3	0 0	0 11	0 0	0 11	0 0	0 11
International	8 12	10 7	2 10	3 13	2 10	3 13	2 10	3 13
Redskin Flourball	10 11	12 14	0 17	0 0	0 17	0 0	0 17	0 0
Regent	11 4	10 10	2 3	1 14	2 3	1 14	2 3	1 14
Victoria	7 13	10 14	0 18	3 2	0 18	3 2	0 18	3 2
White Rock	11 11	11 16	0 15	0 0	0 15	0 0	0 15	0 0
Skerry Blue	10 14	9 19	0 6	0 0	0 6	0 0	0 6	0 0
Early Rose	7 7	8 12	0 14	0 14	0 14	0 14	0 14	0 14
Fortyfold (German seed)	7 13	8 15	0 11	3 17	0 11	3 17	0 11	3 17

It will be noted that Regent stands well in the comparison, although badly hit by the disease. International and Fortyfold do not make a good appearance, but there are very many in the table

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that make a worse. The heaviest croppers irrespective of quality or liability to disease in 1881 were:—

Vander Weer	11 tons 12 cwt. gross produce.
Seguin	10 " 13 " "
Pousso Debout	10 " 5 " "
Early Rough Skin Rose ...	11 " 4 " "
Prince Frederick Charles	10 " 5 " "
Regent	10 " 10 " "
Victoria	10 " 14 " "
Suttons' Magnum Bonum	14 " 0 " "
Reading Abbey	10 " 14 " "
Redskin Flourball	12 " 14 " "
Canadian Prolific... ..	11 " 15 " "
American Chili	14 " 1 " "
Brown Rock	14 " 2 " "
Brinkworth's Fortyfold ...	10 " 13 " "
White Rock	11 " 16 " "
Country Seed	12 " 9 " "

It should be added that Champions were quite free from disease in 1880 and 1881, but there are no particulars given as to the rates of cropping in any of the tables. As regards the possible influence of fertilizers on the liability of the crops to become diseased the following remark is made: "The potatoes manured with large quantities of ammoniacal manures were among the first affected, while the dense potatoes and those grown with phosphates were wholly unaffected, though in close proximity at either side with diseased potatoes. Several of the new varieties were affected, while others a few inches (*sic*) apart from them were quite sound. The leaves of nearly all the kinds affected by the disease seemed to have first 'curled.' The new varieties which bloomed abundantly were those which best escaped the disease."

SEEDLING PELARGONIUMS may be submitted to the Pelargonium Society for certificates of merit at the gardens of the R. H. S. on Tuesday next.

WARWICKSHIRE AGRICULTURAL SOCIETY.—The thirty-first annual exhibition will be held in the Jephson Gardens, Leamington, on Tuesday, July 18.

THE ROYAL AGRICULTURAL SOCIETY'S EXHIBITION AT READING will be opened on Monday next. Messrs. Sutton and Sons have issued a map of the town and show ground and a general programme for the guidance of visitors.

NATIONAL CARNATION AND PICOTEE SOCIETY.—A supplementary exhibition will be held in connexion with the Royal Oxfordshire Horticultural Society at Oxford, on Wednesday, August 2. Notice of entry must be given to Mr. E. S. Dodwell, Stanley Road, Ifley Road, Oxford, at least four clear days before the show.

A PRETTY NEW COPPER-COLOURED ROSE shown by Mr. House, of Peterborough, on Tuesday last excited some interest and inquiry. It is very distinct, but shows traces of Persian Yellow in its parentage. It lacks the qualities of a show rose, but has a beauty of its own and a tone of colour that is certainly unique. The name of this novelty is A. W. Richardson.

MESSRS. BARR AND SON constitute a new firm, Mr. Peter Barr having taken his son into partnership. The trade will be carried on at 34, King Street, Covent Garden, W.C. It was in the nature of an inauguration of the "new departure" that Messrs. Barr made an immense and beautiful display of hardy plants at South Kensington on Tuesday last. The collection comprised lilioms, ixias, aquilegias, campanulas, funkias, irises, ænotheras, and other of the more useful subjects that are now in perfection in the open garden.

TWO NEW PELARGONIUMS, named respectively *Mignonette* (a sort of diminutive regal) and *Belle du Jour* (a double white decorative), are admirably figured in the July number of the *Florist and Pomologist*. These were favourites with the Pelargonium Society last year, and will soon be favourites with the general public. The fruit plate is devoted to the old Sops in Wine apple, the peculiar colour of which no printed picture is ever likely to represent faithfully. This is a capital number of the *Florist and Pomologist*, crammed full of good things.

THE WEATHER ON THE NORTH AMERICAN CONTINENT has been as unfavourable to vegetation as in these little Islands. In a letter lately received from Chicago the writer says:—"We had snow on the 23rd of May, and it was not until the middle of June that there appeared any proper promise of summer weather. High prices tell us that production does not now outrun consumption, as for a series of years it certainly did. We pay now 25 cents for meat that two years ago we bought for 10 cents, and other viands have risen in corresponding proportion. The interest in artificial cheese rests in part on the fast increasing value of the real article."

ROYAL HORTICULTURAL SOCIETY.—The following circular has been addressed to the Fellows:—"In their circular to the Fellows of the 27th March last the council stated that they were endeavouring to enter into negotiations with the commissioners for the Exhibition of 1881 with the object of effecting an arrangement which would be in strict accordance with the trusts upon which the commissioners hold their property, mutually advantageous to the commissioners and the society and beneficial to the public. With this view the council proposed that a joint committee of the two corporations should be formed to consider their future relations. This proposal was accepted by the commissioners, but the committee which has been appointed to

give effect to it has not yet met, as it was found necessary, before such a meeting could be usefully held, to settle terms between the society and the executive committee of the Great International Fisheries Exhibition, 1883, to whom the commissioners had granted the use of part of the South Kensington Gardens for the purposes of their exhibition, reserving for themselves that portion known as the Ante-Garden, of which they intend to resume possession. The council are happy to report that the friendly spirit in which the executive committee met them has enabled them to make a satisfactory working agreement with the fisheries, which, whether the ulterior negotiations with the commissioners are successful or not, secures to the society, subject to the user required by the fisheries, the ornamental part of the gardens which lies to the north of the circular basins, until the end of the year 1883. The council are not in a position to anticipate the result of these negotiations, but they believe the commissioners wish to act liberally towards the society, and they have no reason to anticipate that its connexion with South Kensington will cease after 1883. As some further time must elapse before the negotiations with the commissioners can be completed, the council think it right to issue the foregoing statement for the information of the Fellows.—South Kensington, June 27, 1882."

THE BOTANIC GARDEN AT ADELAIDE.

THE report (dated April 1, 1882) by Dr. R. Schomburgk on the Botanic Garden and Government Plantations during the year 1881 has been distributed as usual by order of the Government of South Australia. It abounds in matters of interest, not only for agriculturists and horticulturists in the colony, but for all who are engaged in rural industries and scientific pursuits. The Adelaide gardens and plantations have suffered much of late years from unfavourable seasons: frost in winter and drought in summer render the management difficult and the losses great. Dr. Schomburgk says, "Our climate is one of extremes. The temperature on several nights during June and July was as low as 29 deg. These severe frosts have again had a most disastrous effect upon the garden: the tropical and subtropical trees, especially the tropical *Ficus*, constituted the chief bulk of the sufferers, which for the last four years, have been affected materially. Before these frosts appeared the trees had grown uninterruptedly to the height of 30 ft. to 40 ft., some with stems 4 ft. to 7 ft. in circumference, but during the last year have suffered so much from them that several have had to be cut down to more than a fourth of their height, and may never regain their former beauty. The heavy frosts of the last three or four years prove that our climate has changed materially." Thus we poor Britishers, who quarrel daily and even hourly with the weather, are officially advertised that there is cause for grumbling at the antipodes, man being born to trouble as the sparks fly upwards. The cold winters have been balanced by hot summers, and the garden flowers have had but a short reign, stocks, phloxes, verbenas, and roses being the least able to endure the heat and drought. On the 18th of January last the maximum temperature was 112 deg. in the shade and 180 deg. in the sun, only 32 deg. below the boiling point. During January, February, and March the thermometer ranged from 90 deg. to 150 deg., with very little rain; indeed it appears, that from 1st of October, 1881, to 1st of April, 1882, only 2½ inches of rain fell. The consumption of water in the gardens since July to the end of March, amounted to 20,000,000 gallons. The effect of the fierce heat upon vegetation has been highly injurious, and European and North American trees and Alpine plants have suffered severely. The fruit crops are unsatisfactory, the apples a comparative failure, the wheat crop much injured, the yield scarcely averaging five bushels.

Amongst subjects specially treated are New Wheats, Fodder Plants, Flower Farming for Perfumery, the Flowering of Rare and Interesting Plants, Dye Plants, Farinaceous Products, and the Influence of Forests on Climate.

Amongst the fodder plants spoken well of occurs the *Tagosaste*, *Cytisus proliferus* (Linn.), a shrub which obtained prominent notice in a recent issue of Mr. Christy's "Commercial Plants." This endures the heat and drought of summer and the cold of winter unhurt, and when established it may be cut twice a year. We learn that animals fed upon *Tagosaste* come into condition more rapidly and to a greater degree than with any other food, except corn. The *Tréasinté* also is favourably reported on as bearing drought well, but it has not ripened seeds, owing to the effect of frost.

The most important matter in connexion with the economic purposes of a botanic garden to which this report refers is the probable stamping out of phylloxera by the cultivation of *Vitis californica*. "The point which commends this vine to the world is the presumption that it is phylloxera-proof. It is found growing wild in the midst of vineyards which have been destroyed by the pest; but the *Vitis californica* remained uninjured. Experiments seem to prove that it is too robust for the phylloxera to fasten upon. The French vine-growers are deeply interested in the subject, and the Department of Agriculture and Commerce, Montpellier, and the National School of Agriculture, are experimenting upon it. Professor Hilgard, of the Californian State University, and several eminent vine-growers, have reported favourably upon this vine. Mr. Crighton says some of the vines cover trees from fifty to seventy feet high, and produce at least 150 lb. of fruit. There is no doubt of the value of the *Vitis californica* for grafting stock, and its use is recommended either by cuttings or seeds. But the crowning virtue is not alone that it is phylloxera-proof, but also that it makes a palatable claret wine, so that it is worth cultivating for the sake of its fruit."

The subject of flower farming is treated in an interesting manner in a letter from Mr. Theodor Piesse. The Museum of Economic Botany is said to be "more appreciated than I ever expected."

PLANTING TREES ON THE ROAD-SIDES.—At the auditing of the accounts of the Tottenham Local Board objection was taken by a parishioner to an item of £117 10s., the cost of trees planted at the sides of the high road: also to an item of £258 15s., the cost of tree guards. The ground of objection was that as the roots grow they would choke the culverts, and prevent the storm waters from being carried away. A case tried at the Essex Assizes in March, 1852, was cited, in which a nurseryman, who planted trees in a certain road, by order of the Chelmsford Local Board of Health, was indicted for a nuisance for so doing, and found guilty, and the whole of the newly-planted trees had to be removed from the road. The auditor took time to consider the legal bearings of the question.

STRIKING ROSE CUTTINGS IN SUMMER.

ROSES on their own roots have received such ample vindication of late years that in offering advice to the amateur and others interested in the matter on the striking of rose cuttings in the summer there is no occasion for referring at any length to their great superiority to those on the brier or the manetti. Several of the leading amateur exhibitors have spoken and written in their favour, and one has described them as "the roses of the future," but the most powerful advocacy of their claims for consideration has been their immunity from injury during the two winters preceeding the last. In these winters, as is so well known to those who cultivate roses, standard and dwarf worked roses were killed in such immense numbers that the prices, more especially for the former, rose to an almost prohibitory rate. Those on their own roots were in many instances also injured by the frosts, but, unlike those on foster roots, they were able to produce new growth from the base to replace the shoots that had been cut back, and now they have such a buxom appearance that no traces of the injury are to be seen. Own-root roses are not altogether without drawbacks, and to avoid any misapprehension it must be stated that they do not make such a vigorous growth at first as those on the brier or the manetti, and that in consequence a longer period is required in growing them to a size sufficient for the production of a striking effect. A few are difficult to propagate by cuttings either in the summer or autumn, and as they include a few that are indispensable for exhibition purposes those who take part in the various competitions cannot wholly dispense with stocks. For the garden there are enough and to spare, and those who grow roses for the gratification they afford themselves and their friends need not have a single worked plant; not only do own-root roses possess an immense advantage in enjoying, practically speaking, a perfect immunity from injury in severe winters, but there is no risk of their being impoverished by a forest of suckers or of their being starved through the failure of the stocks to afford them sufficient nourishment.

The multiplication of roses on their own roots is unquestionably a more difficult task than the increase of stock by budding. The latter is indeed mere child's play as compared with the striking of cuttings, for when acquainted with the manner in which the stocks should be trimmed and the buds inserted the whole business has for all practical purposes been learnt. It may also be observed that when the bud has been properly inserted, the operator may look forward to the possession of a tree in the year following without much further attention on his part. On the other hand, in raising a stock from cuttings it is necessary to exercise considerable care in the selection and preparation of the cuttings, and they must have unremitting attention until they are furnished with roots. The closest attention must indeed be paid to the watering, shading, and ventilation, any little neglect being sufficient to produce a most prejudicial effect upon the results. The details are not difficult to understand or carry out, and the foregoing facts have been mentioned for the purpose of showing those who intend engaging in the work, which by the way is both pleasant and profitable, what is required of them to ensure a full measure of success. Cuttings may be struck both in the summer and the autumn, but in this communication I shall refer to the work of striking them in the first mentioned of the two seasons.

In the propagation of roses from cuttings at this season of the year a mild hotbed will be of much assistance, but if a hotbed cannot be conveniently had the frame in which the cuttings are to be put should be placed on a bed of soil raised eighteen inches or so above the ground level to catch the warmth of the sun. From the 21st of June to the 21st of July is the most suitable period in which to strike the cuttings, as the wood is then firm without being hard. The cuttings must not lay about for any considerable period, and the pots or pans should be prepared previous to their removal from the trees. Pans about twelve inches in diameter are the most convenient, and in preparing them they should have a two-inch layer of rather small crocks in the bottom, and then be filled to within an inch of the rim with a mixture of peat, loam, leaf-mould, and sand in about equal proportions. Use the mixture in a moderately moist state, and press it firm. When this has been done, cover the surface to a depth of three-quarters of an inch with sharp sand. The sand also ought to be moist to ensure its being pressed firm, and before inserting the cuttings sprinkle the pans lightly with water by means of a pot with a fine rose.

The finest cuttings are obtained from shoots that have become moderately firm, and those which rise boldly from amongst the branches bearing flower trusses are decidedly the best. The shoots should be taken off within four or six inches of the base, and be cut up into portions, each to consist of four joints. The extreme points of the shoots are invariably too soft to be employed with success for propagating purposes, excepting by those possessing considerable skill, and the best course is to remove the tops just below the third joint. Cuttings of roses will produce roots from the internodes, but not so freely as from the nodes or joints, and as a rule each portion should be cut clean through immediately below the bottom joint. On this being done, and the two lower leaves removed as close as is possible without injury to the bud in each axil, they will be ready for insertion. Then dibble them rather close together in the pans, and just deep enough for the lower half to be buried in the sand. It is very important that they should be made firm, and in most instances one thrust of the stick close down by the side of the cutting will suffice to properly fix it in the soil. Water moderately to properly settle the sand, cover with bell glasses, and remove them to the frame. During the first week or ten days the bell glasses and the frame must be kept quite close and the frame be carefully shaded, as exposure to sunlight or to currents of air would be most injurious, if it did not result

in the destruction of the whole batch. They must have daily attention and receive a light sprinkling of water when needful, and the proper moment for giving them this attention is early in the morning or towards the evening, as the frame cannot be opened when the sun is shining brightly without much risk. The removal of the glasses during the time the cuttings are examined will ensure as complete a change of air as could be desired. At the end of about ten days it will be most beneficial to remove the bell glasses daily, then wipe the insides dry and leave them off for about five minutes. The soil must be kept moderately moist, and as soon as the cuttings can bear a little air without the leaves flagging the bell glasses must be tilted a little on one side, and the admission of air be increased gradually until it will be safe to remove the glasses. When this stage has been reached the ventilation of the frame can be commenced a little at first, and be increased in proportion to the progress made by the cuttings. Shading must be continued until the cuttings are struck, for they cannot be exposed to sunlight until furnished with roots without suffering more or less.

As soon as nicely rooted the potting off must commence, and it should be done as quickly and as carefully as possible, to avoid their receiving any material check. Small sixties are the most suitable in which to put them as they come from the cutting pans, and a mixture consisting of loam, three parts, and leaf-mould and sand will form a very excellent compost for use at this stage. Have both pots and soil in readiness, and proceed with the potting off as expeditiously as possible. Lift the cuttings with a piece of pointed stick, to avoid injury to the roots, and in potting press the soil moderately firm. As they are repotted place in a frame, and keep them close and shaded until they have become established sufficiently to bear a circulation of air and exposure to sunshine. They must not be deprived of light and air a day longer than is necessary, and therefore as soon as the roots are commencing to run freely in the soil, as indicated by their beginning to make new growth, ventilation should be commenced, and be increased gradually until the plants are strong enough to bear without injury the removal of the lights, or their being placed on a bed of coal-ashes outside.

During the winter the stock should have the protection of a cold frame, with sufficient water to keep the soil just moist. At the end of February or early in March cut them back moderately, and in April shift into larger pots, or plant in beds or borders, according to the purpose for which the roses are required. VIATOR.

A PLEA FOR CHOICE HARDY SHRUBS.

IN a paper recently read before the Dundee Horticultural Association on observations made at Seggieden, Perthshire, on the hardiness of certain trees and shrubs, Colonel H. M. Drummond Hay referred as follows to the advantages which would result from increased attention being paid to choice hardy shrubs:—

It has often struck me as somewhat strange in these days that, among other things, the taste for hardy exotic hard-wooded plants—I do not allude now to conifers, but more especially to flowering shrubs and fine-foliaged evergreens—should be so little cultivated. We often see this in many of our public parks and private domains. There may be masses of bedding plants, good collections of herbaceous and rock plants, and ferneries, together with pinetums, and perhaps beds of rhododendrons and azaleas; but what is the shrubbery like? We turn down a side walk, and there we find a few common laurels, lilacs, snowberries, and other common plants, with hollies stuck about, and perhaps some box trees, an aucuba or a common rhododendron or two, and this merely to hide the stable or some other objectionable object. But seldom is it we see collections of the choicest hardy exotic shrubs brought together and artistically grouped, in masses of fine foliage and flower, on some well-selected site, and I confess I know of no class of plants which will afford more satisfaction in that respect. Nor is there any out-of-door class to be found in which a more continued display of beauty can be maintained for nearly the whole year round. Where could there be anything more beautiful than masses of *Rhododendron atrovirens*, *Nobleanum*, and *præcox*, together with *Mezerium album*, *Jasminum nudiflorum*, and the early heath "herbacea," and its varieties *alba* and *carnea*, all in flower at the same time, vying with the crocus and the snowdrop in earliest spring. Following these come in quick succession other precocious kinds of rhododendrons, early andromedas, spiræas, forsythias, loniceras, early genistas, and a host of others, till in June and July a perfect blaze of flower is presented, this continuing with fresh successions through the whole summer and autumn till met by the Christmas rose in early winter. In short, there is not a month passes in which the shrubbery may not be made to yield something to afford pleasure, which cannot, that I am aware of, be said of any other description of plants growing in this climate out of doors.

It has always occurred to me that the beauty and merit of hardy exotic flowering shrubs, both deciduous and evergreen, have never been sufficiently brought forward in our botanical and horticultural magazines and papers, or even in our exhibitions, to create any particular interest in the public mind; so much so, that I know there are nurseries where the finest plants have had to be thrown out to make room for those that are more common. I am glad to say the tide seems to be turning, and now that the difficulties of transit from every part of the world have almost vanished it is not too much to hope, were once the popular interest aroused, that we may see still larger additions swelling the no small stock of hardy valuable shrubs already existing in most of our large nurseries, and a more intimate knowledge attained than we have at present of their constitutional merits as to temperature and climate suitable for their respective requirements in all parts of the country.

A GIANT TREE.—It is generally thought that the biggest tree, like most big things, is a native of the United States. It seems, however, that the mammoth tree of the Californian slopes is less gigantic than the peppermint tree found on the Dandenong range at the Antipodes. The Australian papers describe one of the latest discovered giants as 418 feet high, and Baron Ferdinand Von Müller, of Melbourne, says he has met another of the incredible height of 480 feet. There is nothing to approach this on the Western continent. The largest trees as well as the loftiest mountains are in British territory.

The House, Garden, and Home Farm.

THE PINE WOODS.

WE stand upon the moorish mountain side,
From age to age, a solemn company;
Thoro are no voices in our paths, but we
Hear the great whirlwinds roaring loud and wide;
And like the sea-waves have our boughs replied
From the beginning to their stormy gloe:
The thunder rolls above us, and some troe
Smites with his bolt; yet doth the race abide
Answering all times: but joyous when the sun
Glints on the peaks that clouds no longer bear;
And the young shoots to flourish have begun:
And the quick seeds through the blue odorous air
From the expanding cones fall one by one;
And silence as in temples dwelleth there.

JOHN, LORD HANMER.

THE HOUSE.

WELL-FILLED window-boxes contribute so much to the adornment of the dwelling-house that every effort should be made to maintain the plants with which they are occupied in the best possible condition. Regular watering is a matter of prime importance, for a few days' neglect now will not make any decided mark on them as an immediate result, but the result will be sure nevertheless. When they are again watered and appear to have recovered from the distress they will suddenly cast off their leaves and flowers, and if the good management is continued they will recover by making new growth and throwing up new flowers. But there will be a loss of about three weeks in the continuity of bloom. It follows that, to keep things right, regular attention must be given them. As a rule, window plants want water daily now, but it should not be thrown about them carelessly, and, generally speaking, it will not be well to wet their leaves at all. If there is any appearance of debility in the growth—say, a want of colour, or some other indication of insufficiency of food—a little of some portable fertilizer may be used, and it will be mere prudence to follow the directions that accompany it. At all events, whatever in the way of liquid manure is used should be well diluted. In dexterous hands window plants may be helped—if really needing help—by a very careful shift into pots one size larger than those they are now in, but an inexperienced person may be advised not to try the experiment, for although the plants might live through it, and do well, we really cannot afford just now to do anything that will stop their flowering, which is sure to happen if their roots are seriously disturbed, or any considerable increase of root space is given them. An inexperienced plant grower, noting that the window plants were a little wiry through being too long in the same pots, would carefully turn them out, remove a little of the old soil from about the roots, and replace them in the same pots with just enough fresh stuff to carry them through the season, and yet not enough to start them into a rank growth, which is always a death-blow to free flowering. Generally speaking, the plants used in window boxes and balconies are young and of the right age to flower delightfully, and regular attention is the one thing needed while high summer prevails.

THE GARDEN.

CINERARIAS coming up in seed-pans to be pricked out as soon as large enough to lift, and have separate thumb pots, with light rich compost, and to be put in a frame to grow on.

CHRYSANTHEMUMS require liquid manure now, and frequent sprinkling overhead. Tie out as fast as the side-shoots break, for if they once harden out of shape it is no easy matter to restore them to a proper form.

CUCUMBERS must have steady bottom heat to procure fine fruit. It is a common fallacy that when the weather becomes warm the beds may be left to cool down, but it is rarely that fine fruits are cut from frames that are not lined after the first heat is out.

ENDIVE to be sown again, and strong plants in early seed beds to be planted out.

FUCHSIAS must be syringed once or twice a day, and have moderate shade. Fine plants in comparatively small pots will be greatly benefited with weak liquid manure every three or four days.

GREENHOUSE HERBACEOUS PLANTS, such as cinerarias, primulas, herbaceous calceolarias, &c., must have frequent attention now. Let seedlings be pricked out into pans or singly in thumb pots without delay; shift cuttings and rooted suckers.

HARDY HERBACEOUS PLANTS of all kinds may be propagated now from seeds and cuttings.

LEEKs to be planted out in rows nine inches apart every way, in very rich moist soil.

ORCHIDS require a free circulation of air to ripen the spring growth. Use as little shading as possible, and keep the air moist by watering the paths and borders in the afternoon, after which shut up.

PINES to be encouraged with heat and moisture. Young stock to be aired freely, to get them strong; fruiting plants to be refreshed by frequent sprinkling of the beds and plunging material; as they begin to ripen, keep them dryer.

ROSES strike from cuttings now with great certainty. Make up a hotbed at once, and the same day put in cuttings of young wood three or four inches long singly in thumb pots. Water the cuttings, place them in a cold frame, and shade with mats. There let them remain for a week, by which time the hotbed will be sweet and the heat steady, and the cuttings will have formed a callus. Place them on the bed and shut up; give air by degrees, and keep them from flagging by frequent sprinklings rather than by heavy waterings.

STRAWBERRIES, as soon as rooted in pots, to be removed to a frame and placed upon a bed of some moist material, where they will soon fill the pots with roots.

Sow for succession Lettuce, any early kinds of Peas, Radishes, and Turnips. Keep the hoe in active service between advancing crops.

VINES in early houses to be kept rather dry to promote the ripening of the wood, and to have plenty of air. In late houses encourage quick ripening, keeping up the heat, and ventilate well to prevent damp and mildew. Water and mulch the borders of late houses, and by all means abstain from cropping the borders, as the practice is most injurious to the roots of the vines, the best of which are near the surface.

THE HOME FARM.

IN the management of the home farm during the current month the anxieties are heavy; and whatever work is entered upon must be determined on the spot at the time, and must be in a certain sense localized. It needs the constant exercise of the most careful judgment just now to farm well; and, as usual, it is better to err on the side of being a trifle too early than a trifle too late. The pastures and clovers claim a lot of care now, turnip culture is an important matter, and the harvesting of peas and beans is near at hand. The poultry yard is now supplying young ducks and chickens, fat and white, and deliciously flavoured. Those will have the best birds who feed well from the first, for where the management is good "fattening" as a special process is unknown, for the simple reason that it is always going on as part of the every-day system of management. We have never found it necessary to shut birds up and cram them, for they go to the kitchen direct from the yard fat enough as the result of liberal feed and great variety of food. In every poultry yard there should be a feeding pen for young birds, the entrance to which should be too small for the older birds to enter, and in this the chicks can have two or three extra feeds daily, for when they feed with the big birds they do not often get a fair share. Such a pen may be extemporized with a few yards of cheap wire net and a few rough boards easily enough, or it may be—and should be—a substantial and permanent institution. The raising of young birds is pretty well over now, but provided eggs and brooders are at command it is perfectly safe to continue raising until the end of August, after which it is not safe, for if the chicks do not attain to a certain size before winter sets in they never make first-rate poultry.

THE RELATION OF HEAT TO THE SEXES OF FLOWERS.

AT a meeting of the "Academy of Natural Sciences of Philadelphia," March 7, 1882, Mr. Meehan observed that the best fields for biological research were to be found amongst objects with which we have already a more or less familiar acquaintance. One fact observed will prove a stepping-stone to higher knowledge. His first new discoveries in *Acer dasycarpum*, the common silver maple of our streets, were communicated to the Academy and published in the Proceedings for 1863, and there had been interesting observations made on this species in the line of those discoveries on many occasions since that time. In that paper it was noted that the tree was not polygamous, as stated in the text-books, but strictly monœcious or diœcious. There were no hermaphrodite flowers, but each tree was either male or female, though occasionally the separate sexes were found on the same tree. The male flowers have no trace of a gynœcium, but the female flowers have well-formed anthers, but never have pollen, or even perfect themselves by lengthening filaments, as in the perfect male flower. Notwithstanding the perfect form of the anther, the stamens in the female are abortive. But the chief physiological fact of importance noted in the paper of 1863 was that a tree which for years would produce nothing but female flowers would sometimes change the sex, and bear only male flowers; while no instance could be found of a male tree eventually producing female-bearing branches. During the fourteen years since this discovery was recorded, Mr. Meehan said he had found frequent instances of change from female to male as at first observed, but not one instance of change from male to female. There could be no doubt of the order in which the sexual change occurred. While the maple was growing vigorously it followed the rule with all trees and made no attempt to flower. With some check to the vegetative force, the reproductive power asserted itself, and flowering began; this is the second stage. With a greater check to the vegetative force, only male flowers resulted. This was the third stage. Since that time he had shown to the Academy that when a maple tree passed from the vegetative to the reproductive condition, and bore at once male flowers only, it was a leap down from the first to the third stage, missing the second or female—for he had found that though the amount of vital power exerted in the production of seeds, and the immense loss of leaves which the production of seed implied (as all know who are familiar with the silver maple after bearing a heavy crop of seeds), the female trees of the same age and under the same circumstances, were usually as large as the males which had no such strain on their nutritive powers.

He desired the members to pause here for a few minutes, while he called their attention to another matter which he had recently brought to the notice of the Academy. It was in relation to the influence of heat on flower-buds. About the time of the fall of the leaf there is little to distinguish a flower-bud from a leaf-bud. But the flower-bud continues to grow at a comparatively low temperature at which the leaf-bud remains stationary. Even when the thermometer was several degrees below the freezing point flower-buds would increase in size, though naturally much more rapidly when above this line. In the peach the growth of the flower-bud was very rapid between 32 deg. and 40 deg. Fahr., until by early spring they will have reached often as much as three-fourths larger in size. Indeed, a peach-bud will often have its flowers fully expanded before the leaf-bud has scarcely begun to grow. We learn from this lesson that it takes less heat to develop a flower-bud than a leaf-bud. In the light of these observations, he had been watching during the past winter the behaviour of the buds on the silver maple. These advanced gradually until, by February 23, they commenced to expand—the leaf-buds remaining as they were at the fall of the leaf. They had been expanding continually as the days were warmer or colder, up to the present date (March 7), but the expanding blossoms have been wholly male flowers. Only to-day, as noted in the specimens exhibited, were the purple tips of the pistils visible through the parting bud-scales. It was obvious that here we had reached another important stage in the life history of the maple tree. First, it requires less heat to induce growth in a maple flower-bud than a leaf-bud; secondly, it requires less heat to induce growth in the male flower than in the female.

Comparing the male with the female trees, Mr. Meehan noted differences in their habits of growth. Taking a twig of the last season's growth, in a flowering condition, one or two blossoms might appear alongside of the leaf-bud in trees of either sex. So far we could find no difference. But in the female tree the central or leaf bud, when it pushed into growth in the spring, made a shoot of several or many inches in length according to the vigour of the tree or parent branch. In the male tree, on the contrary, the central growth was not more than perhaps a quarter of an inch, forming a more tuft of leaves on the top of what was a head of male flowers. In fact, these branches were reduced to mere spurs, and weak spurs at that. He had measured these little branches or spurs which had been bearing male flowers for ten successive years, which were not more than from three to five inches in

length, and not thicker than wheat straws. It was from these spurs that the great mass of opened flowers appeared. The male flowers on the shoots of last year did not advance as did the flowers on the spurs. It is very important to note this fact. These are only now opening, and are contemporaneous with the opening of the female flowers, which, like them, are sparsely arranged around the axillary bud of the past season. The immense amount of pollen from the early flowers, forming the great bulk of all the pollen produced by the tree, is scattered before the female flowers open, and is absolutely useless for any purpose of fertilization, or useless for any purpose of individual benefit to the tree or to the race, so far as we can see. These later-opening flowers, formed on the wood of last year, are evidently the chief reliance, if not the only reliance, of the female flower for its reproductive energy.

Just here an objection may be raised. If it be heat alone which advances the male flowers on the spurs, why does it not advance them on the wood of last year? If it take less heat to bring forward a male flower than a female flower, why is not this power exhibited when the separate flowers happen to be on branches both apparently alike in vital conditions? Here we may return to the point we diverged from. We have seen that there are successive stages from a high vegetative, but unproductive, condition to one of fertility; and again one lower than this, lower in comparison with vegetative power, in which the purely male or sterile condition is reached. In other words, a highly vital condition is more closely allied with those attributes which characterize the female sex than with those characteristic of the male, and we may therefore reasonably look for some influence in the female direction on the male flower where these conditions exist. Therefore male flowers on a shoot characterized by a highly vitalized condition would be likely to resist influences to which they would be otherwise subjected. In short, a male flower on a strong branch ought not to yield as readily to the excitement of heat as one growing on a weak branch. At any rate, the fact that the whole of the weak spurs of the maple tree produce nothing but male flowers, and that these male flowers expand at a lower temperature than the females do, is conclusive as to the law, whatever answer the objection may receive.

This law, thus demonstrated, will be of great practical value to culturists. So far as the single point of the advancement of the flowers by a low temperature is concerned, the peach grower will be interested in keeping the temperature cool, so that there shall be no advance of the flower until the temperature is high enough to bring forth the leaf-buds as well. Now we can go further and understand why some amentaceous plants so often produce no fruit or imperfect seeds. It is well known that isolated trees of birch, though producing abundance of male and female flowers, very often have not a perfect seed. We may now see how the catkins may be brought forward by a low temperature not sufficient to excite the female flowers, and thus lead them to mature and shed their pollen before the weather is warm enough to bring forward the female blossom to receive the necessary pollination. In seasons where the weather is cool till the regular springtime comes, or in climates where there is little very exciting warmth till the regular growing time arrives, there is not likely to be so great a period between the opening of the male and the female flowers. That this is the case with the common European hazel or filbert as grown in this country an examination to-day clearly indicates. The catkins have attained their full length, and the anthers are ready to shed their pollen with another day's sun, but there is no sign yet of the little purple stigmas bursting through the scales of the buds which form the female flowers. Should the anthers disperse their pollen to-morrow, as they doubtless will if the temperature rises to 45 deg., there certainly can be no fertilization, and consequently no hazel-nuts from the trees in question next year. It was a well-known fact that the European hazel-nut often failed to bear nuts in this part of Pennsylvania, and we have clearly the explanation in the facts now developed. In Europe there were seldom such failures, the climate being probably favourable, more favourable to the simultaneous production of male and female flowers.

Mr. Meehan then briefly referred to the influence which these new facts must have on questions of dichogamy. There need not necessarily be any constant rule in the production of proterandrous or proterogynous flowers. We might expect to find proterandry prevailing to a greater extent in plants growing where there was a more constant succession of warm and cool days than in the same species growing where the climate is not what is called changeable, that is to say, where the temperature was regularly low until the regular spring season had arrived, in which case there would not be much difference in time between the advance of stamens or pistils.

In conclusion he said, if he might be allowed to generalize from this experience with the maple-tree, the following principles seem proven:—

Male flowers do not appear on female maple trees till some of its vital power has become exhausted.

Branch-buds bearing female flowers have vital power sufficient to develop into branches.

Branch-buds bearing male flowers have not vital power enough to develop into branches, but remain as spurs, which ever after produce male flowers only.

Buds producing male flowers only are more excited by heat than females, and expand at a low temperature under which the females remain quiescent.

A few warm days, succeeded by cooler ones, will therefore make a corresponding difference in time between the opening of the male and female flowers, and possibly in the proportionate advancement of the stamens and pistils in hermaphrodite flowers.

Professor Heilprin remarked that in the south of France there were often warm days in winter, much as we have here, but he believed there were no failures in the hazel-nut there.

Mr. Meehan said that when he used the word Europe he had England in his mind, as his own personal experience was chiefly drawn from there. In that country, he believed, the catkins were never brought on by warm days in winter, so as to mature before there was warmth enough to develop the female flowers.

The president, Dr. Joseph Leidy, inquired whether the American species (*Corylus americana*) exhibited the same characteristics as the English species.

Mr. Meehan replied that he believed it would be found to do so in some degree.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE thirty-ninth anniversary festival of this institution took place at the Albion, Aldersgate Street, on the evening of Thursday, June 29. There was an unusually large company, the great room being so well filled that there was not one seat vacant. The Belgian horticulturists and botanists who have lately honoured us by visiting a few parks and gardens were present, and we trust were happy. The proceedings were, however, sufficiently tedious to put their politeness to a severe test, for the long-drawn speeches were in process of dull delivery during a space of full three hours, and the temperature of the room all the while ranging very little below one hundred degrees.

The chair was occupied by the Lord Mayor, Sir J. Whittaker Ellis, Bart., who was supported on his right by the Comte Oswald de Kerchove, Governor of Hainault, and on his left by Dr. Robert Hogg, vice-president and trustee of the charity. There were also present: Alderman and Sheriff Sir R. Hanson, Alderman and Sheriff Sir W. A. Ogg, Mr. Alderman and Sheriff-elect Do Keyser, Captain G. Lambert, Sir John Bennett, Dr. Fotherby (master of Fruiterers' Company), Dr. M. T. Masters; Messrs Van Hulle, of Ghent, E. Pynaert-Van Geert, of Ghent, R. Tyman, of Ghent, E. Rodigas, of Ghent, A. Leroy, of Angers, Pycke, of Bruges, R. Wrench (treasurer), E. R. Cutler (secretary), W. Nash, J. F. Meston, Bruce Findlay, G. Robinson, W. Debenham, John Lee, G. F. Wilson, J. Patterson, W. N. Froy, E. Tidswell, N. M. Stroud, W. Vokins, N. Sherwood, B. Muller, J. F. Bourne, E. W. Cathie, H. Lazarus, J. Bowden, E. Muller, B. S. Williams, H. Williams, A. F. Barron, W. Richards, J. W. Ingram, G. Deal, G. Bell, J. Webber, A. Dickson, Thomas Baines, Charles Turner, H. Turner, T. Manning, W. H. Gulliford, A. McIntyre, T. Floyd, S. Hibberd, L. Drew, W. J. Nutting, and others, whose names we had not the opportunity of noting.

The usual loyal and patriotic toasts were honoured in the most tedious manner possible, the best hour of the evening being consumed in useless disquisitions on the virtues of royalty and the valour of the army and navy. But happily these toasts were helped along by some good singing; in fact, the musical part of the entertainment was perfect.

In proposing the toast of the evening, "Continued Success and Prosperity to the Gardeners' Royal Benevolent Institution," the Lord Mayor made a capital speech. He said the importance of this toast was evidenced by the numbers and social status of the company present. With the toast he begged to couple the name of the treasurer, Mr. Wrench. The objects of the charity were, he thought, remarkably deserving of the attention of the gardeners of England, and by gardeners he meant, not only those who did the actual digging and delving, but all who delighted in the beautiful art of gardening. They talked of the arts of painting and sculpture; but what were they compared with the art of gardening? What was more delightful than to roam through a lovely garden? How many poets had derived their inspiration from contemplation of its flowers and its trees? Their object on that occasion was to encourage this art, and those who pursued it. Looking over the papers which had been placed in his hands, and observing that the society existed for the whole of England, he was surprised to see that no larger amount than £1,200 was able to be collected. He would have imagined, had he not seen these figures, that fifty times that amount might be collected from the masters and employers of gardeners in England. For some time past he had been urging in connexion with charitable societies of this kind the supreme importance of organization; and he would give the same advice to the Gardeners' Benevolent Institution. Let them write to every village in England and see if they could not obtain even one or two guineas from those who employed gardeners, by which means they might raise a very much larger sum than they had been able up to the present to secure. The ninety-three gardeners now provided for appeared to him to be a ridiculously small number out of the whole of the gardeners of England. Gardeners seemed to him to be a class of men who almost more than any other needed to be assured that some provision was made for their old age; and he desired to offer for the consideration of the governors of the society the question of the adoption of that annuity system which had been introduced at the General Post Office, by which the means of passing their old age in comfort were secured to the annuitants. He was sure that with the exertion of a very little energy on their part they might secure the pecuniary support of many thousands of employers by representing to them that it was to their interest to become members of this society. He hoped that his successor in the chair of president would be enabled to announce that the renewed efforts of the society had resulted in a great increase in the funds, and that they had been able to assist not ninety-three, but nine hundred and thirty-three, distressed gardeners.

Mr. Bourne, in complimentary terms, gave "The Health of the Lord Mayor," and, in touching on the general subject of market accommodation in London, alluded to Covent Garden, and said that it had never been intended that it should be the only fruit market for the whole of London.

The Lord Mayor returned thanks, and proposed "The Distinguished Foreign Guests." Count de Kerchove, speaking in French, referred to the position of Belgium in relation to the art of gardening, and said, that though a small state, England was in a manner dependent on her for some of her supplies, there being certain classes of plants which constituted almost an industry in Belgium. M. Van Hulle, who spoke in English, said that he and his colleagues had come once more to see and study English agriculture in general and horticulture in particular, and every day they saw more wonderful things.

The Secretary was next cordially toasted, and the compliment acknowledged by Mr. Cutler. The Master of the Fruiterers' Company proposed, "The Corporation," and took occasion to congratulate the Sheriff on their newly-acquired dignities. Mr. Alderman De Keyser, who was very cordially received, replied. Mr. Shirley Hibberd proposed "The Horticultural and Botanical Societies of England," observing that those institutions were closely associated with the general wealth of the country. Mr. G. F. Wilson and Mr. Bruce Findlay spoke in reply. The remaining toasts were, "The Honorary Officers," associated with the name of Mr. Sherwood, and "The Stewards." Subscriptions were announced amounting to £630, besides which the secretary said there were more still to come in. A selection of vocal music was given by Mrs. Willis, Miss Belval, Mr. Hilton, Mr. Marshall, and Mr. Coates, and, as remarked above, this part of the festival was in an especial degree satisfactory.

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CANTUAS.

THE splendour of the cantuas is known to but few of the modern gardeners, and perhaps to fewer still of the eclectic amateurs who find delight in obtaining and keeping plants of high merit that stand apart from the general crowd. It is in the interest of these amateurs chiefly that the present writer, who desires to be reckoned of the number, is induced to pen a few lines of persuasion, for the "good things" are sadly shut up in the hands of a few; because, perhaps, it is difficult to make their merits known to the many. The cantuas take their generic designation from the Peruvian language, wherein these splendid shrubs rank as "Cantas." They are, with the Peruvian Indians, renowned for their employment in festivals, and for the decoration of shrines and altars, for which they are well adapted by their exquisite beauty. The best known of the species that will be mentioned is *Cantua buxifolia*, which is also catalogued as *C. dependens*. This may be occasionally met with trained as a conservatory pillar or rafter plant, and when bearing its brilliant long-tubed flowers may be likened to one of the larger species of fuchsia. But it is not in any way related to the fuchsias, being a member of the phlox family or Polemoniaceæ, an order which gives us not only the phlox and the cantua, but the cobæa, leptosiphon, and ipomopsis.

Cantua buxifolia (*C. dependens*) was introduced from the Peruvian Andes by Messrs. Veitch, and first flowered in the famous nurseries at Exeter. The figure in *B. M.*, 4,582, was prepared from a plant that flowered in April, 1850; but a more striking figure was published in *Gardeners' Chronicle*, June 19, 1880. It is a branching shrub with oblong-obovate leaves, which are sometimes three-lobed and of a light green colour. The flowers are formed in a terminal corymb, and they form a drooping cluster distinct both in form and colouring. The tube is three to four inches in length, reddish yellow, and expands into a broad smooth limb of a soft rich crimson colour, which changes to yellowish red within the tube. A well-flowered specimen trained to a pillar presents such a splendid appearance that it is difficult to account for the fact that we may explore a thousand conservatories and not meet with an example.

Cool greenhouse culture is all this plant requires, and in fact it may be likened to a fuchsia in its constitution, for it is not quite hardy, and yet is too hardy to endure any high degree of heat. The mistake is sometimes made of growing it as a pot plant, and that perhaps will account for its scarcity; for to do it well it should be planted out in the conservatory in a position where by exposure to light and air the annual growth will be perfectly ripened. Any good sandy soil will suit it, but the drainage must be perfect, as the plant requires a liberal supply of water in the growing season, but should be allowed to go somewhat dry at the root when the wood is maturing to ensure an abundant bloom. As a Devonshire plant for the open wall

this cantua may have some claims, but it is not a hardy plant in any proper sense of the word, although in some favoured spots it might weather out a mild winter. To propagate it in the same way as a fuchsia is a very simple matter, and it will be advisable to grow the young plants in a peaty mixture for at least one year, to ensure a plentiful production of roots. The best specimens of this plant I have seen were in one of the cool houses at Cliveden, where Mr. Fleuning spoke of it as one of his good old friends.

Cantua bicolor of *Flore des Serres*, 345, is closely allied to *C. buxifolia*, but has a shorter tube of a clear yellow or orange colour, the limb rich lively rose, the plant less striking than the one above described, but extremely pretty and better adapted for pot culture.

Cantua pyrifolia, as its name implies, has leaves that resemble those of the pear tree. It is a branching shrub, with leaves slightly coriaceous, three to

four inches in length, but which become smaller as they approach the flowers. The latter are borne in a close corymb and they do not droop. The calyx is brown or purplish, the tube pale yellow, and the limb is yellowish or creamy white. This is a fine plant, but varies much, and therefore some discretion is needed in the selection of a good variety. To grow it well is an easy matter, and much of the success will depend upon the perfect maturation of the wood. It makes a good pot plant and needs only moderate care to give complete satisfaction. For this species we are indebted to Messrs. Veitch, who obtained it from Peru, by their successful collector Mr. William Lobb.

Cantua quercifolia has leaves like those of an oak, and pure white flowers nestling amongst them. *Cantua aggregata* and *C. parviflora* are now classed as gillias. *C. ovata*, *C. tomentosa*, and *C. uniflora* are slight variations of *C. buxifolia*. The best of the genus are the three to which prominence is given in the foregoing notes.



CANTUA PYRIFOLIA.

THE GREENGAGE PLUM.

By J. C. CLARKE.

THE uncertainty that attends the securing of a crop of fruit from this particular variety of plum is pretty well understood, for there are but few gardens in which it can be depended upon to produce regular crops. This is much to be regretted, as it is the most valuable of all plums. From many years' observation, I think that the system of cultivation has a good deal to do with it. I do not say the tree can be fruited everywhere as a standard, but I do think it would do better if it was left more to itself than is the case when trained to walls. I was first led to think so some years ago, when I held a situation in Sussex, where, on the gable end of one of the cottages on the estate, there was a large greengage tree that had only just sufficient attention in the way of pruning and nailing to keep it from tumbling down; yet this tree invariably gave a crop of fruit, and in the majority of seasons a good one. We all pretty well know the kind of treatment such trees receive at the hands of cottagers, and this one

was no exception; for many of the old spurs stood out more than a foot from the wall, and it had only a few nails and shreds put to the main branches to keep it up. The tree was managed, in fact, in a rough-and-ready manner, yet I was able in most seasons to purchase a supply of fruit for the house from this tree when we had none on our stilly-trained trees on the walls in the garden. The system of pruning of this particular tree cannot be said to have been any system at all. When the tree was heavily laden with fruit and young growth, and likely to come clean away from the building, some of the young growth used to be cut off, and again in the spring it sometimes had a few of the foreright shoots cut back to the spurs, and sometimes it was left untouched.

Ever since I saw what crops of fruit this plum bore under such a free-and-easy system of management I have altered my own plan in dealing with it considerably, and the result is an increase in the crop, which far exceeds anything we obtained when our trees were systematically pruned and trained. We still deal with the same trees on walls, but they can no longer lay claim to notice as specimens of skilful training, for they are not trained in the sense in which the term is ordinarily understood. All the growth they make is tied in; the strongest branches have their tops pinched off perhaps once during the summer, and this is all the pruning they get the whole year round. Therefore it will be judged they are in a rough state, and so they are; for the branches cross themselves in all directions, in some cases four and five thick over each other. One would suppose that in time the branches would get into an interminable mass, but experience shows that all weak shoots that are next the wall and densely shaded perish. Consequently we have to cut out every winter many dead shoots, which keeps the number of branches proportionately thin; yet I am satisfied that it is better to have to cut away dead shoots than live ones.

The rationale of this seems to be that there is no sudden arrest of the nutritive functions, as must be the case when a tree is severely pruned. A close system of training must injuriously affect the growth and general health of the tree. If a certain number of the under branches die for the want of light and air, they naturally die in a gradual manner, and there is no shock as there would be if they were suddenly cut away. However that may be, our crop has increased, and not in a fluctuating manner, but steadily and surely. I do not say there is not even now room for improvement, because we do not as yet get a full crop, but certain trees that I was requested to destroy twelve years ago, because they were nearly dead, have under the rough-and-ready system of management completely recovered their vigour, and for the last six or eight years have borne fair crops of fruit.

If I had to start again with young trees, and had to train them on walls, I would not let a knife go near them; in fact, it would not be necessary. I would simply nail to the wall the leading shoots, and pinch off the tops once in the month of June of such shoots as were very vigorous, and tie in all the rest.

Next I would provide a glass coping to project one foot away from the wall. This should be more for the purpose of carrying away from the branches the drip from the top of the wall than for shelter, as I do not believe in shelter for plum trees. Our trees are protected with a three-feet glass coping, but we get quite as many fruit below the coping as we do immediately under it. There cannot be a doubt that this plum requires a better description of soil than the majority of plums. A deep fibrous loam resting on six inches of rubble three feet below the surface would, no doubt, suit it better than any elaborate mixture of compost. It is usually a long-lived tree, and therefore a lasting preparation is necessary. The position of the tree should be where there is plenty of room both for the roots and branches to extend.

We must not forget that it is not always convenient to get the description of loam here mentioned, but that is no reason why the cultivation of this plum should not be undertaken, as it grows in a fairly satisfactory manner in many gardens where the soil is by no means of a first-rate character. Given a second-rate soil as a basis, the removal of a portion of the old soil, and the addition of ten to twelve barrow-loads of good loam would make a very satisfactory compost in which one of these trees might be expected to thrive for many years. Indeed, to plant some length of wall would not necessitate a great outlay, and the recompense would be abundant.

PREPARING STRAWBERRY PLANTS FOR FORCING.

By WILLIAM COLE, The Grove Vineyard, Feltham.

THE time has again arrived for those who grow strawberries in pots for fruiting under glass to make active preparations for next season. There is not, according to my experience, which has extended

over many years, any necessity for beginning so early as some writers advise; but the runners must be layered early enough to afford the plants sufficient time to form stout well-ripened crowns by the autumn, and this they will have if the layering is done by the end of the third week of the current month. There is now no time to be lost, and the preparation of pots and compost should commence at once, and the work of layering the runners be proceeded with as opportunities offer.

There are two essential points in preparing strawberry plants for fruiting under glass: the one is to layer the runners early in July, and the other to shift the young plants into the pots in which they are to fruit before they become pot-bound. There are growers who save themselves the trouble of shifting the plants by layering the runners in the pots in which they are to produce their crop, and obtain good results. I have no liking for the practice, and in the production of supplies for the market, as for the private table, I have the runners layered in small pots, and in due course transferred to others of larger size, and the results are invariably such as to show that there is nothing to be gained by a change in my practice. We have had no occasion for very many years to complain of the plants being "blind," or refusing to set their fruit, and this season, when complaints were being made on all sides of strawberry plants failing to produce good crops, we were gathering a crop which, as regards weight and the size of the individual fruits, left nothing to be desired. Some few growers adopt the practice of filling the small pots with any inferior soil available at the time, under the impression that it matters not in what the runners are layered, and I allude to it for the purpose of saying that it cannot be too strongly con-

demned. Under no circumstances should exhausted or refuse soil be employed, for not only are the plants unable to make in the first instance so vigorous a growth as could be desired, but later on the soil, forming as it does the core of the ball, has a most detrimental effect. We use in the cultivation of the many thousands of plants grown for furnishing supplies for the market the same compost for the small as for the larger pots, and I would recommend those in need of advice to do the same. The only difference in the preparation of the compost used at the first stage consists in its being broken up somewhat finer. A compost of unsurpassed excellence for strawberry plants in pots is prepared with maiden loam and well-rotted farmyard or old hotbed manure, in the proportion of three of the former to one of the latter. Loam perfectly fresh may be employed with success, but that which has been laid in a heap for several months is more favourable to a healthy growth, and therefore decidedly preferable. It may perhaps be advisable to warn the inexperienced cultivator against



CANTUA BICOLOR.

using a larger proportion of manure than is here advised, for when much in excess of one-fourth the soil has a tendency to become sour and pasty towards the winter, a condition most unfavourable to the preservation of the roots in a healthy condition when the plants are at rest.

The most suitable pots in which to layer the runners are large sixties, and all that will be necessary in the way of preparation will be to place a large crock in the bottom. To layer the runners expeditiously the compost and pots, with a few pegs and crocks, should be taken to the bed in a barrow. Fill the pots as required first, placing a crock in each, and select the strongest of the first runners and peg them securely on the surface of the soil, one in each pot. All the runners on the same stolon beyond the one layered should be removed, excepting when a large stock has to be raised from a comparatively few plants, and then the second runner may be layered also. The layered runners must be liberally supplied with water, and care taken in watering and in gathering the fruit from the parent plants to avoid knocking the pots over or dragging the runners out of the soil. When well rooted cut them off close to the edge of the pot and remove to a shady position for a short time previous to their being shifted into larger pots. To afford an opportunity of rejecting all that are not of the most thrifty character, about fifteen per cent. more runners should be layered than will be actually required.

In from two to three weeks from the time the runners are detached from the old stools they will be in capital condition for shifting into the pots in which they are to produce their fruit. The pots should be six inches in diameter, and in preparing them place in the bottom an inch layer of medium-sized crocks, and cover with a little half-rotted manure to prevent the soil mixing with them. Upon the manure place a handful of the roughest part of the compost, and after making it firm stand the plant upon it. Then fill the space round it with the prepared soil, and well ram it in with the potting stick. The plants should have just sufficient soil under them to raise the crowns to nearly on a level with the rim of the pot, and the surface of the ball should slope gradually from the centre to about three-quarters of an inch below the rim. The slope must not be too sharp, or the centre of the ball will not be properly moistened, and to make everything as clear as possible I will state that a slope of between a quarter and half an inch will be the most suitable.

For the reception of the plants as they are repotted, make up a bed of coal-ashes of a sufficient thickness to prevent the worms passing through, and in an open sunny position. The pots may be stood close together, and be placed farther apart when the leaves begin to touch, or they may be put nine inches apart to save the labour of moving them later on. This is a matter that may be left to the discretion of the cultivator, but it must be said that when the plants stand upon a large bed two-feet alleys should be formed four feet from each other, to enable the plants to be watered and receive any other attention without difficulty.

With reference to watering, it will suffice to say that when they are first put in the fruiting pots very moderate supplies of water will suffice; but from the time the pots are nicely filled with roots until the autumn an abundance of moisture will be necessary. After September very little watering will be necessary, as the rains will afford them sufficient moisture; more frequently they receive too much moisture, as the growth should then be completed, and the plants at rest. No liquid manure or other stimulant should be supplied strawberry plants until they commence the production of their flower trusses in the following year, but as far as practicable they should at all times be supplied with soft water.

At the end of October or early in November it is advisable to take the plants under glass and place them in a pit or fruit house where they can enjoy a free circulation of air.

TRANSACTIONS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY for 1881 having been noticed as regards the first part, and a second part having come to hand, completing the record of last year, a second notice will be in season. We must speak of the reports of this society in the tone of which we lately spoke of those of the American Pomological Society, confessing that our admiration of them compels us to acknowledge our own exceeding smallness in the ultimate literary result of corporate action. The second part of Transactions now before us is a substantial volume of 380 pages, beautifully printed, and well packed with useful reports of papers, discussions, and matters of business. Amongst the subjects that claim special attention are Arboriculture; Plants suited for the production of Flowers in Winter; Fruit Culture; Vegetable Culture; the Management of Gardens; Peach Orchards, and Edible Fungi. We have not observed any papers that we could with any special advantage to our readers transfer to these pages, but, amidst much that concerns American horticulturists almost exclusively, there are matters of interest for English readers, and therefore these "Transactions" should be regarded as desiderata in any general horticultural library. Judging by the broad tone and liberality of spirit that appear everywhere in the reports, we do not doubt the Massachusetts Society would gladly exchange reports with any respectable and representative societies on this side. In the list of corresponding members we observe the name of Dr. Robert Hogg, Sir Joseph Hooker, Dr. M. T. Masters, Mr. Shirley Hibberd, Mr. William Paul, and Mr. B. S. Williams. The secretary of the society is Mr. Robert Manning, Horticultural Hall, Boston.

SUMMER EPIDEMICS.—Medical officers of health, as hot weather approaches, should remind the public that if they desire to be free from such infectious diseases as Scarlet Fever, Small-pox, and Measles, they should wash only with WRIGHT'S COAL TAR SOAP. Purchase only the genuine (Wright's), which is branded (as the medical profession prescribe), "Sapo Carbonis Detergens."—[Advrt.]

Exhibitions and Meetings.

ROSE SHOW AT THE MANSION HOUSE.

WHEN the Preacher said, "There is no new thing under the sun," he probably did not consider the possibility of a quite new thing in the way of a rose show. But we have had such, and the result was a splendid success, which we are delighted to record, for we cannot imagine a happier incident than an invasion of the City by an army of florists. It occurred to certain members of the Stock Exchange, the Corn Exchange, and the Coal Exchange, that a competition in roses from their own gardens might be made at once entertaining and useful. Thereupon a committee was formed, and the Lady Mayoress enlisted the sympathies of the committee in behalf of the Royal Hospital for Women and Children and the Convalescent Home for Scarlet Fever Patients. Thus the flowers were associated directly with kindly deeds, and Queen Flora and Dame Charity were honoured with a great ovation. The exhibition was held in the Egyptian Hall of the Mansion House on Friday, June 30, under the general management of Mr. Forsyth Johnson.

The committee comprised Messrs. Gaywood, C.C., G. Milnes, F. Holland, G. B. Edwards, G. M. Edwards, Woodley, Paule, Harvey, W. Thomson, Scott, T. Staples, and others. The labours of these gentlemen were supplemented by several trade cultivators, for there was a great space to be filled, and pictorial effect was needed as well as a certain number of the most beautiful roses. Amongst the nurserymen who contributed we must name Messrs. W. Paul and Son, of Waltham Cross; Messrs. G. Paul and Son, of Cheshunt; Mr. C. Turner, of Slough; Mr. Rivers, of Sawbridgeworth; Mr. Rumsey, of Waltham Cross; Mr. Cant, of Colchester; Messrs. Keynes, of Salisbury; Messrs. Cannell and Son, of Swanley; Mr. Cooling, of Bath; Mr. Prince, of Oxford; Mr. G. House, of Peterborough, and Messrs. Francis, of Hertford.

The main object of the show being to assist charitable institutions, there was a sale of roses carried on throughout the day by a party of young ladies very tastefully dressed; and to assist their persuasions, and prevent the gentlemen from discussing the state of Egypt and the number of hours the House of Commons might continue the sitting that was then a subject of speculation, Mr. Sibold's band introduced the musical Muse, whose name we suppose to be Polyhymnia, because Polly rhymes to jolly, and this Mansion House rose show was a very jolly affair. It will accomplish in more ways than one a revolution. Of its effect on the life and functions of future Lord Mayors we will say nothing, but we are bound to say that the rose show that is usually held in Mark Lane can no longer be called the "City" rose show; it must be called the Mark Lane Rose Show.

The show was arranged with banks of roses for the boundaries of the hall and tables for the smaller collections and miscellanies. The competitive groups from private growers were staged in the saloon, and were arranged in ten classes. The principal prizetakers were Mr. A. J. Waterlow, C.C.; Major Snell, secretary to Baron Rothschild; Mr. A. Slaughter, Mr. C. E. Cutbill, Mr. W. H. Wakeley, Mr. E. Mawley, Mr. H. K. Mayor, of Winchmore Hill; Mr. A. Kreesman, Mr. H. Robins, Mr. J. P. Kitching, Mr. J. Wakeley, Mr. W. Webster, and Mr. M. A. Roberts.

It is not determined that the Mansion House Rose Show shall become an annual affair, but such a result is likely.

CRYSTAL PALACE ROSE SHOW, JULY 1.

The soundness of the opinion expressed in these pages a few weeks since, that the roses would be unusually good this season, was forcibly demonstrated at the rose show held at Sydenham on July 1, for the rosarians mustered in strong force from all parts of the country, the whole of the prizes were severely contested, and the flowers were remarkable for their high quality and their great uniformity. There was, of course, a considerable difference in the relative merits of the roses staged in the various stands, but it was much less so than in most seasons, and the exhibition was quite free from decidedly inferior flowers. The trade classes were exceptionally well filled, and contained the finest flowers in the show, and whilst the amateur growers exhibited in a manner that brought them much honour, it must be confessed that the magnificent stands from Exeter and Hereford, which have been so conspicuous for many years past, were much missed. On this occasion the roses were arranged in the north and south naves, and although the division gave the impression that the show was less extensive than was really the case, it was decidedly advantageous, for by separating the visitors it afforded them a better opportunity of inspecting the blooms than has been possible when the stands have been placed together in the north nave.

TRADE CLASSES were exceptionally well filled, and in them the roses were of high quality throughout. Very severe was the competition in the great class for seventy-two single trusses, and at the head of the competitors in point of quality was Mr. B. R. Cant, Colchester, who, however, failed to secure the first place through his staging by mistake two blooms of Madame Nachury. That it was a mistake there could be no doubt, as each bloom had its proper name attached, and this view of the case was taken by the judges, who were unanimous in the award of an extra prize. This grand collection consisted of Pitord, Madame Marie Verdier, Mrs. Harry Turner, a brilliantly-coloured flower, useful for exhibition and invaluable for the garden; La Duchesse de Morny, Victor Verdier, Prince Arthur, Madame Charles Wood, Princess Mary of Cambridge, Ferdinand de Lesseps, Annie Laxton, Horace Vernet, Constantine Fretiakoff, Dr. Andry, Maréchal Niel, small, the weakest flower in the stand; Cheshunt Hybrid, Elie Morel, Comtesse d'Oxford, Madame Eugène Verdier, Magna Charta, Abel Grand, Marie Rady, Julius Finger, Sénateur Vaisso, Madame Nachury, Auguste Rigotard, La Boule d'Or, John Hopper, Comtesse de Sorenyo, Madame Clémence Joigneaux, Louise Peyronney, Emily Laxton, Triomphe de Rennes, Mrs. Baker, Madame Bravy, Exposition de Brie, Marquis de Castellano, Fishor Holmes, Mons. Noman, Général Jaquemiot, Le Havre, Barthélemy Levot, Madame Ducher, Marquis de Mortemart, Etienne Lovet, Madame Charles Truffaut, Duke of Teck, Captain Christy, Comtesse de Paris, Mdlle. Marie Cointet, Louis Van Houtte, Rubens, Reynolds Hole, François Nicholson, François Louvat, Madame Willermoz, Dupuy Jamain, Marie Van Houtte, Duchess of Bedford, La Franco, Duke of Edinburgh, Devoniansis, Charles Lefebvre, Duchesse de Valombrosa, Duke of Wellington, Marguerite de St.-Amand, Star of Waltham, Souv. d'un Ami, Alfred K. Williams, Madame Gabriel Luizot, Marie Baumann, and Baroness Rothschild. Messrs. Paul and Son, Cheshunt, who were awarded the first prize, staged splendid blooms, although a trifle too far advanced. The varieties represented in their collection were Madame Isaac Perriere, Madame Charles Wood, Magna Charta, Marie Baumann, Mons. Noman,

Ferdiand de Lossops, Captain Christy, Etienne Levot, Madame Lacharme, Alfred K. Williams, Mdlo. Mario Finger, Prince Arthur, Duchesse de Valombrosa, Comte Raimbaud, Mdlo. Thérèse Levot, Masterpicco, Devoniensis, Xavier Olibo, Abel Grand, Camille Bernardin, Marguerite de St.-Amand, Charles Lefebvre, Madame Hippolyte Jamain, Marchioness of Exeter, Duke of Edinburgh, Emily Laxton, Sénateur Vaisse, La Duchesse de Morny, Countess of Rosebery, Exposition de Brie, Hélène Paul, a new variety of great promise, the flowers large, globular, with fine petal, and of a delicate blush colour; Charles Darwin, Mdlo. Eugénie Verdier, Général Jacqueminot, Egeria, Alfred Colomb, Madame Gabriel Luizet, Duke of Teck, Catherine Mermet, Beauty of Waltham, Souv. de la Malmaison, Madame Nachury, Comtesse de Choiseul, a splendid reddish crimson rose; Le Havre, La France, Star of Waltham, Comtesse d'Oxford, Duchesse de Caylus, Centifolia rosea, Mdle. Marie Pernet, Madame Alice Dureau, John Stuart Mill, Madame Clémence Joigneaux, May Quonnell, Comtesse de Serenye, Horace Vernet, Clothilde Rolland, Duke of Wellington, Niphetos, Maurice Bernardin, François Michelon, Ferdinand Chaffolte, Mons. George Moreau, Mdle. Marie Rady, Mdle. Marie Cointet, Duchess of Bedford, Abel Carrière, La Fontaine, Madame Ducher, Penelope Mayo, and a seedling. Messrs. Cranston and Co., Hereford, second with flowers of medium size, fresh and good quality; Messrs. Curtis, Sandford, and Co., Torquay, third.

The trade class for forty-eight varieties, three trusses of each, was exceptionally well filled, and the flowers staged in it produced a rich and satisfactory display. Messrs. Paul and Son had evidently thrown their whole strength into this class, and were first with superbly-developed blooms of Duchesse de Valombrosa, Camille Bernardin, Marie Baumann, Madame Lacharme, Captain Christy, Star of Waltham, Alfred K. Williams, the finest of the many splendid blooms of this excellent rose in the exhibition; Mons. Noman, Mdle. Marie Finger, Ferdinand de Lesseps, Comte Raimbaud, La Duchesse de Morny, Madame Hippolyte Jamain, Xavier Olibo, Etienne Levot, Centifolia rosea, Egeria, Charles Darwin, Madame Charles Wood, Pride of Waltham, La France, Alfred Colomb, Charles Lefebvre, Emily Laxton, François Michelon, Prince Arthur, Exposition de Brie, Souv. de la Malmaison, Elie Morel, Rosieriste Jacobs, Souv. d'un Ami, Countess of Rosebery, Princess Beatrice, Maurice Bernardin, Annie Laxton, Mdle. Marie Cointet, Beauty of Waltham, Baroness Rothschild, Clothilde Rolland, Comtesse de Camando, a small crimson-scarlet flower of good quality; Madame Isaac Perrière, Abel Carrière, Sénateur Vaisse, Mdle. Eugénie Verdier, Comtesse d'Oxford, Comtesse de Serenye, Mdle. Marie Rady, and Marquise de Castellane. Mr. Charles Turner, was second with flowers of good size, highly finished, and of splendid colour, Boildieu, Marie Baumann, and Camille Bernardin being especially good. Mr. Turner had in his stand three trusses of King of Bedders, a scarlet hybrid perpetual, useful perhaps for garden decorations, but as shown of no value for exhibition purposes. Messrs. Cranston and Co. were third with flowers of a most meritorious character, the three blooms of Mons. Noman being well high perfect in finish.

The nurserymen's class for twenty-four hybrid perpetuals, three trusses of each, was particularly strong, no less than fourteen competitors contesting the prizes. The post of honour was occupied by Mr. B. R. Cant with an excellent stand, in which the magnificent blooms of Marie Baumann, Alfred Colomb, La France, Alfred K. Williams, and Prince Arthur were conspicuous. Mr. C. Turner was second with superb blooms, amongst which Constantine Fretiakoff and Ferdinand de Lesseps were the most noteworthy; Mr. Frank Cant, Mile End Nursery, Colchester, third. In the class for twenty-four varieties, single trusses, Mr. C. Turner was first with splendid flowers of Madame Marie Verdier, Madame Victor Verdier, La France, Marie Louise Pernet, Général Jacqueminot, Marquise de Mortemart, Alfred K. Williams, Alfred Colomb, Duke of Connaught, Camille Bernardin, Baroness Rothschild, Penelope Mayo, Captain Christy, Beauty of Waltham, Dr. Andry, Mons. E. Y. Teas, Sénateur Vaisse, Elie Morel, Le Havre, Marguerite de St.-Amand, Comtesse de Serenye, Star of Waltham, and Sir Garnet Wolseley; Mr. F. Cant was second with capital flowers, and Messrs. Cranston and Co. third.

Numerous beautiful stands of tea-scented roses were staged in the class set apart for nurserymen, and the premier award was made in favour of Mr. B. R. Cant, who contributed excellent blooms of Souv. d'un Ami, Madame Caroline Kuster, Souv. d'Elise Vardon, Madame Bravy, Rubens, Jean Ducher, President, Marie Van Houtte, Souv. de Paul Neyron, Devoniensis, Innocente Pirola, and Madame Jules Margottin; Messrs. Mitchell and Son, Piltown Nursery, Uckfield, Sussex, a close second, and Messrs. Cranston and Co. third.

AMATEURS' CLASSES were well filled, although many who had entered failed to put in an appearance, and the flowers were on the whole of high-class quality. The competition was fairly spirited in the leading classes for forty-eight single trusses, and Mr. Rushmore, gardener to Sir C. R. Rowley, Bart., Tending Hall, Colchester, was awarded the first prize for blooms of good size, quality, and colour. The varieties represented were John Bright, Madame Victor Verdier, Triomphe de Rennes, Charles Lefebvre, Rubens, Maurice Bernardin, Jean Ducher, Mme. George Paul, Dupuy Jamain, Baroness Rothschild, Etienne Levot, Alfred K. Williams, Thomas Mills, Richard Wallace, Lyonnais, Duke of Edinburgh, Mme. Lacharme, Avocat Duvivier, Rêve d'Or, Sultan of Zanzibar, Camille Bernardin, Mdle. Marie Cointet, Prince de Portia, Homer, Mme. Margottin, Annie Wood, Julie Touvais, Abel Carrière, Mons. E. Y. Teas, Général Jacqueminot, Belle Lyonnaise, Xavier Olibo, Miss Hassard, Edouard Morren, Marguerite de St.-Amand, Duke of Wellington, Niphetos, Duchesse de Caylus, Mrs. Baker, François Michelon, Dr. du Chalus, La France, Mdle. Marie Rady, Pitord, Catherine Mermet, Marie Baumann, Mme. Clert, and Jules Margottin, the last-mentioned now quite unfit for exhibition purposes. Mr. G. P. Hawtreay, Aldin House, Slough, second with a good stand, although the flowers were very unequal in merit. Especially noteworthy for their splendid quality were Horace Vernet, Charles Lefebvre, and Annie Wood. Mr. J. Davis, Wilton, Salisbury, third. In the class for thirty-six the flowers were on the whole of finer quality than in that for forty-eight, and the prizetakers were Mr. Harrington, gardener to E. Mitchell, Esq., Corbets Tey, Romford, Mr. J. Sargent, Reigate, and Mr. Rushmore. For twenty-four varieties, three trusses of each, Mr. G. P. Hawtreay and Mr. John Hollingsworth were first and second; and in the class for twelve Mr. Pemberton, Mr. Harrington, and Mr. Evans, Marston, Oxford, were the prizetakers in the order of their names.

Tea-scented roses were admirably shown by amateurs, and in the class for twelve Mr. Harrington was first with excellent blooms of Julius Finger, Catherine Mermet, Madame Sertot, Amazone, Marie Van Houtte, Madame Hippolyte Jamain, Souvenir d'un Ami, Souvenir d'Elise Vardon, Rubens, Madame Lambard, and Perle des Jardins; Mr. Hawtreay second.

OPEN CLASSES made provisions for collections of yellow, of white, of pink,

of crimson, and of velvety crimson roses, and for stands of specified varieties or varieties of a similar colour to those enumerated. There was a good competition for the prizes for a collection of crimson roses, and Mr. B. R. Cant was first with fine blooms of Alfred K. Williams, Marie Baumann, Madame Alfred de Mesnil, Sénateur Vaisse, Duke of Teck, Dr. Andry, Dr. du Chalus, Dupuy Jamain, and Comtesse d'Oxford; Mr. F. Cant third, and Mr. Rumsey, Joyning's Nursery, Waltham Cross, fourth. Mr. B. R. Cant was also first for a collection of white roses, and staged good blooms of Madame Bravy, Souvenir de Paul Neyron, Madame Willermoz, Souvenir d'Elise Vardon, Devoniensis, Rubens, Innocente Pirola, Madame Lacharme; Messrs. Cranston and Co. were second, and Messrs. Paul and Son third. The best collections of yellow roses were shown by Mr. B. R. Cant and Mr. Mattocks, who were first and second respectively. Mr. B. R. Cant, Messrs. Paul and Son, and Mr. Rumsey were the prizetakers for collections of pink roses; and for velvety crimson roses the prizes were awarded to Mr. B. R. Cant, Mr. Turner, and Messrs. G. Cooling and Sons, Bath. For twelve trusses of Captain Christy or other varieties of similar colour Mr. B. R. Cant and Messrs. Paul and Son were first and second with the variety named, and Messrs. Cranston and Co. third with La France. Twelve trusses of François Michelon or other variety, Mr. Farren and Mr. J. Sargent first and third with the rose specified, and Mr. Grant, Ledbury, second with Marquise de Castellane. For twelve trusses of Prince Camille de Rohan or variety similar to it Messrs. Paul and Son were first with Abel Carrière, and Mr. C. Turner second with Charles Darwin. The first and second prizes for twelve trusses of any tea-scented or noisette were awarded to Mr. B. R. Cant and Mr. Mattocks, who staged Devoniensis and Souvenir d'un Ami respectively. The prizes for twelve trusses of Marie Baumann, or similar variety, were awarded to Messrs. Curtis, Sandford, and Co., Messrs. Paul and Son, and Mr. B. R. Cant, the two first-mentioned firms staging the variety mentioned, and the last-mentioned exhibitor Etienne Levot.

NEW ROSES had no special provisions made for them, and were limited to the three or four varieties exhibited by Mr. Bennett, of Sunbury. These were *Her Majesty*, a grand hybrid perpetual, the flowers globular, very large, quite full, of splendid form, and of a delicate pink colour; *Earl of Pembroke*, a fine hybrid tea, the flowers large, globular, of fine form, quite full, and of a rich crimson-scarlet and delightfully fragrant; *Lady Mary Fitzwilliam*, a beautiful hybrid tea, the flowers globular, somewhat pointed in the bud, very full, and of beautiful shape, the colour delicate pink; a fine flower presenting a very beautiful appearance when about half expanded; *Distinction*, a charming hybrid tea, the flowers of medium size, the colour bright pink, carmine-pink in the centre; *Heinrich Schultze*, a promising hybrid perpetual, with well-formed flowers of a deep pink colour.

MISCELLANEOUS CONTRIBUTIONS included a splendid collection of gloxinias from Messrs. H. Cannell and Sons, Swanley, which, tastefully arranged with ferns, had a remarkably attractive appearance; a fine group of tuberous begonias and several excellent dishes of grapes from Messrs. J. Laing and Co., Forest Hill; and several fine stands of roses from Messrs. Osborne and Sons, Fulham.

RICHMOND HORTICULTURAL SOCIETY, JUNE 29.

The annual exhibition of this society, held on the above date, was so extensive, and the productions generally of such a high order of merit, that it may be safely described as the very best of the many successful horticultural gatherings at Richmond, and an honour to the town. Upon this point there appeared to be a general concurrence of opinion, and there were not wanting those who considered the exhibition one of the very best of its class of the current season. As in previous years, the show was held in the Old Deer Park, which from its contiguity to the town, its great area, and its splendid trees, is admirably adapted to the purpose to which it was put on this occasion. The four or five immense marquees, which were erected near the entrance from Richmond Green, were filled to repletion, the productions comprising all classes of ornamental plants, all fruits and vegetables in season, and all descriptions of floral decorations, and affording as satisfactory a demonstration of British horticulture as could well be desired. The eminently satisfactory character of the exhibition is more especially gratifying, as in the course of the afternoon it was visited by the Belgian horticulturists, who, it may be added, expressed themselves as being both surprised and gratified by the display. The attendance of visitors during the early part of the afternoon appeared to be hardly so large as on previous occasions, but there was a large assemblage to meet the Duke and Duchess of Teck, who visited the show between four and five o'clock, and in the evening the tents and space near them were crowded. The weather had a threatening appearance throughout the day, but, fortunately for the society and the visitors, no rain of any consequence fell.

STOVE AND GREENHOUSE PLANTS in bloom were shown in capital style, and in the class for nine Messrs. Jackson and Son, Kingston, were first with large splendidly-flowered specimens of *Ixora Williamsii*, *Allamanda Cathcarti*, *Statice profusa*, *Rondeletia speciosa* major, a fine old stove plant seldom seen at the public exhibitions; *Plumbago capensis*, *Erica ventricosa* Bothwellii, and *Kalosanthes* Dr. E. Regel, a superb variety bearing large trusses of a glowing crimson colour and of immense value for summer exhibitions; Messrs. Peed and Son, Lower Streatham, second. In the amateurs' class for six Mr. C. Attrill, Bank Grove, Kingston, was first, and Mr. Bowell, gardener to Lady Parker, Stawell House, Richmond, second with most excellent collections. In competition for the Veitch Memorial prize, for a single specimen, Mr. Hinnell, gardener to F. A. Davis, Esq., Anglesea House, Surbiton, received the award, consisting of a medal and £5, for an immense example of *Erica tricolor* dumosa.

ORCHIDS were well shown by Mr. H. James, Mr. Hinnell, and Messrs. Jackson and Son, the various collections including good specimens of well-known subjects.

FERNS were plentiful and good, and the most successful exhibitors in the several classes were: Mr. B. Morrell, Richmond, Mr. G. Stevens, Putney, Mr. D. East, East Sheen, Mr. C. Prickett, Mr. J. W. Wells, and Mr. C. Waite, and in the several collections the adiantums, davallias, gymnogrammas, nephrolepis, and the arborescent kinds which are usually seen at the public exhibitions were admirably represented.

SOFT-WOODED plants in bloom formed a very important and attractive feature. Pelargoniums were of exceptional merit, and in the class for six show varieties Mr. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, was first with large grandly-flowered specimens of *Harlequin*, *Madame Thibaut*, *Setting Sun*, *Duchesse de Morny*, *Robina*, and *Prince Leopold*, all of which, with the exception of the last-mentioned, belong to the decorative section. Mr. J. Croxford, gardener to Mrs. Dunnage, Surbi-

ton, was a close second with smaller but well flowered and finished examples of Sappho, the finest of all the rose-coloured show flowers; Maid of Honour, Royalty, Rob Roy, Isabella, and Pericles, the last-mentioned of good quality, but very ineffective in colour. Mr. Wiggins was also first in the class for six fancies, and staged excellent specimens, and Mr. Croxford was second. Ivy-leaved varieties were also grandly shown by Mr. Wiggins, and in the classes for variegated varieties Mr. Tipping was first, and Mr. J. W. Wells second. Fuchsias were, as at other exhibitions of the current season, exceptionally good, and chief among the exhibitors of these elegant flowers was Mr. Morrell, who was first for nine and for six; Mr. Morrell's first-prize nine comprised large and splendidly-furnished specimens of Arabella Improved, Prince of Wales, Princess of Wales, John Gibson, Emperor of Germany, Albert Memorial, Aurora superba, Galatea, and Marginata. Mr. Beckett, Esber, second, and Mr. Bond, Teddington, third. In Mr. Bond's group was an example of Earl of Beaconsfield, which was so splendidly flowered and highly finished that it may be safely described as the finest fuchsia in the exhibition. Mr. Prickett and Mr. Wells exhibited capital collections of six. Tuberous begonias were admirably represented by collections from Mr. Sallows and Mr. Prickett. Gloxinias were fully up to the high average of the Richmond shows, and Mr. Morrell was, as usual, at the head of the competitors. Mr. G. Stevens also exhibited well in the class for gloxinias. Lilies were splendidly shown by Mr. F. R. Kinghorn, Sheen Nursery, Richmond, who was awarded the first prize for six; and an excellent collection came from Mr. Hughes, Richmond. The competition for Mr. Rutter's prizes for six achimenes was very spirited, and the specimens staged by Mr. Sallows, Mr. E. Beckett, and Mr. T. Gregory, to whom the awards were made, were of large size and grandly flowered.

FINE-FOLIAGE PLANTS were staged in considerable numbers, and included numerous collections of great merit. In the class for twelve Mr. W. Bates, Poulett Lodge, Twickenham, was first with good specimens of well-known subjects; Mr. Hichle was a capital second, and Mr. Prickett third. Mr. Kinghorn's prizes for a single specimen plant were contested with much spirit, and the successful competitors were: Mr. Gregory, Teddington, Mr. Prickett, Mr. Beckwith, and Mr. Bowell. Coleus were presented in capital style by Mr. C. Attrill, Mr. Wells, and Mr. Sallows. Good collections of caladiums came from Mr. East, Mr. Wigan, and Mr. Sallows; and admirable collections of ornamental-leaved begonias were staged by Messrs. Sallows, Morrell, and East.

CUT FLOWERS, which consisted chiefly of roses, produced a very beautiful and attractive display. There were upwards of twelve classes of roses, all of which, with but one or two exceptions, were well filled, and the blooms staged would of themselves have formed a very respectable show. In the open classes for thirty-six varieties, three trusses of each, Messrs. Paul and Son, Cheshunt, and Mr. Rumsey, Waltham Cross, were first and second, and the awards for twenty-four varieties, three trusses, were made to the same exhibitors, and in the same order. In the other classes the most successful of the many exhibitors were Mr. C. Warwick, Hampton; Mr. Stephenson, Teddington; Mr. J. W. Moorman, Kingston; Mr. G. Mawley, Mr. Lambert, Mr. W. Bates, Mr. E. Lake, Twickenham, and Mr. W. Croker. In the classes for cut flowers other than roses the principal awards were made in favour of Messrs. Hooper and Co., Mr. W. Brown, Mrs. Holford, Mr. W. Bates, and Mr. Bowell. Table decorations, vases, and bouquets were exhibited in large numbers, and as in former years constituted a very attractive feature. To deal with the contributions in detail is out of the question, but it may be said that in several of the classes the judges gave the preference to mere novelty and ignored sound taste.

FRUIT, in response to the liberal encouragement afforded, was shown in immense quantities, and in splendid style. In the great open class for a collection of six dishes, Mr. Wildsmith, Heskfield was first with splendid dishes of Black Hamburg and Muscat of Alexandria grapes, Brown Turkey figs, Bellegarde peaches, a good Heckfield Hybrid melon, and a well-finished Queen pine. Mr. Hudson, Gunnersbury House, Acton, second, with a fine collection, in which Lord Napier nectarine, and Foster's Seedling grape were noteworthy; Mr. Davis, Roebampton Park, third. Much interest centred in the competition for the Veitch Memorial prize for two bunches of black grapes, and in the result the award was made in favour of Mr. Hudson, who had two bunches of Madresfield Court, which in all but colour, which was slightly deficient, were absolutely perfect. Mr. Wildsmith staged in the class two fine bunches of Black Hamburg, rather small in berry, but splendidly coloured. In the ordinary classes for black grapes Mr. Feist, Bishopsgate House, Staines, Mr. Bates, Mr. M. Davis, Mr. Wells, Mr. Fyfe, and Mr. Nunn, were the prizetakers; and the principal exhibitors of white grapes were Mr. J. Wagstaffe, Mr. Feist, Mr. J. Osborne, Richmond, and Mr. Elam, Isleworth. In the class for nine peaches Mr. Sallows was first with good fruits of Téton de Venus, and Mr. Lake was a very close second with Noblesse. The exhibitor last mentioned was first for nectarines with Violette Hâtive.

VEGETABLES were numerous and good, and formed an important part of the exhibition. In the great open class for a collection of twelve kinds Mr. Beckett, Esber, was first with fine examples of Telegraph peas, Woodstock kidney potatoes, Holloway's Excelsior tomatoes, Carters' Levathan Longpod beans, Snowball turnips, Globe artichokes, Suttons' Improved Telegraph cucumber, and Suttons' Superb Cos lettuce. In the two other classes for collections Mr. J. Wagstaffe, Mr. J. Edy, Mr. B. Morrell, and Mr. W. Brown were the principal prizetakers. In competition for Messrs. Carter and Co.'s prizes for four dishes of peas Mr. Williams, Mr. Chettloborough, Mr. Beckett, and Mr. R. Phillips received the awards in the order of their names. Messrs. Suttons' prizes for cucumbers were awarded to Mr. C. Waite and Mr. J. Coomber. Mr. Waite also took the first prize for Daniels' Defiance cucumber.

NATIONAL ROSE SOCIETY.—EXHIBITION AT SOUTH KENSINGTON, JULY 4.

The exhibition of the National Rose Society was held at South Kensington on Tuesday last, and the flowers staged were so large in number, and the average quality so high, that it may be safely pronounced the finest show yet held under the auspices of the society. The flowers were arranged in the conservatory and the quadrants to the right and left, and their distribution over the large space at disposal afforded visitors a good opportunity of inspecting the various stands in comfort; but the exhibition, broken up as it was into three parts, failed to impress the visitor with its extent and importance. The trade contributions were staged in the eastern quadrant, and formed the finest part of the show, for the flowers in the leading stands were of the highest quality, and the inferior blooms formed a much smaller proportion than in the amateurs' division.

TRADE DIVISION.

The classes provided for nurserymen were broken up into two groups, each exhibitor being allowed to show in one group of classes only. The leading class in the trade division was, as usual, for seventy-two varieties, single trusses, and in this the first prize consisted of a challenge trophy of the value of sixty guineas and £5 in cash. The competition was very keen, as nearly all the leading growers took part in it, and Mr. B. R. Cant, Colchester, who was successful in winning the trophy last year, occupied the post of honour with a stand of magnificent blooms; Messrs. Cranston and Co., Hereford, were second; Messrs. Paul and Son, Cheshunt, third, and Messrs. Curtis, Sandford, and Co., Torquay, fourth, all of whom had splendid stands of blooms.

MR. B. R. CANT'S FIRST-PRIZE SEVENTY-TWO consisted of the following, which, it may be observed, were remarkable for their size, finish, and colour, namely, Baroness Rothschild, Duke of Connaught, extra fine; Souvenir d'Elise Vardon, a magnificent bloom, to which the silver medal for the best bloom of a tea-scented variety in the show was awarded; Etienne Levet, Egeria, Alfred Colomb, Madame Gabriel Luizet, a good flower, on which the silver medal for the best hybrid perpetual bloom was conferred, but not better than many other blooms in the exhibition; Exposition de Brie, Innocente Pirola, Charles Lefebvre, Maréchal Niel, Duke of Wellington, Captain Christy, Madame Ducher, Madame Lambert, Duke of Teck, Madame Lacharme, Comtesse d'Oxford, Marquise de Mortemart, Madame Clémence Joigneux, Marie Van Houtte, Duke of Edinburgh, François Michelin, Xavier Olibo, Madame Hippolyte Jamain, Dr. du Chalus, Countess of Rosebery, Madame Charles Wood, Souv. d'un Ami, Antoine Ducher, Mdlle. Marie Finger, Marie Rady, Louise Peyronney, Souv. de Mons. Boll, Rubens, Marie Baumann, Marchioness of Exeter, Général Jacqueminot, Madame Hippolyte Jamain, tea scented, Ville de Lyon, Madame Caroline Kuster, Mons. E. Yeas, Gloire de Vitry, Alfred K. Williams, Clothilde Rolland, Camille Bernardin, Princess Beatrice, John Stuart Mill, Elie Morel, Le Havre, Hippolyte Jamain, Sénateur Vaisse, Marguerite de St.-Amand, Louis Van Houtte, Mons. Noman, Penelope Mayo, Devoniensis, Mrs. Baker, Fisher Holmes, Moire, Madame Eugène Verdier, Madame Victor Verdier, Marquise de Castellane, Pierre Carot, Mdlle. Bonnaire, Victor Verdier, La France, Sultan of Zanzibar, Emily Laxton, Prince Arthur, John Hopper, and Star of Waltham.

The prizes for forty-eight varieties, single trusses, were contested with much spirit, and in the result Mr. F. Cant, Colchester, was awarded the first, and Mr. J. Walters, Mount Radford Nursery, Exeter, was second; Messrs. G. Bunyard and Co., Maidstone, third, and Messrs. Davison and Co., Hereford, fourth. The flowers in the winning stands were of high quality and very even.

MR. F. CANT'S FIRST-PRIZE FORTY-EIGHT were, Exposition de Brie, Catherine Mermet, Mdlle. Marie Rady, Marquise de St.-Amand, Madame Victor Verdier, Souvenir d'un Ami, Marie Baumann, Madame Willermoz, Duke of Edinburgh, Louise Peyronney, Comtesse d'Oxford, Jean Ducher, Pitord, Annie Laxton, Général Jacqueminot, Elie Morel, Horace Vernet, Nipbetos, Antoine Ducher, Madame Lacharme, Fisher Holmes, Etienne Levet, Ferdinand de Lesseps, Mdlle. Marie Cointet, Alfred Colomb, Souv. d'Elise Vardon, François Louvat, Princess Mary of Cambridge, Xavier Olibo, Captain Christy, Alfred K. Williams, John Hopper, Duke of Wellington, Mdlle. Marie Finger, Dr. Andry, Madame George Schwartz, Louis Van Houtte, Baroness Rothschild, Victor Verdier, Duchesse de Valombrosa, Madame Charles Wood, Devoniensis, Le Havre, Marquise de Castellane, Sir G. Wolseley, La France, Madame Charles Crapelet, and François Michelin.

In the classes for twenty-four varieties, single trusses, there were seven competitors, and the prizes were awarded to Messrs. Laing and Co., Forest Hill, S.E., Messrs. Kinmont and Kidd, Canterbury, and Messrs. Osborn and Sons, Fulham, in the order of their names, all of whom staged highly meritorious flowers, as also did Mr. W. Rumsey, Waltham Cross.

MESSRS. J. LAING AND CO.'S FIRST-PRIZE TWENTY-FOUR comprised, Comtesse de Serenye, Charles Darwin, Madame Gabriel Luizet, Comtesse d'Oxford, Madame Eugène Verdier, La France, Countess of Rosebery, François Michelin, Victor Verdier, Marquise de Castellane, Mrs. Laxton, Baroness Rothschild, Nipbetos, Louis Peyronney, Marie Baumann, Cheshunt Hybrid, Alfred K. Williams, Etienne Levet, La Duchesse de Morny, Horace Vernet, Madame Victor Verdier, Star of Waltham, Madame Lacharme, and Mons. Boncenne.

The stands contributed to the classes in which each variety had to be represented by three trusses produced a most effective display. For thirty-six varieties, three trusses of each, Messrs. Paul and Son were first with a magnificent lot of flowers; Mr. B. R. Cant second, Messrs. Cranston and Co. third, and Mr. C. Turner, Slough, fourth. For twenty-four varieties, three trusses, the prizes were awarded to Messrs. Curtis, Sandford, and Co., Torquay, Mr. B. R. Cant, and Messrs. Cranston and Co. in the order of their names; and for eighteen triples Mr. J. Walters, Mr. F. Cant, Messrs. Davison and Co., were first, second, and third respectively.

MESSRS. PAUL AND SON'S FIRST-PRIZE THIRTY-SIX, THREE TRUSSES.—Sénateur Vaisse, François Michelin, Général Jacqueminot, Mons. Noman, Hippolyte Jamain, Annie Laxton, Madame Hippolyte Jamain, Souv. d'un Ami, Mrs. Laxton, Horace Vernet, Baroness Rothschild, Camille Bernardin, Prince Camille de Rohan, La France, Maréchal Niel, Captain Christy, La Duchesse de Morny, Comtesse d'Oxford, Louis Van Houtte, Reynolds Hole, Sénateur Vaisse, Comtesse de Serenye, Duke of Edinburgh, Mdlle. Marie Cointet, Exposition de Brie, Etienne Levet, Madame Clémence Joigneux, Souv. d'Elise Vardon, Mdlle. Marie Finger, Ferdinand de Lesseps, Elie Morel, Marquise de Castellane, Marie Baumann, Marguerite de St.-Amand, Dr. Andry, and Devoniensis.

MESSRS. CURTIS, SANDFORD, AND CO.'S FIRST-PRIZE TWENTY-FOUR, THREE TRUSSES.—Mons. E. Y. Teas, La Duchesse de Morny, Alfred Colomb, Magna Charta, Madame Gabriel Luizet, Beauty of Waltham, Madame Victor Verdier, Marguerite de St.-Amand, Mdlle. Marie Verdier, Alfred K. Williams, Mdlle. Marie Rady, Louise Peyronney, Captain Christy, Marie Baumann, Barthélemy Joubert, Mdlle. Eugénie Verdier, Comtesse de Serenye, Sénateur Vaisse, Camille Bernardin, Maréchal Niel, Duchesse de Valombrosa, Général Jacqueminot, Princess Mary of Cambridge, and Prince Camille de Rohan.

MR. J. WALTERS' FIRST-PRIZE EIGHTEEN, THREE TRUSSES.—Marquise de Castellane, Louis Van Houtte, Alfred K. Williams, Marquise de Mortemart, Ferdinand de Lesseps, Marguerite de St.-Amand, Marie Baumann, Mdlle. Eugénie Verdier, Madame Gabriel Luizet, Mons. E. Y. Teas, Charles Lefebvre, La France, Prince Camille de Rohan, Baroness Rothschild, Mrs. Jowitt, Annie Laxton, John Hopper, and Charles Darwin.

The tea-scented varieties and noisettes were contributed in superb condition in the two trade classes. There were six competitors in the class for

eighteen, and Mr. G. Prince was first, Messrs. J. Mitchell and Sons, Uckfield, second, Mr. B. R. Cant third, and Messrs. Paul and Son, fourth. For twelve varieties there were eleven entries, and the prizetakers were Mr. J. Mattocks Marston, Oxford, Mr. W. Farren, Cambridge, Messrs. G. Bunyard and Co., and Messrs. R. Veitch and Son, Exeter, in the order of their names.

MR. G. PRINCE'S FIRST-PRIZE EIGHTEEN TEAS AND NOISETTES.—*Souvenir d'Elise Varden*, Jean Ducher, Catherine Mermet, Anna Olivier, *Souv. de Madame Pernet*, Albarosea, Marie Van Houtte, *Souv. d'un Ami*, Maréchal Niel, Marcelino Rhola, Rubens, Amazone, Innocente Pirola, Adam, Mous. Furtado, Comtesse de Nadaillac, Devoniansis, and *Souv. de Paul Neyron*.

MR. J. MATTOCKS'S FIRST-PRIZE TWELVE TEAS AND NOISETTES.—Albarosea, Comtesse de Nadaillac, Marie Van Houtte, Jean Pernet, Anna Olivier, Devoniansis, Catherine Mermet, *Souv. d'un Ami*, Triomphe de Rennes, Niphetos, *Souvenir d'Elise Varden*, and Maréchal Niel.

AMATEURS' DIVISION.

In this division there were twelve ordinary classes arranged in three sections, each exhibitor being allowed to compete in only one of the sections. The most important of the classes in the division was that for thirty-six varieties, single trusses, in which the premier award consisted of a challenge trophy of the value of sixty guineas and £5 in cash. In the class there were fifteen entries, and at the head of the competitors was Mr. E. R. Whitwell, Barton Hall, Darlington, whose stand was covered with black velvet instead of moss, and contained flowers of large size and splendid quality; Mr. J. Brown, Reigate, was second; Mr. Davies, Anyhoe, Banbury, third, and Mr. Harrington, Corbets Tey, fourth.

MR. WHITWELL'S FIRST-PRIZE THIRTY-SIX consisted of La France, May Quennell, Madame Eugène Verdier, Charles Lefebvre, Mons. Noman, Marie Baumann, Abel Grand, Lord Macaulay, Madame Lacharme, Madame Charles Wood, Marguerite de St. Amand, Sir G. Wolsley, Baroness Rothschild, Duke of Teck, Marquis de Gibot, Marquise de Castellane, Xavier Olibo, Madame Prosper Laugier, Duke of Edinburgh, Madame Gabriel Luizet, Fisher Holmes, Mdlle. Marie Rady, François Michelin, Duke of Wellington, Annie Laxton, Comtesse de Serenye, Madame Hippolyte Jamain, Prince Camille de Rohan, John Hopper, Dupuy Jamain, Duchesse de Valombrosa, Le Havre, Princess Mary of Cambridge, Dr. Andry, Hippolyte Jamain, and Sénateur Vaisse.

A very large number of exhibitors contested the prizes for twenty-four, single trusses, offered in the first section, and the first place was occupied by Mr. J. Ridout, Woodhatch, Reigate, who staged a splendid stand of flowers; Miss Penrice, Norwich, Mr. C. Davis, Anyhoe, and Mr. J. Davis, Wilton, were placed second, third, and fourth, but their flowers were considerably below the mark. In the class for twenty-four in the second section Mr. G. Baker, Reigate, was first with flowers remarkable for their excellent quality; the Rev. H. A. Berners, Harstead Rectory, Ipswich, second, with fine flowers. Mr. Hobbs, Bristol, and Mr. A. Evans, equal third, and the Rev. J. H. Pemberton, fourth.

MR. RIDOUT'S FIRST-PRIZE TWENTY-FOUR consisted of Alfred Colomb, Madame Gabriel Luizet, Mons. E. Y. Teas, Mdlle. Marie Rady, Antoine Ducher, Mrs. Laxton, La France, Pride of Waltham, Louis Van Houtte, Comtesse d'Oxford, Cheshunt Hybrid, Comtesse de Serenye, Marie Baumann, Captain Christy, Duchess of Bedford, Baroness Rothschild, Etienne Levat, Dupuy Jamain, John Stuart Mill, Madame Lacharme, Alfred K. Williams, François Michelin, Annie Wood, and Duke of Edinburgh.

MR. G. BAKER'S FIRST-PRIZE TWENTY-FOUR included Annie Wood, Alfred Colomb, Charles Darwin, Captain Christy, Magna Charta, Madame Lacharme, Marquise de Castellane, Charles Lefebvre, Dupuy Jamain, Mrs. Laxton, Baroness Rothschild, Fisher Holmes, Comtesse de Choiseul, Louis Van Houtte, Madame Gabriel Luizet, La Duchesse de Morny, Marie Baumann, Etienne Levat, Boildieu, Camille Bernardin, François Michelin, Pride of Waltham, Comtesse d'Oxford, and John Stuart Mill.

Twenty cultivators entered in the class for eighteen varieties, single trusses, and Mr. A. Slaughter, Steyning, was first with flowers of a highly meritorious character; Rev. E. L. Fellowes second, Mr. Evans, Oxford, third, and the Rev. J. H. Pemberton and Mr. J. Sargent equal fourth. For twelve single trusses Mr. J. Wakely, Mr. R. Gray, Sevenoaks, and the Rev. H. B. Biron, Canterbury, were first, second, and third, and Mr. J. Sargent and the Rev. E. L. Fellowes equal fourth. In competition for the prizes for twelve varieties, three trusses of each, Mr. G. P. Hawtrey, Slough, Mr. Davis, and Mr. Cutbill were the prizetakers in the order of their names, and staged fine stands of blooms. The prizetakers for six were Mr. Burnside, Farningham, Mr. E. Mawley, Croydon, and Mr. J. Burrell; for nine, Mr. G. Mount, Canterbury, Mr. Wilkins, Sutton, and Rev. H. Foster Melliar, Bury St. Edmunds; and for twelve, Mr. H. Harris, Horsham, Mr. Wakely, Mr. J. Barton, and Mr. Roberts.

The tea-scented and noisettes were admirably shown by amateur exhibitors in the three ordinary classes. The prizes for twelve were awarded to Mr. J. Brown, Mr. Cutbill, Mr. Hall, Cheshire, Mr. Harrington, and Mr. C. Davis; for nine to Mr. G. Baker, the Rev. H. B. Biron, Mr. A. Slaughter, and Mr. J. Wakely; and for six to Mr. W. E. Hall, the Rev. F. P. Roberts, Mr. Wakely, and Mr. E. Mawley.

MR. BROWN'S FIRST-PRIZE TWELVE TEA-SCENTED AND NOISETTES were Innocente Pirola, Madame Caroline Kuster, Marie Van Houtte, Niphetos, Madame Willermoz, Catherine Mermet, Devoniansis, *Souvenir de Paul Neyrou*, Albarosea, Jean Ducher, Anna Olivier, and Madame Welche.

MR. G. BAKER'S FIRST-PRIZE NINE TEA-SCENTED AND NOISETTES consisted of Madame Lacharme, Jean Ducher, Anna Olivier, *Souvenir d'un Ami*, Devoniansis, Perle des Jardins, Catherine Mermet, Marie Van Houtte, and Albarosea.

There were five "extra" classes open to amateurs, and in these also there was a spirited competition. The most important was for a collection of twenty-four teas or noisettes, open to ladies only, and in this Mrs. Biron, Mrs. Slaughter, and Miss Pemberton were the prizetakers. The successful competitors in the two classes for suburban-grown roses were Mr. Coleby, Wimbledon; Mr. E. Berry, Roebampton; Mr. Brooklee, Wimbledon, and Mr. J. Bateman, Highgate Road, N.W. There were eighteen entries in the maiden class for six, and in the stands were some magnificent flowers, particularly in that from Canon Girdlestone, Sunningdale; Rev. A. F. Melliar, Mr. Harris, and Mr. E. Wilkins were second, third, and fourth.

OPEN DIVISION.

This division included classes for twelve new roses, for yellow, white, and crimson roses in stands of twelve trusses each, and for twelve and six trusses respectively of "any rose." For twelve trusses of any crimson rose there were about fifteen competitors, and Mr. J. Walters was first, and Messrs.

Curtis, Sandford, and Co. fourth with Marie Baumann, Mr. B. R. Cant second with Alfred K. Williams, and Mr. J. Sargent third with Alfred Colomb. For twelve trusses of any white rose Messrs. Cranston and Co. were first and Messrs. Jefferies and Sons third with Madame Lacharme, and Mr. B. R. Cant second with Devoniansis. For twelve trusses of any yellow rose Mr. G. Prince first with Jean Ducher, Mr. B. R. Cant second with Marie Van Houtte, and Messrs. Curtis, Sandford, and Co. third with Maréchal Niel. In the class for any rose Messrs. Paul and Son occupied the first place with Captain Christy, Mr. G. Prince the second with Catherine Mermet, Mr. B. R. Cant the third with La France, and Messrs. Cranston and Co. the fourth with Alfred K. Williams. For six trusses of any rose Mr. F. Cant was first with Marie Baumann, Mr. Wakely second with La France, and Mr. Mount third with Marie Baumann.

NEW ROSES were staged in much better condition than usual, and the flowers in the winning stands fairly represented the several varieties. In the open class for twelve Messrs. Paul and Son were first with an excellent stand of flowers. Messrs. Curtis, Sandford, and Co. were a close second, and Messrs. Cranston and Co. were third. The prizetakers in the amateurs' class for six were Mr. T. B. Hall, Mr. G. P. Hawtrey, and the Rev. Alan Cheales, Brockham, all of whom exhibited well.

MESSRS. PAUL AND SON'S FIRST-PRIZE TWELVE NEW ROSES.—Rosicriste Jacobs, Countess of Rosebery, Madame Ducher, Madame Isaac Perriere, R. N. G. Baker, George Moreau, *Souv. de Madame Alfred Vy*, Catherine Souper, Ferdin and Chaffolte, Julius Finger, George Baker, and Edouard Andre.

MESSRS. CURTIS, SANDFORD, AND CO.'S SECOND-PRIZE TWELVE NEW ROSES were Duke of Teck, *Souv. de Mons Drouche*, Alfred Dumesnil, Mrs. Jowitt, Mons. Alfred Leveau, Madame Julie Heidman, Rosicriste Jacobs, Lady Sheffield, Masterpiece, Mons. Tbouvenal, Mlle. Marguerite Mancin, and Comtesse de Camando.

MESSRS. CRANSTON AND CO.'S THIRD-PRIZE TWELVE NEW ROSES.—Masterpiece, Comte de Mortemart, Crown Prince, Madame Isaac Perriere, Julius Finger, Jules Jurgensen, George Moreau, Madame Montel, François Levat, Comte H. de Choiseul, Pride of Waltham, and Mlle. Marguerite Mancin.

As stated above, the silver medal for the best bloom of a hybrid perpetual in the show was awarded to Mr. Cant for a flower of Madame Gabriel Luizet, and the silver medal for the best bloom of a tea-scented variety to the same exhibitor for a flower of *Souvenir d'Elise Varden*. It now remains to be said that the silver medal for the best noisette was awarded to Mr. J. Walker for a bloom of Triomphe de Rennes.

MISCELLANEOUS COLLECTIONS.

The contributions of a miscellaneous character were not numerous, but those staged were of exceptional excellence, and well deserve fuller notice than it is now practicable to give them. Messrs. Barr and Son, King Street, Covent Garden, exhibited an immense and very attractive and interesting collection of plants and flowers of hardy herbaceous and bulbous plants. The collection sufficed to fill one half of the conservatory, and received much attention from all classes of visitors. Messrs. H. Cannell and Sons, Swanley, exhibited a large and excellent collection of show verbenas, in the cultivation of which they stand alone. Messrs. W. Paul and Son contributed a large collection of cut roses, tastefully staged in baskets and boxes. Messrs. Osborn and Sons, Fulham, also staged a good collection of cut roses.

LEE AND BLACKHEATH HORTICULTURAL SOCIETY, JUNE 28 AND 29.

This society, which has long occupied a foremost position amongst associations for the encouragement of horticultural and floricultural pursuits, held its annual exhibition on the dates given above, and having regard to its extent, the high-class character of the productions staged, the judgment with which the arrangements were conceived and carried out, and the financial results, may be described as a splendid success. The Lee and Blackheath Horticultural Society presents a very striking contrast to many local societies, for it numbers nearly, if not quite, five hundred members, and so great is the interest taken in the annual gatherings that it is a quite usual occurrence to take £100 at the gates on the second day. The grounds of "The Cedars," the residence of Mrs. Penn, were, as for many years past, placed at the disposal of the executive, and the meadow in which the tents were pitched had the appearance of a large village of canvas. Six large marquees were devoted to the various collections staged in competition for the numerous prizes, and their capacities were tested to the utmost. Stove and greenhouse plants in bloom and remarkable for the beauty of their foliage were staged in immense numbers and in splendid condition. There was a large and most satisfactory display of soft-wooded plants. Ferns were admirably represented, and fruits and vegetables were so plentiful and good that they sufficed to fill the greater part of two tents, and to form a feature of great interest. It is also worthy of note that, with the exception of two or three miscellaneous collections from nurserymen in the district, the whole of the subjects forming the exhibition were staged in the competitive classes by members of the society.

STOVE AND GREENHOUSE PLANTS in bloom were staged in large numbers and in splendid condition, a fact well deserving of special notice, because the whole of the specimens were exhibited by local growers, who do not compete at other exhibitions. The competition was very spirited in the class for eight, and the awards were made in favour of Mr. J. Smith, Mr. W. Jeffrey, and Mr. S. Reed, all of whom had fine collections, although differing in relative merit. Very keen also was the contest for the prizes in the class for four, and the first and second prizes were awarded to Mr. Buckman and Mr. Luff, who staged collections of great excellency. Heaths were admirably shown, and in competition for a single specimen flowering plant Mr. Beck was first with a beautifully-flowered *Stephanotis floribunda*, and Mr. Leigh second with a large mass of *Cyrtopodium barbatum*, and the third prize was awarded to Mr. Poole for an excellent example of *Anthurium Scherzerianum*. Mr. Luff and Mr. Lambert had good collections of orchids, and were awarded the first and second prizes in the class provided for them.

FINE-FOLIAGE PLANTS had no less than thirteen classes set apart for them, and, as the competition was very spirited throughout, they formed a very large and decidedly attractive feature. In the open class for six Mr. Lambert, Mr. S. Reece, and Mr. W. Jeffrey were first, second, and third respectively with capital collections, the crotons being remarkable for their splendid colouring. For four Mr. Fullerton and Mr. Poole were first and second with capital groups. Nine exhibitors contested the prizes for a single fine-foliage plant, and the awards were made in favour of Mr. Lambert, who

had a splendid palm; Mr. Fullerton, with an immense and superbly-finished dieffenbachia, and Mr. Poole, who staged an immense example of *Maranta zebra* in the finest possible condition. In the class for two yuccas Mr. Mullins and Mr. Lambert were first and second with capital pairs of *Yucca aloifolia variegata*. Mr. Reece and Mr. Mullins were awarded the two chief prizes for six palms, with fine collections, other exhibitors also exhibiting well. The prizetakers in the two classes for dracaenas were Mr. Reece, Mr. Buckman, Mr. W. Jeffrey, Mr. Mullins, and Mr. J. Smith, and in the several collections all the finest kinds were admirably represented. The caladiums were simply magnificent, the specimens being of immense size, and the leaves fully developed and superbly coloured. For six Mr. J. Sharpe, Mr. H. Martin, and Mr. Reece were the prizetakers in the order of their names; and in the class for four Mr. F. W. Jeffrey and Mr. Poole were first and second respectively. *Coleus*, which were admirably coloured, were admirably shown by Mr. Pavey, Mr. Mullins, and other exhibitors. Eight exhibitors contested the prizes for four ornamental-leaved begonias, and all staged specimens more or less good. The prizetakers were Mr. Beck, Mr. P. Wright, and Mr. J. Sharpe. Plants suitable for the decoration of the dinner table had three classes provided, and the most successful of the exhibitors were Messrs. Beck, Poole, Smith, Stewart, Mullins, Rainbird, Wescott, and Sharpe.

SOFT-WOODED PLANTS in bloom included splendid displays of pelargoniums and fuchsias, and numerous other subjects of great merit. The pelargoniums sufficed to nearly fill one large marquee, and the plants were all of good size, neat, and densely bloomed. In the class for six show varieties Mr. S. Reece was first, Mr. Beck second, and Mr. Martin third; and for four Mr. Sholdice, Mr. Jeffrey, and Mr. Chapple were the prizetakers in the order of their names. For four fancies Messrs. Reece, Mullins, and Davis were successful in securing the awards. The competition was keen in the class for a specimen show pelargonium, and Mr. Martin, Mr. Reece, and Mr. Beck were first, second, and third with splendid specimens. Double zonals were grandly shown, and the prizes in the three classes were awarded to Mr. Martin, Mr. Westcott, Mr. Buckman, Mr. Beck, Mr. Cole, Mr. Reece, Mr. Rainbird, and Mr. Sharpe, all of whom staged collections of great excellence, as, indeed, did several exhibitors who failed to secure a place in the prize list. Mr. Sholdice, Mr. Lambert, Mr. Jeffrey, Mr. Sharpe, and Mr. Claydon are also deserving of much praise for the high-class character of their collections of pelargoniums with ornamental leafage. Fuchsias were simply magnificent, and in the open class for six the judges found it no easy task to determine the relative merits of the first and second prize collections. Eventually the premier award was made in favour of Mr. Stewart, who staged half a dozen standards with immense and densely-flowered heads; Mr. J. Sharpe was second, and had remarkably fine pyramids, and Mr. Martin, who was third, had a good collection. Mr. Stewart was also first for a pair of standard fuchsias, with Mr. Cole and Mr. Pavey second and third. In competition for the prizes for four fuchsias Mr. Pavey and Mr. Buckman were first and second; and the prizetakers in the class for a single specimen fuchsia were Mr. Beck, Mr. Pavey, and Mr. Holden. Three classes were provided for tuberous begonias, and a goodly number of very excellent specimens were staged. For six the prizetakers were Mr. Sholdice and Mr. Stewart; and for four Mr. Beck, Mr. Garland, and Mr. J. Sharpe. In competition for Messrs. Laing and Co.'s prizes for six Messrs. W. Jeffrey, Reece, and Cole were successful. *Achimenes* consisted exclusively of specimens of immense size and superbly flowered, and it is a rare occurrence to meet with a collection to equal that shown by Mr. Beck in the class for six. Mr. Sharpe had a fine group in the class for four, and other successful exhibitors in the two classes were Mr. Reece, Mr. Chapple, and Mr. Mullins. *Gloxinias* were equally satisfactory, and the prizes for six were awarded to Mr. Sholdice and Mr. Stewart, and for four to Messrs. Beck, Stacey, and Wright. Messrs. Beck and Eggleton exhibited in the class for *calceolarias*, and the exhibitor last mentioned and Messrs. Stockwell and Chapple in that for cockscombs.

FERNS and SELAGINELLAS were up to the high average of the subjects in the other classes, and contributed not a little to the attractions of the exhibition. To deal with the numerous collections in the seven or eight classes is not practicable, in consequence of the pressure on our space, and it must suffice to say that the most successful of the exhibitors were Mr. Reece, Mr. Sholdice, Mr. Poole, Mr. W. Stewart, Mr. Lambert, Mr. Chapple, Mr. Leigh, Mr. Jeffrey, and Mr. Sharpe.

GROUPS AND COLLECTIONS of flowering and ornamental-leaved plants had a considerable number of classes provided for them, and they constituted a feature of great interest and attractiveness. In these classes Mr. Mullins, Mr. Luff, Mr. Fullerton, Mr. Beck, Mr. J. Smith, Mr. Rainbird, Mr. Poole, Mr. Martin, and Mr. Heard.

FRUITS, in collections and otherwise, were exhibited in admirable condition by Mr. Jeffrey, Mr. Buckman, Mr. Beck, Mr. Westcott, Mr. Feely, Mr. Stockwell, Mr. Hitch, and Mr. Wright, who were awarded the chief prizes.

CUT FLOWERS were admirably represented by the contributions of Mr. J. Sharpe, Mr. Edwards, Mr. Lambert, Mr. Sholdice, Mr. Poole, Mr. Luff, Mr. Stewart, Mr. Segrott, and Mr. Rainbird.

VEGETABLES, which receive special encouragement at Lee, were plentiful and of high-class quality; and the leading exhibitors were Mr. J. Smith, Mr. W. Jeffrey, Mr. Stockwell, Mr. H. Cole, Mr. E. Smith, Mr. Rainbird, Mr. Pavey, Mr. Holden, and Mr. Chapple.

The judges were Mr. John Frazer, Mr. John Laing, and Mr. George Gordon; and to Mr. Helmer, the court's secretary, Mr. B. Maller, and other members of the executive, much praise is due for the excellency of the arrangements.

ROYAL BOTANIC SOCIETY.—SECOND SUMMER EXHIBITION, JULY 5.

In the matter of weather the Royal Botanic Society was less fortunate on Wednesday than on the occasion of its first summer exhibition, for during the afternoon several heavy showers fell, which had a material influence upon the attendance of visitors, and kept those who were present under cover. The unfavourable character of the weather is much to be regretted, for the show was so remarkably good in all its chief features that in the interest of the society it would have been well for the attendance to have been fully up to the average. Although the flowering plants were, as a matter of course, fewer in number than at the May show, the large tent presented a bright and attractive appearance. Fine-foliage plants and ferns were staged in considerable numbers and splendid condition; the classes for flowering plants were fairly well filled, and, as is customary, Mr. Coomber arranged the materials at his command to the best advantage. Fruits and cut flowers formed on this occasion most important features, and the long tent usually

devoted to these important subjects was well filled, and the productions generally were of a high order of merit, the roses and grapes being particularly good.

ORCHIDS were fairly represented, and the bank on the eastern side of the large tent, which is usually devoted to them, was remarkably attractive. In the amateurs' class for twelve Mr. Spyers, orchid grower to Sir Trevor Lawrence, Bart., M.P., Barford Lodge, Dorking, was first with an excellent group consisting of medium-sized and splendidly-flowered specimens. Prominent in the collection were the fine examples of *Epidendrum nemorale*, *Vanda teres*, *Cypripedium niveum*, and *Coryanthes eximia*, on which a botanical certificate was conferred. Mr. Catt, Sydenham, was second with a most excellent collection. In the corresponding class for nurserymen Mr. H. James, Castle Nursery, Lower Norwood, was first, Messrs. T. Jackson and Son, Kingston-on-Thames, were second, and Mr. J. Cypher, Cheltenham, was third, with capital groups in which *Cattleya Mossiae*, *Masdevallia Harryana*, *Odontoglossum vexillarium*, and other well-known kinds were admirably represented. In the amateurs' class for six Mr. Spyers and Mr. Childs, gardener to Mrs. Torr, Garbrand Hall, Ewell, were first and second respectively. The first prize in the trade class for six was awarded to Mr. James.

STOVE AND GREENHOUSE PLANTS in bloom were staged in splendid condition by Messrs. T. Jackson and Son, Mr. Cypher, Mr. Childs, Mr. Wheeler, and other exhibitors. In the open class for twelve Mr. Cypher occupied the first place with an excellent collection, Messrs. T. Jackson and Son were a close second, and Messrs. B. Peed and Son, Norbury Nursery, Lower Streatham, were third. The prizetakers in the trade class for six were Messrs. T. Jackson and Son, Messrs. B. Peed and Son, and Mr. H. James, in the order of their names. In the corresponding class for private cultivators the successful competitors were Mr. Childs and Mr. G. Wheeler, St. John's Lodge, Regent's Park. The several collections consisted exclusively of subjects that have been enumerated in previous reports this season, and it is not now necessary to give their names.

ORNAMENTAL-LEAVED PLANTS, for which there were two classes, were plentiful, and included several collections of exceptional merit. Mr. Rann, gardener to J. Warren, Esq., Handcross Park, Crawley, Sussex, occupied the first place in the class for six, in which the competition was limited to private growers, with specimens of large size and in capital condition. Mr. Butler, St. Dunstan's, Regent's Park, and Mr. G. Wheeler were second and third with groups possessing much merit. The competition in the class for nurserymen was very keen, and Mr. Cypher was first, with Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, a very close second. Messrs. Hooper and Co., Covent Garden, who were third, had remarkably good specimens of medium size. The prizes for six palms were well contested, and the successful competitors were Mr. Rann, Mr. Butler, and Messrs. Hooper and Co. The prizes, on the other hand, for begonias with ornamental leaves failed to bring a single collection, which is rather surprising, considering how generally they are grown.

FERNS were much better shown on this occasion than at any of the metropolitan exhibitions held this season, and included several fine specimens of *gleichenias*. Mr. Rann occupied the post of honour in the amateurs' class for six with specimens finished in his well-known style; Mr. Childs was a good second, and Mr. G. Wheeler third. The premier award in the corresponding class for trade growers was made in favour of Mr. B. S. Williams, and Mr. Cypher and Mr. James were second and third respectively.

PELAGONIUMS were remarkably good for so late in the season, and the several collections contributed very materially to the attractions of the exhibition. For six show varieties, open to nurserymen, Mr. Cypher and Mr. Turner were first and second; and in a similar class for amateurs Mr. J. Wiggins, gardener to H. Little, Esq., Hillingdon Place, near Uxbridge, was first, and Mr. Hammond, gardener to J. Hunt, Esq., York Lodge, Stamford Hill, N., second. For fancy varieties Mr. Turner and Mr. Wiggins were first in their respective classes. Zonals were admirably shown by Mr. Catlin, gardener to Mrs. Lemitte, Finchley; Mr. Meadmore, Romford, and Mr. Wiggins also exhibited well, and were awarded the second and third prizes.

FUCHSIAS, for which good prizes were offered, were very poor, which was rather surprising, as these flowers have been especially good at the local exhibitions this season.

TUBEROUS BEGONIAS had two classes provided for them, and as the leading trade and private cultivators within a convenient distance of the metropolis took part in the competition, they were remarkably good. Chief amongst the nurserymen were Messrs. J. Laing and Co., Forest Hill, S.E., who were first in the trade class for twelve. The specimens forming their collection were of medium size, very neat, and splendidly flowered, and presented a very different appearance to the thin long-jointed examples so frequently met with at the exhibitions. Mr. Coppin, Shirley, Croydon, who was second, had an excellent group. The first and second prizes in the amateurs' class for twelve were respectively awarded to Mr. Childs and Mr. Tong, gardener to J. S. Law, Esq., Southgate, both of whom staged specimens evincing high-class culture.

CUT FLOWERS consisted chiefly of roses, which were well shown and formed a very attractive feature. The leading class was that for forty-eight varieties, single trusses, in which the competition was confined to nurserymen, and in this Mr. B. R. Cant, Colchester, was first; Messrs. Cranston and Co., Hereford, second, and Messrs. Paul and Son third. In the class for twenty-four varieties, three trusses of each, the exhibitors last mentioned occupied the post of honour with a splendid stand of flowers; Messrs. Cranston and Co. and Mr. B. R. Cant were equal second, and Mr. C. Turner was third. The only class set apart for amateurs was that for twenty-four varieties, three trusses, and in this Mr. G. T. Hawtrej, Aldin House, Slough, was first with a fine stand, closely followed by Mr. J. Hollingsworth, Maidstone, and Mr. Rann. The remaining rose classes were open, and in these the most successful exhibitors were Mr. W. Rumsey, Waltham Cross, who was first for a basket containing one variety; Mr. B. R. Cant, Messrs. Cranston and Co., and Messrs. Paul and Son. *Eucharis* were staged by Messrs. Hooper and Co., and Mr. Hooper, Bath, who were first and second respectively. Carnations were represented by good stands of twenty-four blooms from Mr. C. Turner and Mr. J. Douglas, and picotees were staged by Mr. C. Turner and Mr. Hooper. In the class for collections of cut flowers of stove and greenhouse plants Mr. Morse, Epsom, and Messrs. B. Peed and Son were first and second with very attractive stands. For twelve trusses of orchids Mr. James was first and Mr. Morse second. There was a very good competition for collections of twenty-four herbaceous plants, cut specimens, and the most successful of the exhibitors were Messrs. Hooper and Co., Mr. Morse, and Mr. Rann.

FRUITS included several admirable collections of six dishes, and a large number of dishes and baskets of black and white grapes, excellent pines, peaches, nectarines, cherries, and strawberries. In competition for the prizes for six dishes of fruit Mr. Coleman, Eastnor Castle, Ledbury, was first with a fine Queen pine, a good Eastnor Castle melon, splendid Black Hamburgh and Muscat of Alexandria grapes, large well-coloured Bellegarde peaches, and Elruge nectarines; Mr. Edmonds, Bestwood Lodge, was second with an admirable collection, and Mr. Wildsmith, Heckfield, Hants, and Mr. Coomber, The Hendre, Monmouth, were equal third.

In the class for a Queen pine Mr. Bailey, Shardoloes, Amersham, was first; Mr. Harris, Swansea, second; and Mr. Childs, third; and in the class for any other variety Mr. Falkner and Mr. Auston were first and second. Melons were well represented, and the first-prize two were shown by Mr. Bolton, Combe Bank, Sevenoaks, and included a good fruit of Scarlet Gem; Mr. Nash was second and Mr. Coleman third.

There was a good competition both for dishes and baskets of grapes, and the examples were on the whole exceedingly good. The best basket of black grapes of not less than twelve pounds was shown by Mr. Wildsmith, and contained highly-coloured Black Hamburgh; Mr. Edmonds and Mr. Woodbridge, who were second and third, also had good samples. In the corresponding class for white grapes Mr. Douglas, gardener to F. Whitbourn, Esq., Loxford Hall, Ilford, was first with well-finished Canon Hall Muscat; and Mr. Feist, who was second, had good Muscat of Alexandria; Mr. Wildsmith third. The Black Hamburgh class was a very strong one, and the examples from Mr. Wildsmith, Mr. Molyneux, and Mr. J. Hudson, to whom the prizes were awarded, were remarkable for high colour and finish. In the class for a dish of any black grape other than Black Hamburgh Mr. Hudson was first with magnificent bunches of Madresfield Court Muscat; Mr. Wildsmith second with large well-finished bunches of West's St. Peter's, and Mr. Woodbridge, Syon, Brentford, third. The prizes for a dish of Muscat of Alexandria were keenly contested, and the premier award was made in favour of Mr. Feist, Staines, who staged bunches remarkable for their uniformity and the large size and rich colouring of the berries; Mr. Johnston, Bayham Abbey, Sussex, second, and Mr. Wildsmith third. For a dish of any white variety, Muscat of Alexandria excluded, Mr. Adams was first with superbly-coloured Buckland Sweetwater; Mr. Johnston second, and Mr. Worthing third.

Peaches were not perhaps quite so plentiful as at some of the corresponding exhibitions in previous years, but they were well represented, and in quality left little to be desired. The prizes were offered for two dishes, distinct kinds, and the first was awarded to Mr. Robins for large highly-coloured samples of Barrington and Alexandra Noblesse; Mr. Edmonds occupied the second place, and Mr. Goldsmith the third. Mr. Bashford, East Sutton, was successful in taking the first prize for two dishes of nectarines with large well-coloured fruits of Stanwick Elruge and Rivers's Orange; Mr. Edmonds and Mr. Goldsmith, as in the preceding class, were second and third.

Strawberries, which had, in accordance with the requirements of the schedule, to be shown in two dishes, distinct kinds, were plentiful, and free from really inferior samples. The first prize was awarded to Mr. Goldsmith for very fine dishes of President and Sir Charles Napier, and Mr. Herrin and Mr. Chuck were second and third.

MISCELLANEOUS COLLECTIONS were numerous, and formed a very interesting part of the exhibition. Messrs. J. Veitch and Sons, Chelsea, Mr. B. S. Williams, and Messrs. J. Laing and Co., Forest Hill, were awarded silver medals for groups of choice flowering and fine-foliage plants. Silver medals were also awarded as follows: To Messrs. Barr and Son, King Street, Covent Garden, for a large and beautiful collection of hardy flowers; to Messrs. Hooper and Co. for a group of ferns; to Mr. C. Turner for a group of decorative pelargoniums, which, placed on one of the central banks in the large tent, produced a striking effect, and to Mr. G. Wheeler for a group of stove and greenhouse plants. A large bronze medal was awarded to Messrs. W. Paul and Son, Waltham Cross, for cut roses, and a medal of like value was awarded to Messrs. Osborn and Sons for herbaceous and alpine plants.

NEW PLANTS AND FLOWERS were staged in large numbers, and a considerable proportion had certificates conferred upon them. Botanical certificates were granted as under:—To Messrs. J. Veitch and Sons for *Dracena Thomsoniana*, *Pleopeltis fessa*, *Osmunda japonica corymbifera*, *Selaginella grandis*, *Croton aureus marmoratus*, *Adiantum Legrandii*, *Davallia tenuifolia Veitchiana*, *Osmunda javanica*, *Polypodium ornatum*, *Dicksonia chrysobricha*, *Sarracenia Courti*, *S. melanorhoda*, *S. porphyrocnura*, *Nepenthes Mastersiana*, *N. madagascariensis*, *N. Rajah*, *Cypripedium grande*, *Odontoglossum tripudians aureum*, *Phalaenopsis tetraspis*, *Lasia stipulata*, *Sobralia xantholeuca*, and *Begonia treatra*; to Mr. B. S. Williams for *Croton Bruce Findlay*, *Lycaste Delpeii punctatissima*, and *Cattleya gigas*; to Messrs. H. Low and Co., Upper Clapton, for *Grammatophyllum Ellisi*; to Mr. H. James for *Cattleya Mossiae Southgatei*, *C. gigas abstrata*, and *Odontoglossum cordatum aureum*; and to Mr. Spyers for *Aerides Lawrenceana*, *Cymbidium Parishii*, *Coryanthes eximia* and *Calanthe teroaria*.

Floriocultural certificates were granted as under:—To Mr. Wiggins for *Pelargonium Rose Superb*; to Messrs. J. Veitch and Sons for *Rhododendron balsamiflorum album*, *R. balsamiflorum aureum*, *R. Star of India*, *Gloxinia Cordelia*, *Lobelia Finsbury Park Blue*; to Messrs. Daniels Bros. for *Godezia Duchess of Albany*; to Messrs. Wood and Ingram for *Lobelia pumila Ingrami*; to C. B. Foster, Esq., for show pelargoniums *Dialem*, *Adventurer*, *Veteran*, and *Sister of Mercy*; to Messrs. J. Laing and Co. for begonias *Hon.* and *Rev. J. T. Boscawen*, *Madame Stella*, *Exoniensis*, *Mrs. Dr. Duke*, and *Madame Camesse*.

RAILWAY GARDENING.—If our railway companies would employ a forester and gardener or two, they might employ their thousands of acres of waste lands for crops, grass, fruit trees, and so on, with profit; so that they could afford to refuse to be any longer in the position of the poor shopkeeper or barber who fills his shop and pastes his walls over with advertisements and placards because he cannot make two ends meet without the small sums obtained by this disfigurement. At present our railway companies allow their stations and bridges to be so hideously pasted and papered over that the property has the appearance of the last stages of struggling poverty. In many parts of Belgium the land has been planted with fruit trees and other things many years, and in Wurtemberg, for about twelve years past, a forester has had charge of the lands. He pays particular attention to planting the slopes of excavations and embankments to prevent washing and slipping, grows quick fences, and where practicable fruit and timber trees. The gardens at the stations are largely devoted to fruit, and so made useful and ornamental at once. A profit of about 14s. an acre has, it is said, been made for the past five years on the ground so utilized. Why should it not be done in England?—*Engineer.*

MR. JOHN MATTHEWS'S ROYAL POTTERIES, WESTON-SUPER-MARE.

A FEW notes made on a recent visit to these far-famed potteries will, I think, be of some interest to plant growers. It is well known to most gardeners that Mr. Matthews is great in pots, but it might not be so well known that he is also great in what I may call garden furniture, such as statuary, fountains, vases, and all kinds of rustic arborettes. All these articles are made in the most admirable manner from the same material as the pots. They are not only durable and handsome, but they are thoroughly artistic. The Italian fern and orchid baskets are remarkable specimens of the potter's art, but to give an appreciable idea of the extent of business done it will be necessary to cite a few details.

In the first place, I may mention that the area of land occupied exceeds ten acres; more than fifty men and boys are employed in the various departments, besides two ten-horse power steam engines required for the work. Horse labour is constantly in request. Seven men are regularly employed in making pots of various sizes, independent of those required to prepare the clay for them. There are also four kilns required to be kept constantly at work: there are never less than two kilns a week burnt, and each kiln holds about £100 worth of ware.

It is well known that the Weston-super-Mare pots are unequalled for strength and durability. This is accounted for from the fact that the clay contains a large amount of silica, which, aided by superior workmanship and careful burning, renders the pots peculiarly suitable for all horticultural purposes. The existence of so large an amount of silica in the clay is sufficient to account for the fact that these pots do not so soon get green as most other manufacturers' do. The smallest pot manufactured is two inches in diameter. The largest size kept in stock is thirty inches in diameter and twenty-eight inches high; but larger sizes are made to order. The thirty-inch pot is a huge article and very suitable for such plants as palms and tree-ferns, as the strength is in proportion to the size. Until I saw them I had no idea that so large a pot could be manufactured. A feature of this pottery is the kind of pot known as "Long Tom." These are made in sizes varying from two to six inches in diameter. They are valuable because there is greater depth in them and they require less space at top—that is to say, a considerably larger number of these Long Toms can be stood in a given space than the ordinary pot. But this is not all; the root space is increased in proportion, and more root space means a larger and more valuable plant in the same surface space.

Just to give an idea of the extent of business done in pots only, I may mention that the weekly average of pots manufactured amounts to nearly 30,000. In the month of March of the present year the number of pots sent away of all sizes amounted to 245,580. There are several special features in the pot way that demand attention. The "Oxford pot" is perforated in the rim, so as to enable the cultivator to train his plants without the aid of stakes. The "Alpine pot" is a very useful invention. It may be said to consist of two pots with one bottom; it has the appearance of a small pot inserted into another of a larger size. The space between the two is filled with water for the purpose of keeping the roots of the plants in the inner pot cool and moist. Amongst orchid pots and pans there is a great variety of forms and sizes. I was surprised to learn the large amount of business done in this feature only. Square and round seed pans are also made in large numbers, as are also garden edging tiles.

The ornamental ware, such as flower boxes, rustic suspending pots, and stands, is a very striking feature of the place. The terra-cotta window boxes are not only highly ornamental, but they are particularly well adapted for the purpose. The rockery arborettes are designed with much taste, but they must be seen to be appreciated. It must suffice to say there is provision made in pockets for five or six rock plants, the outlines being traced with sprays of ivy and fern fronds.

I also saw some ornamental square baskets, which will be much valued for the reception of specimen plants in the rooms of the mansion. The stems of trees are wonderfully well imitated, showing that much taste and skill have been devoted to the work. A very useful article recently designed here is the stand for pots that occupy positions on grass. It is often desirable to stand a few plants on lawns for effect, and it is well known that if they stand on the grass many days the grass dies. Mr. Matthews has overcome this difficulty by designing a stand for the purpose on which to place the pot in which the plant is growing. It is not more than five inches high, with four large feet as a bearing; the other portion of the frame being hollow, both light and air are admitted, which preserves the grass from being killed. These stands are made in various sizes. For the exhibition of his products Mr. Matthews has received no less than eight silver medals from various horticultural societies in various parts of England. A roofing tile, known as "Poole's Patent," is also largely manufactured here and sent to all parts of the world.

J. C. C.

THE BELGIAN VISITORS.

THE long days and the late hours appear not in the least to have diminished the ardour of our foreign friends in their pursuit of knowledge and enjoyment of such few amenities as could be placed at their command on short notice and by *al fresco* means. On Friday they made a great day in the northern suburbs, visiting the nurseries of Messrs. Outbush and Son at Barnet, and Mr. B. S. Williams at Holloway. Saturday was the great wind-up, the programme comprising Kew, Richmond, Sion House, and Chiswick. Dr. Masters, F.R.S., provided means of transit in the shape of a team of greys, and at the Star and Garter played the part of host and chairman at a generous spread, to which Dr. Hogg and Mr. Hibberd were invited. At Kew the new rockery and Miss North's pictures were subjects of special interest. In the grounds of Sion House big trees and thriving vineries afforded entertainment. At Chiswick the strawberry fête afforded excuse for a secondary refreshment, and Mr. E. Pynaert-Van Geert led off the Belgian applause in praise of Mr. Barror, whose keeping of the garden was characterized by Mr. Van Hulle as admirable. On Sunday the friends separated, some leaving for home and others for Brighton, Sawbridgeworth, Coombe Wood, Woking, and elsewhere, and the visit—so far as concerns its special horticultural objects—may be considered to have by this time terminated.

TRADE CATALOGUES.

W. DOBBIE, 62, PRESTON STREET, FAVERSHAM.—*Select List of Geraniums and Fuchsias.*

CORRY, SOPER, FOWLER, AND CO., FINSBURY STREET, E.C.—*Trade Price List of Nurserymen, Seedsmen, and Florists' Sundries.*

Notes of Observation.

MIMULUS CUPREUS MELLORI.

It was in Mr. Samuel Barlow's garden, Stakehill, that I saw this showy dwarf mimulus, and in common with Mr. Thomas Moore, of Chelsea, was much struck with its brilliant appearance, and free-flowering property. We thought it the richest coloured variety of *M. cupreus* we had ever seen, and we were informed by Mr. Barlow that it was raised by the late Mr. Thomas Mellor, of Ashton. Relying on this statement, and impressed with the obviously good and useful qualities of the plant, it was thought worthy of being named, and Mr. Moore suggested that of Mellori. This is how it was so named. I do not see why it should not continue to bear that name as a fine and distinct variety of *M. cupreus*. Whether or no it was raised by Thomas Mellor, it is quite certain he was the means of bringing it into notice, and in bestowing on it the name of Mellori we thought we were perpetuating in a fitting way the name of the worthy florist from whom both Mr. Barlow and Mr. Douglas received their plants. I hope Mr. Douglas will show it at one of the meetings of the Floral Committee. R. DEAN.

DAY'S EARLY SUNRISE PEA.

Of all the early peas I have grown, this variety was the most taking in appearance. From the time it was two inches high until the pods begin to fill it was the most distinct pea in the garden, and we have several early kinds with which to compare it. The evenness of its growth arrested everybody's attention. But, in my opinion, its merits end at that very point; for, when full grown, not one pod in five contains more than three peas, and many of them only two. In point of flavour, perhaps, it may be a degree or two before the round peas. But it is not so far ahead of them as to be likely to supersede them. It is within a few days as early as Ringleader, but it does not crop so well. Looking back over many years' experience, it seems rather singular to have to say, after the number of new varieties of early peas that have been introduced, that in the point of earliness we have not gained a single point the last quarter of a century. J. C. CLARKE.

BEAUTY OF HEBRON POTATO.

Once upon a time one of our potato men recommended Chardon as worthy of cultivation as an ornamental plant, because of its upright tree-like growth and the beauty and abundance of its purple flowers. The Chardon is a huge coarse tuber of some value when a heavy crop is a matter of great consequence, but it is not a good table potato. Now Beauty of Hebron is of excellent quality, and I observe that in the "Alphabet of Gardening" it is entered as one of three that should be grown in gardens for supply of new potatoes. But Beauty of Hebron has another recommendation. It is most beautiful when in flower, the rich green shaws being crowned with abundant bunches of snow-white flowers. The "picturesque" characteristics of a potato are not of primary importance, but they are not unimportant, if I judge by the pleasure I have had for some little time past in walking through my potato ground, and admiring the exceeding beauty of Beauty of Hebron.

SOLANUM.

Replies to Queries.

Fog.—Mat them up as soon as possible after they show a little colour. If you wait until they are ripe the birds will spoil the bunches, and the colouring will finish well if they are not too closely smothered up.

J. J., Llanelly.—The berries sent tell of bad management. Do you permit your vines to taste fresh air at any time? They appear to have very much wanted it.

Silver Tree.—M. R., Henfield.—The leaves you send are those of the silver tree or Wittenoom, *Leucadendron argenteum*. It requires greenhouse culture and to be kept rather dry during winter. In summer it may be kept out of doors in a sheltered spot. The soil it requires is a mixture of sandy loam and peat, and the pot must be well drained.

Edelweiss.—Moulsham.—You have had very fair success in growing *Gnaphalium leontopodium*, and we are not surprised to hear that the plants that were unprotected produced finer flowers than those that were wintered under glass. In your drawing of the reproductive system the terminal horns are the stigmas, and the branches next below the anthers, and below that again are the wings of the fruit. It is probable the seed formed beyond the central tuft is abortive, but on that point we cannot speak with decision. The nest that is described as having been blown down from the fir tree was undoubtedly a sparrow's nest built on the remains of an older nest, and the bird that came to grief in it was a young cuckoo.

Names of Plants.—C. C., Chard.—Yours is an extra fine growth of *Spiræa filipendula*, the red spots being remarkably rich. R. Dixon.—1, *Stenactis speciosa*; 2, *Phyteuma orbiculare*. A.W. S.—Your specimen came completely smashed and emitting a powerful odour. From a scrap of leaf we dragged out of the horrid mess we suppose it to be *Amorphophallus Rivieri*. This fine hardy aroid is now classed (*B. M.*, 6,195) as *Proteinophallus Rivieri*, because, Sir J. D. Hooker says, it differs from *Amorphophallus* both in habit and in floral characters. J. Dobson.—The *Murattias* are not papilionaceous but polygalaceous plants, and they are certainly worthy of attention. From your descriptions we suppose you have *M. ciliaris* and *M. humilis*, and if you send specimens they shall be determined. J. Walker.—1, *Rochea falcata*; 2, *R. perfoliata*.

Town Garden.—R. Evans.—The main reasons why town gardens look so poor are that people give no attention to first conditions, and are not willing to pay for doing things well. They will pay for paltry baskets and hideous rockeries and hose for watering, and at the end of the story have absolutely nothing to look at, when a beautiful garden is as readily within their reach as a tender mutton chop. You say you want advice. Well, we advise that you employ a competent person to prepare the ground thoroughly; then let him plant a selection of hollies and ivies to begin with. The next thing will be to fill in with suitable herbaceous plants and miscellaneous shrubs. Do not hurry him, and do not stint the outgoing. It will be quite time enough in August to plant, but the ground work should be carried out at once. Our taste may not be your taste, but as you ask for advice we at once recommend plants that are the surest to thrive in a London garden.

Literature.

The Ladies' Treasury. Edited by Mrs. WARREN. (Benrose.)—The July part contains a capital selection of essays, tales, histories, and criticisms; a description of the butter-tree, a chapter on gardening, and a heap of honey and cream for the ladies, in the shape of disquisitions on cookery and costume. "Life at Newnham College" is full of importance for the ambitious fair ones who lean to learning and perhaps hope for fame.

Vick's Illustrated Monthly for June bears a broad black border on the wrapper, and at page 188 is a carefully-written biographical notice of the late worthy editor, whose death it was our painful duty to announce a month ago. We learn from a note at page 187 that the magazine will be continued on the old lines by Mr. C. W. Seelye, "who has been Mr. Vick's associate in this work from the issue of the first number." The number now issued, though containing a dark record, is otherwise as bright and cheerful as any that have preceded it.

The American Garden has been forwarded to us for a long time past, but we have not often had time to look at it other than casually. It is a very neat and cheap monthly paper, "devoted to the gardening interests of America," edited by Dr. F. M. Hexamer, and published by Messrs. Bliss and Sons, 34, Barclay Street, New York. In the June number we find papers on American versus English potatoes, the potato beetle, the cultivation of gherkins, peas, currants, blackberries, mulberries, hollyhocks, cinerarias, bedding plants, &c. Such a work would no doubt prove interesting and useful to many amateur gardeners in this country.

Elementary Botany, Theoretical and Practical. By HENRY EDMONDS. (Longmans.)—It is just possible the author of this unpretending work is unaware of its true value or of the complete success, as we regard it, of his peculiar plan of operations. That he had his plan clearly before him, and spared no pains to carry it out, is evident enough, but it strikes us that he has accomplished more than he hoped for, the rule with honest workers being that they do not reach the goal they set their minds upon. We do not call to mind any elementary book of the small size of the one before us that contains such an immensity of information, or any such happy combination of all that is known (for elementary purposes) of the structure, chemistry, and growth of plants. Mr. Edwards has brought physiology to the forefront, and therein is one secret of the life and fullness of his book. It is primarily intended for those who are interested in the syllabus of the Science and Art Department, but we should like to see a copy in the hands of every young gardener in the British empire.

Markets.

COVENT GARDEN.

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Lemons.....	each	2s. 0d. to 3s. 0d.
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Peaches.....	per doz.	6s. 0d. to 10s. 0d.
Pine-apples, Eng.....	per lb.	2s. 6d. to 3s. 0d.
Strawberries.....	per doz.	0s. 4d. to 1s. 0d.

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Magnolias, per doz. bun.	3s. 0d. to 5s. 0d.
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Pansies.....	1s. 0d. to 2s. 0d.
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Perovskias, per doz. blooms	0s. 0d. to 1s. 0d.
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Prime Clover.....	per load	100s. to 134.
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Straw.....	"	30s. to 56.

CORN.—MARK LANE.

Wheat, Red, new.....	per qr.	35s. to 50.
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Flour, town-made whites, per sack of 280lbs.....	"	40s. to 46s.
Flour, household.....	"	37s. to 39s.
Flour, country households, best makes.....	"	35s. to 41s.
Flour, Norfolk and other second.....	"	32s. to 34s.
Barley, Malting.....	per qr.	30s. to 50s.
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Malt, English.....	"	35s. to 54s.
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Malt, old.....	"	28s. to 35s.
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Oats, English.....	"	22s. to 30s.
Oats, Irish.....	"	22s. to 26s.
Oats, Scotch.....	"	22s. to 30s.
Rye.....	"	42s. to 45s.
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Beans, Tick.....	"	38s. to 41s.
Bea of Winter.....	"	39s. to 44s.
Peas, Grey.....	"	30s. to 36s.
Peas, Maple.....	"	40s. to 45s.
Peas, White.....	"	30s. to 44s.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.		
New Jersey Kid.....	per cwt.	1s. 0d.
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Beef, prime, per 8 lbs.	5s. 2d. to 5s. 4d.
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Beef, prime hind.....	4s. 0d. to 4s. 6d.
Beef, inferior.....	3s. 0d. to 3s. 6d.
Mutton, prime.....	5s. 4d. to 6s. 1d.
Mutton, prime hind.....	1s. 8d. to 1s. 11d.
Mutton, inferior.....	3s. 8d. to 4s. 4d.
Lamb.....	6s. 0d. to 6s. 6d.
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Pork, small.....	4s. 4d. to 4s. 6d.
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Consols.....	99 to 99½
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, at 40° F. in shade.	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.
			Rises.	Sets.	Souths after Noon.	Rises.	Sets.	London Bridge.	Liverpool Dock.	Morn.	After.			
1882	S	6th Sunday after Trinity.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.	Aerides crispum, s.	1882
16	M	Dr. Watts born, 1674.	4 3	5 46	8 8	5 33	8 15	2 30	2 50	11 55	—	63.4	White and Pink.	197
17	Tu	Lady Franklin died, 1875.	4 4	5 52	8 7	6 38	8 37	3 7	3 25	0 15	0 32	63.4	Aerides suavisimum, s. ...	197
18	W	Bishop Wilberforce died, 1873.	4 5	5 57	8 6	7 43	8 59	3 43	4 0	0 60	1 8	63.4	Calyptegia pubescens fl. pl. n.	193
19	Th	Spanish Armada defeated, 1588.	4 6	6 1	8 5	8 46	9 18	4 15	4 35	1 25	1 40	63.4	Chelone Lyoni, n.	199
20	F	Robert Burns died, 1796.	4 7	6 5	8 4	9 52	9 38	4 59	5 5	2 0	2 15	63.4	Erica ventricosa fasciculata resca, g.	200
21	S	St. Mary Magdalene.	4 9	6 8	8 3	10 57	9 57	5 23	5 40	2 30	2 48	63.4	Kalosanthes coccinea, g.	201
22			4 10	6 11	8 2	After.	10 19	5 57	6 15	3 5	3 22	63.4	Rondeletia speciosa, s.	202

The Gardeners' Magazine.

SATURDAY, JULY 15, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, JULY 18.—LEEK ROSE SOCIETY.—Annual Exhibition.

WEDNESDAY, JULY 19.—LUTON.—Flower Show.

WEDNESDAY, JULY 19.—SUTTON COLDFIELD HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, JULY 20.—WEST OF SCOTLAND ROSARIANS' SOCIETY.—Annual Exhibition at Helensburgh.

WEDNESDAY, JULY 19.—NATIONAL ROSE SOCIETY.—Northern Exhibition, at Darlington.

THE ROSE SHOW OF THE NATIONAL ROSE SOCIETY would justify remarks similar to those we ventured to offer on the exhibition of the Pelargonium Society in our issue for July 1. We cannot say, as we then said, "If we suppose the society obliterated, we must suppose the exhibition to be obliterated with it;" but we may repeat the opinion there expressed, "that it may be properly regarded as a vindication of the 'special' system which has of late years been occasionally challenged and discussed." Where the challenge and the discussion found place we did not, in our leader, say, and we need not now say. But there can be no impropriety in referring to the *Gardeners' Chronicle* of July 8, in which the useful work of these two societies is generously spoken of, but their independent existence is objected to. The writer says, "Without at all undervaluing the importance of these special societies, we have always felt strongly that they should be affiliated to the Royal Horticultural Society, and that they would gain in dignity and importance by such a union, while the old society would be strengthened and not dismembered. At present the cost of subscriptions to these minor societies is a serious matter, and leads to the inquiry whether one general subscription should not suffice for all, if proper means were taken to ensure a sufficient supply of subscribers."

Desiring always to be well advised, we have endeavoured to understand the proposals of our contemporary, and we must confess we have failed. That the failure is due to our own dullness we do not doubt at all; but there may be others in the like predicament, and therefore it may be well we should speak freely. Of our attachment to the Royal Horticultural Society we need say nothing, for in that attachment there is no merit. Since the 10th of February, 1876, it has been a horticultural society, and has commanded universal respect. For some years preceding the date mentioned it was nothing at all of a wholesome nature, and the memory of the contentions that prevailed is simply hideous. We can hear some friend say, "Bygones should be bygones;" and we hear another friend say, "History is philosophy teaching by example." If in matters of public business bygones are to be bygones, all the experiences of mankind are trodden underfoot; indeed, there are no experiences, and we are always to begin, in the dark, *de novo*.

No. 898, NEW SERIES.—VOL. XXV.

How came these special societies into existence? Certain enthusiasts had an inspiration or conviction that "if you want a thing done you must do it yourself." It may be that some of our readers remember the perennial howl of the florists because the Royal Horticultural Society ignored them; or, worse, sometimes treated them with contumely. And a former editor of the *Gardeners' Chronicle* took the lead in the ridiculous endeavour to subject the florists to the process of painful extinction. The special societies that now represent the Auricula, the Carnation, the Rose, the Pelargonium, &c., &c., are to be regarded as representing the reaction against the *suppressio veri* of the Horticultural Society. We can bring into court a case in point. The promoters of the International Potato Exhibition desired to "affiliate," or, at all events, were desirous to place their show at the disposal of the Royal Horticultural Society, and the Society's official representative met the proposal with a very cold shoulder—in fact, his reception of the proposal was as near a No as could be, barring actual utterance of the word. The present writer can give date and detail in elucidation of this matter if needful. "The evil that men do lives after them; the good is oft interred with their bones." If history is philosophy teaching by example, we must make our plans for the future on the basis of experience as well as of hope. Therefore we direct attention to a clear case of affiliation—that is, if we understand what is meant by affiliation—which resulted in the destruction of the Royal Horticultural Society's Provincial Show. That part of the Society's operations was sustained by a "special" fund; the Society itself, in its "corporate capacity," holding entirely aloof from it. And what happened? Only this, that the special fund being in the charge of trustees who were members of the council, was handed over to the holders of debenture stock, and in this way some seventeen hundred pounds was misappropriated, and the Provincial Show may now be regarded as an impossibility.

It may seem ungenerous to mention these things, but we are interested in the special societies because of the good work they do, and when affiliation is talked of we ask of our old friend Experience, What then? Can any one suppose that the dozen or so of earnest men who encounter the turmoil, and distraction, and possible vituperation of the critics in behalf of the special societies they represent, would not be glad to escape from the exhausting labour and the heavy expense they must severally and personally incur if the work would be carried on as well without the special society as with it? No; there is more wisdom in the world, and therefore it is they are supported. Before they will hand over their charges they will require some kind of guarantee that they are not casting their children into the jaws of Death, as though they had never heard of the Provincial Show fund, or the prolonged and painful howlings of the florists in years gone by, and the potato men in times more recent.

Make the prospect clear and the specialists will recognize it. They are for the most part practical men, and if they love their flowers they do not desire to waste their money. What they are chiefly concerned about is the cause; for, after all, when we are told "the cost of subscriptions to these minor societies is a serious matter," we cannot forget, first, that the subscription is a purely voluntary matter, so that those who do not care to subscribe may say, "No," and there is an end of it; and in the second place, those who do subscribe think more of the cause than they do of their money.

Our respected contemporary says this and that might be done with or subsequent to "affiliation, if proper means were taken to ensure a sufficient supply of subscribers." It does happen that fully nine-tenths of the subscribers to the special societies are subscribers also to the R.H.S.; so that to meet the case properly the rate of subscription to the R.H.S. should be raised with every case of affiliation. But, we repeat, we do not know what is meant by affiliation. If it means that the affiliated societies would take the form of committees, as, for example, the Pomological Society subsided into the form of the Fruit Committee, then we must express our doubt if the cause represented would be sufficiently advantaged, or the R.H.S. would be in any degree strengthened by the affiliation. On this point, however, we reserve the right to speak with decision only when a definite scheme is before us. What we now say, therefore, is tentative and conditional. By all means let us know the best method of doing what is to be done.

THE NORTHERN ROSE SHOW, under the auspices of the National Rose Society, will be held on Wednesday next, July 19, at Darlington.

EALING, ACTON, AND HANWELL HORTICULTURAL SOCIETY.—The autumn show will be held in the Drill Hall, Ealing Dean, Nov. 22.

THE MODE OF HARVESTING HAY AND CORN IN THE STACK, invented by Mr. Charles D. Phillips, is described in a pamphlet published by Owen, Howell, and Co., Western Mail Buildings, Cardiff.

MR. JOHN WOODBRIDGE, many years head gardener to the Duke of Northumberland at Sion House, has been appointed to the stewardship of the outdoor property.

WALTHAMSTOW FLORICULTURAL SOCIETY.—The annual show will take place in St. Saviour's Schoolrooms, Markhouse Road, August 15 and 16.

MESSRS. WEBB AND SONS, of Wordsley, Stourbridge, had an extensive display of seeds and a small grass lawn, as well as growing samples of grasses in pots, at the recent Reading exhibition.

CARTER'S LEVIATHAN BEAN appears to surpass in size all the varieties known in gardens. We have on our desk three sample pods; they measure in length exactly 13 inches each, and their united weight is 8 ounces. They are, however, so young, that we may reckon their weight at maturity to be nearer 12, or even 16 ounces.

VILLA FARMS, on which we discoursed a few weeks ago, appear to be in demand, and if the new passion is guarded against folly and extravagance it may prove highly beneficial. One good step towards success has been taken in the formation of a substantial company to operate in the market, and prevent mere jobbing and rash speculations.

CHANNEL ISLANDS VINERIES AND EARLY PRODUCE COMPANY (LIMITED).—Under this title a company is being formed, with a capital of £50,000, in shares of £1 each, for the purpose of supplying the English markets with grapes and other fruits, and choice vegetables grown in the islands of Guernsey and Jersey. In addition to engaging in the cultivation of the various kinds of produce, the company will, it is stated, act as agents for other growers in the Channel Islands.

A DOUBLE RHODODENDRON of the Javanicum type was shown at the meeting of the R.H.S. on Tuesday last by Messrs. Veitch. It is pure white, and thoroughly double, and bears the closest possible resemblance to a tuberose. It was labelled *Balsamiflora alba*. Another of the same type, not double, but with fourteen petals and an open tube, the colour very delicate lemon-buff, was labelled *Balsamiflora aurea*. These two beauties should be noted by lovers of good plants.

A CHEAP AND SUBSTANTIAL GARDEN HOSE has been introduced by Messrs. Merryweather, the well-known manufacturers of fire engines, of 63, Long Acre, London, and Greenwich Road. Samples of two kinds are before us. One is called the Rubber Line Hose, and is made on the principle of that supplied to the order of Captain Shaw for the use of the Metropolitan Fire Brigade. It is made of canvas and lined with indiarubber, is strong, flexible, and very light. The other kind is called the Antimonial Red Rubber Hose. It consists wholly of rubber prepared with antimony, the colour being of a brownish red. This also is light and very flexible, and the makers describe it as retaining all its qualities "throughout its entire life." This hose we should certainly put our trust in for dragging over gravel paths, and for real hard service and enduring wear and tear.

THE EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY AT READING was opened formally on Monday, and was thereupon pretty well washed away by the stormy weather. Such bad luck was never more regretful, for great preparations had been made by all the parties interested, including not only the society, but the exhibitors and the inhabitants of Reading. Some eight or nine miles of roads and streets were dressed with fir trees, banners, and other symbols of festivity. In the town triumphal arches, and everywhere greenery and colour, supplemented with music by day and fireworks by night; and in the end, alas! the same sad fortune as at Kilburn. However, there was a great and meritorious exhibition, the machinery being particularly interesting. Rival systems of saving hay and corn in bad weather were tested, and the science of dairying was largely and effectively illustrated. Such a concourse of visitors as Messrs. Sutton and Sons received is not often seen by a trading firm, and it appeared to us that they were keeping open house, and that all comers were welcome.

TOMATOES APPEAR TO BE CONSTANTLY ADVANCING IN INTEREST, as the consequence of the increasing appreciation by the public of their useful qualities; hence comparisons of varieties are of some importance. Mr. Stephen Castle, of the Vineyard, West Lynn, has favoured us with samples of a few sorts amongst the many that he has under trial. We begin with Carter's Grape Shot, a small round fruit of a deep red colour, eight fruits of which weigh exactly one ounce. The next is Carter's Dedham Favourite, perfect in form, with a smooth silky surface, the colour a rich deep purplish red. These weigh four ounces each. Mr. Castle declares this variety one of the best known to him. The next is Trophy, a grand variety with slight sutures at the base and hollow at the crown, the colour full red, with a tinge of orange. This is a profitable sort, and makes a great show, the weights of samples sent being 12 and 13 ounces. Finally we have President Garfield, large, coarse, deeply sutured, orange-red, weight nine ounces. Mr. Castle pronounces this worthless; "certainly not worth the ground it stands upon."

INSECT RAVAGES.

THE following letter from "Ouida" appeared in the *Times* of July 5:—

Your correspondent who signs himself "A Nobleman's Gardener" is undoubtedly correct in saying that no one skilled in the observation of nature can mistake the damage done by rains or winds or frost for the injuries inflicted on trees by insects. But he omits to say which of the caterpillars he considers does the greatest mischief in English woods. In Italy it is unquestionably the little innocent-looking *ypomonta* (both the *cognatella* and the *padella*) which are the ruin of the elm trees and of other forest trees, as well as of fruit trees. They are easily detected by the nests they make all over the lower parts of the tree, so that all the branches look as if they were enveloped in dusty gauze or in a veil of cobweb. As these webs are never (that I have seen) higher up than some six or eight feet from the ground, I have them cleared off the trees at their first appearance, and the webs burnt. Indeed, in many parts of Tuscany, the *contadini* do this of their own accord; it is a light work in which children can join, but it must be done thoroughly, or it is of little use doing it at all. The same treatment is advisable for those caterpillars (such as the vine destroyer, the *Tortrix vitana*) which lay their eggs in the leaf, but it is much more tedious and troublesome; the eggs of the *Lispiris despar* and its congeners are, on the other hand, easily collected if looked for upon and between the branches of trees: a nest, containing at least 300 eggs was taken from a forked branch of one of my trees. I should like to know which of the caterpillars it is that is most found in the woods of which "A Nobleman's Gardener" writes; I imagine it is the *Nymphalida*, which loves the north and the damp, and unfortunately loves, too, to go very high indeed, which our mischievous *ypomonta* does not do. So strongly has the feeling which your correspondent expresses about the necessity to preserve birds grown upon all thoughtful people, that there is a general sentiment on the Continent, spreading daily, that some international movement and combination on the matter are necessary. Several ambassadors have spoken to me with great interest as to the desirability of some agreement between the nations for the protection of insectivorous birds, and also of all the owls which keep down the rats that kill the young birds so largely. Petitions to Italy have been formally made by the various protection societies of France and Switzerland on this subject, and even in Italy a good deal is being done. There is a Bill now before the Chambers—though there is, alas, no chance of its passing this Session—which will deal severely with the wholesale methods of bird destruction so terribly popular here. A distinguished Neapolitan prince is the promoter of the Bill, and many noblemen and gentlemen are of accord with him. The large liberties allowed to landed proprietors here to deal as they please with trespassers gives a great power in this matter to the Italian gentry, if they will only use it. I know a distinguished person who has any trespasser who carries a gun fired at *senza complimenti* and without warning. Generally, however, the birds of Italy are sadly unprotected, with the exception of the swallows and martins, which popular sympathy, usually speaking, does protect, though last year a brute at Bologna shot a thousand swallows to win a bet. When one reflects what millions of insects a single swallow will eat in his life, one feels that the Bologna hero deserved a charge of swan-shot into his own carcass. If it could once be made an affair of international arrangement the birds of Europe would be safe, as they never can be while each country legislates for them according to its own choice. As it is, the migratory birds run the gauntlet of a myriad of perils, and it is a marvel that even as many as do escape should be left to us. If all shooting and all trapping were forbidden throughout Europe from February 1 to September 1, we should have saved to us many lovely and most interesting classes of the winged races which are at present threatened with entire destruction.

The following, from "M.A., F.L.S.," is in reply to the above:—

I fear an entomologist will hardly recognize "Ouida's" expression of "the *Nymphalida*" as applicable to any particular insect species or genus; I write, however, not to criticise "Ouida's" entomology, but to remark that the greatest delinquent among the insects that spoil the foliage of our oak trees is the larvæ of *Tortrix viridana*, which may be found in abundance during May rolled in a leaf or between two adjacent leaves connected by a slight silken web. The moth itself appears at the end of June, and is frequently a perfect pest on account of its numbers. In walking through Epping Forest a few days ago I noticed that every tap on an oak branch caused a cloud of these insects to fly out. The moth when expanded is something under one inch across the wings, the upper pair of which are of a pure green colour. Of the genus *Yponomonta*, to which "Ouida" refers, one species is very common in this country on our hawthorn hedges, and I have noticed the larvæ as being very abundant this year.

NOTES ON THE ELECTRIC LIGHT.—The *Warehousemen and Drapers' Trade Journal* furnishes some details of the cost of electric lighting in a London business establishment, which are useful for comparison with Dr. Siemens' estimate of the cost in a conservatory, as given in the GARDENERS' MAGAZINE, November 5, 1881. Many of our readers may have noticed the electric lamps in the clothing establishment of Messrs. Samuel Bros., on Ludgate Hill. These, it seems, are twenty Jablochhoff lamps, of which five only are visible from the street. The power is supplied by an eight horse-power Otto gas engine, and is found to be much in excess of that actually required for the lights in question. Each of these Jablochhoff lamps is estimated by the scientific staff of the Metropolitan Board of Works to be equal to 378 wax candles, or 35 ordinary gas burners, at one foot distance. Their cost is 1d. per lamp per hour, with a 1d. extra per lamp per hour for gas consumed in the Otto motor. The total cost of the twenty lamps, burning on an average three hours daily, is £150 a year. No technical knowledge is required, and both lamps and gas engine are managed by the head porter. In a paper on "Climate" in the new number of *Nineteenth Century*, Dr. Frankland, a well-known authority on sanitary questions, we observe, states that he has ascertained by direct experiment that the heat rays of the electric light are susceptible of reflection from suitable surfaces, like those of the sun; and he hints at the possibility at some future period of combining an auxiliary system of electric lighting with appropriate soil, wall, &c., surfaces, so as to practically realize the daylight conditions of a "summer climate" during the dark months of the year in sanatoria and elsewhere.

RUSSELLIA JUNCEA.

It is too much the custom to fill baskets in plant houses with subjects that may be grown to greater perfection out of doors, and which indeed are seen in great plenty whichever way we turn. To be sure of an effect is a matter for consideration, but to take the cheapest way to it is not always prudent. Commonplace subjects cease to interest when they usurp places adapted for forms of vegetation that are not adapted for the open garden, and which therefore should have encouragement under glass. The good old *Russellia juncea* is one of this class. It acquired considerable popularity in the early days of its introduction, but appears to be now nearly forgotten, for it is but rarely seen. As a basket plant it is unique, not only in a profuse display of colour, but also in its intrinsic beauty as a plant.

The *Russellias* are of comparatively recent introduction, the one before us dating from 1832, when it was introduced to Berlin from

for *Russellias*, and therefore extra care is required to keep them clean. We have usually found the syringe a sufficient protection against these intruders, and the golden rule of "making the plant grow" will be safer to rely on than any of the specific insecticides that are in favour.

To propagate *Russellias* is an extremely easy matter. Cuttings of half-ripe shoots root readily in bottom heat, but as a rule a sufficient stock of plants may be raised from suckers, or from a branch pegged down on a moist bed, which may be afterwards cut up when well furnished with roots.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

AMONGST the matters requiring special attention at the present moment are the preparation of strawberry plants for the formation of new beds and for fruiting in pots under glass, the filling of quarters



RUSSELLIA JUNCEA.

Mexico by Count Karwinski, and from Berlin found its way soon after to London. The earliest of the genus to be brought into cultivation was *R. multiflora*, which dates from 1812. The generic name was bestowed in honour of Dr. Alexander Russell, an English physician, who published a work on the Natural History of Aleppo in the year 1756. The *Russellias* are figworts, and a glance at the flowers will suggest the relation to *Scrophularia*, *Lophospermum*, and *Pentstemon*.

They are stove plants, requiring a winter temperature not under 50 deg., and a summer temperature of 70 deg. to 90 deg. In the intermediate house they may be well grown, but in the cool greenhouse they are useless. A mixture of peat and loam with a considerable proportion of sand is a suitable soil for them, and it is important to allow liberal pot-room, and in the growing season plentiful supplies of water. All the small vermin known to the plant grower have a liking

in the kitchen garden with winter crops as they become vacant, and the propagation of roses by means of buds and cuttings.

STRAWBERRIES IN SMALL GARDENS.

The crops of strawberries have this season been unusually heavy, for the plants flowered freely, the blooms set remarkably well, and the cool moist weather we have had of late has materially helped the fruits to swell to their full size. In many instances, particularly on naturally cold and heavy soils, the flavour has not been so good as could be desired, and the wet weather has considerably depreciated the value of the market crops. It is not, of course, an exceptional matter to have an abundance of strawberries; on the contrary, good crops are the rule and failures the exception, and there is no fruit which affords a more satisfactory return in both large and small gardens than

the strawberry. It is indeed one of the most useful fruits that the amateur could possibly grow, for under a proper course of culture it will succeed on almost all soils. The formation and management are neither expensive nor difficult, the produce in proportion to the space occupied is most abundant, and certainly no hardy fruit is held in higher esteem. Some amateurs fail to obtain satisfactory results, and complain that strawberry growing is beyond the means of those who are unable to avail themselves of professional assistance; but this is a mistake, for the owner of a very small garden may indulge in a strawberry bed, and obtain from it fruit equal in bulk and quality to that obtained from a bed in a nobleman's garden. When we hear of unproductive strawberry beds we may safely conclude that the management is not what it should be, and if the matter is inquired into it will in most cases be found that the beds are so overcrowded that the plants are unable to make a satisfactory growth, and form strong crowns by the end of the autumn. Sometimes the plants are put too close together, but generally the overcrowding results from neglect of the beds during the summer. Instead of the runners that are not required for the formation of new beds being removed as fast as they make their appearance, they are allowed to remain and take root in the soil, and as such a large number are produced from each stool, and so vigorous a growth is made, the bed becomes so crowded that the old plants are seriously injured. The practice of myself and of good growers generally is to layer as many runners as are required immediately they are large enough, and then cut off all the others as fast as they are produced. The removal of the runners before they are rooted into the soil has the great advantage of being more easily and quickly accomplished than is possible after they have become established. If care is taken to do this work in accordance with the advice here given, the beds are kept free from useless plants with very little appreciable labour, and the permanent occupants enjoy the exposure to light and air which is so essential to their welfare. The beds must be kept free from weeds as well as from superfluous runners, and the spaces between the rows should, after the fruit has been gathered, be hoed over occasionally. There is no occasion to remove the straw or litter with which the surface has been covered for the purpose of keeping the fruit clean, as it will soon decay, and it will not interfere with the use of the hoe.

FORMATION OF NEW STRAWBERRY BEDS.

All owners of small gardens should know something about the formation of new strawberry beds, because new plantations should be made every year, or in alternate years, according to the area available and the requirements of the family. The mistake is frequently made of allowing the beds to remain until the ground is thoroughly exhausted and the plants worn out, with the result that in some seasons the supplies are short and the fruit of small size. From two to three years is quite long enough for the duration of the beds, and unless the circumstances are quite exceptional the beds should be broken up at the end of the second or third season of their fruiting. On ordinary soils three years form the most suitable period for the duration of the bed, and it is a good arrangement to have three beds or plantations, and to break one of them up every season, replacing it with a new one. By this arrangement a constant succession of productive beds is maintained, and in no season is there any break in the supply; unless the weather happens to be very unfavourable. The size of the bed must of course be determined by the space at disposal, but it may be useful to state that a plot of ground sixty feet in length by thirty feet will afford space for sufficient plants to produce a very nice supply; but double that area should be devoted to strawberries where the space can be afforded. Strawberries, it is proper to state, may be successfully cultivated on any ordinary soil, provided it is stirred deep and manured liberally previous to planting; but a rather deep and holding loam is most suitable for these fruits. The most advantageous course, when the work is dealt with in a systematic manner, is to trench the ground over to a depth of eighteen inches in the autumn, previously applying a liberal dressing of any good manure that may be available. Then leave it through the winter in as rough a state as possible on the surface, and in the spring plant with early potatoes, which will come off at the right moment and leave the ground in capital condition for the reception of the strawberry plants. The ground, it need hardly be said, may be manured and dug over now; but it ought to be trenched, for it is not good practice to put the plants in crude soil brought up from below the top spit. A fair amount of space is desirable, and the majority of varieties should be planted eighteen inches apart each way, or be put eighteen inches apart in rows, with a space of two feet between them. Strong runners lifted from an adjoining bed will answer very well if they are taken up with a moderate quantity of soil about the roots and planted as quickly as possible. Runners layered in small pots are the best, and in purchasing runners at a nursery for summer planting they should be had in small pots. The cost will be greater, but the advantages are such as to more than balance the difference in the price. The chief point is the certainty of obtaining a good supply of fruit in the summer following, instead of having to wait until the second year, as is the case when small runners lifted from the beds are planted. The layering of sufficient runners to form a medium-sized bed is certainly not an arduous task, and the labour will be more than saved in the watering and after attention required by those lifted from the bed. When planted, the soil should be pressed well about the roots, and if at all light it should be trodden immediately about them to make it thoroughly firm. They ought also to be well watered in, and those with no soil about the roots when planted should be supplied with water every alternate day until they begin to take root. On light soils it is beneficial after a severe winter to well tread the space between the rows, especially round the plants; for unless the soil is firm about

the roots the growth will be otherwise than satisfactory. The beginning of March, when the soil is quite dry on the surface, is the best time for treading the soil.

SELECT STRAWBERRIES FOR SMALL GARDENS.

Where the space available for strawberry culture is limited, special care is necessary in selecting to ensure its being turned to the best possible account, and generally speaking a few kinds will be the most satisfactory. There must, of course, be sufficient sorts to ensure a supply over as long a period as strawberries can usually be had. Taking productiveness, hardiness, and quality into consideration, the following will be found the best for the amateur: Vicomtesse Héricart de Thury, rather early, very hardy, and immensely productive; not first-class in flavour, but fairly good and admirably suited for preserving. Sir Joseph Paxton, rather early, the fruits large and richly flavoured, the plant of good constitution, and a good bearer; an excellent variety for exhibition purposes. Keen's Seedling is one of the oldest strawberries in cultivation, and for general usefulness is not surpassed; the fruit is less brisk than that of the Vicomtesse Héricart de Thury, and is more suitable for those who have an objection to strawberries that are at all sharp. Both varieties will not be required in the same garden. President can be strongly recommended for its general excellence; it is a heavy and sure cropper on most soils, and produces fruit of large size, handsome in appearance, and excellent flavour; it is one of the best for mid-season. As a companion to it Sir Charles Napier may be mentioned, for it is free in growth, very productive, and the fruit attains a large size; is bright in colour, very handsome, and of good flavour, although very brisk and slightly acid. Dr. Hogg is finer flavoured than the last-mentioned, and has a good appearance upon the table, but it is not so hardy and productive, although it has a much better constitution than the British Queen, from which it was raised. For a late supply Frogmore is decidedly the best, for it is equally as productive as any of the other late kinds, and superior to them in quality.

BUDDING ROSES.

Those who have a preference for standards on the brier, and dwarf bushes on the brier or manetti, to bushes on their own roots must, if they are desirous of increasing their stock, with as little delay as possible commence the work of budding the stocks. This is, in fact, the best time in the year for budding roses, and both stocks and buds are now in capital condition. The operation of inserting a rosebud on a brier or manetti stock is so simple that it may be performed by the beginner in rose growth with the full assurance of success, and a very few words will suffice to convey a clear idea of the way in which the work should be done. It will first of all be necessary before making a beginning to ascertain whether the bark parts freely from the stem, as the buds cannot be inserted with much chance of their taking if it does not. At the present time it will run as freely as could be desired, and no difficulty is likely to arise on this point. The next step will be to prepare the briers by removing all but two or three of the most promising shoots near the top, and from those remaining rub off the spines to a distance of four or five inches from the base. This removal can be the most readily effected by breaking them off sideways with the thumb. For securing the buds in their proper places a supply of bast or worsted should be obtained and be cut up into lengths of fifteen or sixteen inches. For convenience of using, tie the lengths into a neat bundle, and form the ends of the tie into a loop for suspending it to a button of the coat when proceeding with the budding. The best buds are those taken from healthy shoots of a moderate size and rather firm, but not so firm that the buds cannot be readily detached from the shoots. They should be inserted on the upper side of the young shoot, and about two inches from the base. In preparing the shoot for the insertion of the bud take the budding knife firmly in the hand, and with the point make a longitudinal incision about one and a half inches in length and of the depth of the bark, and at the upper end of the incision cut the shoot half-way across and just deep enough to reach the wood. Then with the handle of the knife raise the bark on each side of the incision and prepare and insert the bud. To prepare the buds, take the shoot in the left hand, select the bud to be employed, and cut it off with a shield-shaped piece of wood, which should be about three-quarters of an inch in length below, and about half an inch above the base of the leaf stalk. With the thumb-nail detach the bark from the small piece of wood and insert as quickly as possible. The upper end should be square, or nearly so, to admit of its being more readily inserted, and when the bud is placed in its proper position it must be made secure by binding the shoot with a strip of the bast or worsted. Buds obtained from the upper end of the shoot where the wood is soft may be inserted without the removal of the wood; but the inexperienced amateur should use those buds only of which the wood is firm enough to require removal. One of the most important matters in budding roses is to use a sharp knife, and cut the bark clean. It is not of much consequence if the wood is touched with the knife, but the bark either of the bud or stock should not be bruised at the edges, for when it occurs the union does not take place so quickly as could be desired, and in many instances injury to the bark is the cause of failure. Amateurs very often fail at first in making clean cuts, but this difficulty can be surmounted with very little practice.

SUMMER EPIDEMICS.—Medical officers of health, as hot weather approaches, should remind the public that if they desire to be free from such infectious diseases as Scarcle Fever, Small-pox, and Measles, they should wash only with WRIGHT'S COAL TAR SOAP. Purchase only the genuine (Wright's), which is branded (as the medical profession prescribe), "Sapo Carbonis Detergens."—[ADVT.]

A CHAT ABOUT PEACH GROWING.

"How are your peaches this year?" "Oh, bad. You remember the storm on that Saturday, some weeks ago? Well, it shrivelled them all up, and very few are left. I am so fond of peaches: it is most annoying." "Why don't you put them under glass?" "Look at the cost. I would if it was not so dear." "What would it cost you?" "Oh, a lot of money. I am afraid to inquire. More than I can afford, I know." "I don't know so much about that. Let us go and see how J.'s are getting on."

J. is a queer fellow: never does anything in the ordinary way. He has built a wall without bricks, a roof without a gutter, gearing to open lights without ironwork, trains his trees on wire no bigger than tea-twine, and grows them in boxes about the size of clothes trunks.

We find a peach house 100 ft. long, only 5 ft. 6 in. high in front, 7 ft. 6 in. high at the back, and 6 ft. wide. You can reach any part without a ladder or even steps. The house next the boiler is the early house, 40 ft. long, and has No. 4 four-inch pipes; the other house, 60 ft. long, is the late house, and has No. 2 four-inch pipes. In the ground, 8 ft. centre to centre, are tanks of concrete slabs 3 ft. long, 3 ft. wide, and 3 ft. deep; in the bottom of each tank is a hole, and under it in a vertical position a common 4-in. drain-pipe with a brick over the top to keep the rubbish out; in the bottom of the tank six inches of broken bricks with turf, grass downwards. So then all this dodging, you will see, is to keep the bottom sweet; and to prevent water-logging the tank is filled with red turfy loam, and the trees supplied by Mr. Charles Turner, of Slough, who has always been J.'s friend and adviser under horticultural difficulties. So much for the trees; now for the house.

The sides of the tank stand about six inches above the ground, and on this J. has laid his sill, bevelled so that the water cannot lie on it; only, instead of being outside, as all well-regulated sills should be, to catch all the wet and rot quickly, it is inside, and the rain never touches it. The bars are outside the sill, and run down to the ground, or nearly so, and a slate stuck into the ground, and bedded on the bar with putty, just as a square of glass would be, makes it all right at the bottom. The upright bars are $3\frac{1}{2}$ by $1\frac{1}{2}$, rebated and chamfered; the roof bars are the same size, with struts at intervals to prevent raking; the back bars are the same section. The bars are simply mitred at the angles like a picture-frame; the eaves-plate and the head at back are inside, out of the wet. By this arrangement no gutters are required, and all the rain-water that falls on the roof runs down over the front glass into the border, so that the trees in front are watered by the rain, as if no roof was there. The ventilators are sashes hung to loose rails, and are screwed on wherever required. A wooden rod and a wooden cog open a length of 60 ft. with great ease, and an oak fillet, like the joint of a parallel ruler, connects the rod with the ventilator, both for the front and the roof. All is glazed with putty. Jones does not believe that putty has been beaten, and his friend, Mr. C. Turner, quite agrees with him. The house was built, says Jones, in 1873. "Did you," we say, "employ a local man, or a regular horticultural builder?" "Oh!" says Jones, "I don't believe in local men for special matters like this." "Who was it, then?" we said. "Guess," said Jones. "Was it W.?" "No." "Was it O.?" "No." "Was it L.?" "If you guess again," said Jones, "you will guess wrong."

"What did it cost you?" we asked. "Well," said Jones, "the cost of this was mixed up with some other matters; but the builder was here the other day, and I told him I had been asked the cost, and I should like to know what one like it could be erected for. He said, 'The cost of tanks, slate back wall, front and roof, the two walls wired for trees, with ventilators in front and roof 10 ft. apart, early house 40 ft. long, with No. 4 four-inch pipes, late house 60 ft. long, with No. 2 four-inch pipes, and saddle boiler, would be £235; and it is made up by taking the front, roof, two ends, and a division at £102, a wood lattice path at £13, wiring front and back at £10, heating with boiler, pipes, and valves at £50, stove-hole at £12, and twenty-four tanks for trees at £18; the back wall of slate and bars costs £30; and if any of the above items were omitted the cost would be reduced in proportion.'"

"When was it built?" we asked. "Here comes my gardener," says Jones; "he will tell us all about it."

"The house," said Jones's gardener, "was put up in 1873, and the trees planted the same autumn. I picked a few in 1875; since then they have borne regularly about 1,200 peaches and nectarines in all every year. The early house I started on November 1st; in January it was in flower, set in February, and the fruit, about 200, were ripe in the middle of June. The late house I started January 18; it was in flower in April (and a beautiful sight it was), fruit set in May, and they will be ripe about the middle of July, and generally last through August and into September. At present there are about 1,000 peaches and nectarines on the trees, which may be taken as the average."

"Well, but when you talk about starting in November it must cost a lot for coke to keep up the heat all through the winter. What do you suppose now the two houses with their 1,200 peaches cost you in firing for the whole year?" "I have not," said Jones's gardener, "kept those houses separate, but I think if I say £5 it will be about the mark."

"And how much time?" say we.

"About two hours a day for one man, taking all the year round," said Jones's gardener.

I fancy I see you jerking your head, and saying, "I would give something to see this peach house."

How much will you give? Will you give two hours' time, and five and sixpence in money; because, if you will, it can be done for that, and in this way. Take the train from either Victoria, Charing Cross, or London Bridge, to East Croydon; then ask the cabman to drive you to Middleheath, Sydenham Road North. That is Jones's house; go in at the garden gate (there are no dogs about), and ask for the gardener. Take this paper with you, cross-examine the man as much as you like, and if you find I have overstated anything write and say so.

W. H. LASCELLES.

TO MAKE SAUCE.—In answer to inquiries how to make a good sauce, the following I consider excellent. I do not offer it as Lea and Perrin's, but I do say that is equal, if not superior, to it in my opinion. It is not a recipe copied out of a book, but one I have known a long time. Shallots, half a pound; pimento powdered, one ounce; mace powdered, half an ounce; half a nutmeg powdered; anchovy fish, quarter of a pound; salt, one ounce; cayenne, quarter of an ounce; vinegar, three pints; soy, six ounces. Chop or bruise the shallots, beat up the anchovy fish, mix all together, stand for a month or two, and, lastly strain through a coarse sieve.—C. I. B.

A GARDENER'S SPEECH ON THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.

THE report of the dinner of the Gardeners' Royal Benevolent Institution is always interesting, and this year it is especially so. If I could choose for myself, there are some speeches not reported I should like to have the text of, and some that are given I could do without. I quite agree with your reporter that much of the loyal, patriotic, and complimentary oratory that swallows up the early hours of a public dinner might be dispensed with to advantage. I think, if I were to become king, I would issue an edict giving permission to convivial assemblies to drink to my health and prosperity, but forbidding all speech upon the subject. I do not doubt I should thereby secure the affections of my subjects in a more lasting manner than by the aid of the new prevailing twaddle which is supposed to be expressive of loyalty and patriotism. But, as I am only a gardener, I shall have to let the world go its way in respect of such matters, and therefore I cannot hope that there will ever be sufficient time allowed at the dinner of the Gardeners' Benevolent Institution for the proper discussion of the subjects it brings before us. At these dinners, and in all letters to the papers, as well as in all addressed from the Council when they send the hat round, there is one and the same theme that appears to constitute the stock in trade, and it is descanted upon with dreadful iteration. The Lord Mayor dropped into the groove at the last dinner, and the well-worn theme comes out in his speech in just such a way as if we had never heard it before. And this is the theme—the apathy of gardeners in respect of this institution. I beg permission to discourse on this subject.

It occurs to me to call to mind certain words uttered by Mr. Hibberd when presiding at a meeting of gardeners at Manchester some years ago. He said gardeners are no better than other men. Whether this be true or not, I remember Mr. W. Thomson declared his belief that they are better, or they would not endure the hardships of their lot at the rate of wages current. But I will accept Mr. Hibberd's doctrine, and on the wages question I will say nothing. Then I come to this theme, and I say that gardeners being as good, but no better, than other men, act very fairly towards the Gardeners' Benevolent Institution, and it is high time active friends of that admirable charity ceased to lecture them on the subject. Where and when have you seen working men subscribing largely and generally to a charity? They have enough to do in subscribing to funds on which they have a claim, and for the sake of which claim they hand in their little moneys. This affair is either a charity or an assurance. The Lord Mayor seems to think it should combine the features of both, and I am glad to learn from the Magazine that in the past two or three years subscribers have been placed on the funds without an election. It is not unlikely that it may become a sort of insurance or annuity fund, supplemented by subscriptions from persons who value the services of gardeners and are willing to aid the afflicted and unfortunate of their number.

But if gardeners are no better than other men, it is also true that they are no worse. If, by their apparent slackness to subscribe to this charity it be inferred that they are careless of their own interests, I contend that the case affords no test whatever, because gardeners, like other men, are provident in their own way, and subscribe to various clubs and societies and save money as best they can; and, as a rule, they do not fall into penury when age overtakes them. There is another institution that has claims upon them, and that is the United Horticultural Provident Society, of which Mr. McElroy, is the secretary. This is a thing of their own exclusively, but it grows slowly, though, as I am informed, it is thoroughly sound, and in what may be called a state of quiet prosperity. Why are we not lectured for holding aloof from this? If it has one hundred members, why, some Lord Mayor may ask, has it not a thousand? And the reply is that a general organization to cover or represent all the gardeners of the British Empire is not wanted. For example, I belong to two provident societies, and in the event of certain contingencies I have claims on those societies, and I have made other provisions, and, so far as I can judge at this moment, I need not proceed further in anticipation of a rainy day. The local element is left out of sight when large movements are on foot; but as long as time lasts men will associate with their neighbours in these matters, and they will, whether right or wrong, make distinction between a charity and a benefit or assurance fund.

But when this distinction is made I am ready to subscribe to the Gardeners' Royal Benevolent Institution, and when the collection is again made it will find me ready. There are, and ever will be, gardeners in need of assistance, for which they have not themselves provided, and it is well that the purse out of which they are aided should be contributed to by gardeners as well as by their employers. Two things are greatly needed, namely, the raising of the pensions to twenty pounds, and the extinction, however gradually, of the system of election. But let it never be forgotten that the position of the gardeners in respect of this institution is no proper measure of the thrift or providence of gardeners as a body. I am satisfied that were the whole case inquired into fully, it would be found that in respect of making provision against age and calamity gardeners are better than other men of their own status in life, and as regards the exercise of charity they are no worse. Tell me of any craft the members of which can shame them by comparison?

HORTULANUS.

A NEW HYGROMETER.—In a recent note to the Paris Academy, M. Creva has described an instrument for measuring the moisture of the air not subject to the uncertainty characterizing the indications of previous instruments when the air is agitated. The observer looks through a tube towards a source of light. This tube is of nickel-plated brass, highly polished within, closed at the further end with ground glass and at the nearer with a lens. The ground-glass plate appears as a luminous disc, and the polished interior, by its reflected light, has the aspect of a bright annular space round the disc. The air whose moisture is to be ascertained passes slowly along the tube, entering and leaving by tubulures at the ends connected with a suction arrangement. To cool the tube, it is surrounded by a metallic sleeve filled with sulphide of carbon, through which an air current is passed. A thermometer is inserted in this liquid. When the temperature of the air under examination reaches saturation, dew is deposited, appearing like dark brown spots, which contrast strongly with the bright disc when seen directly. A gradual rise of temperature makes these disappear, and thus by repeated appearances and disappearances the dew-point may be estimated with an approximation of one-tenth of a degree.

THE IVY AS A CONSERVATORY PLANT.

WHEN lately wandering in Amsterdam we made note of an ingenious employment of the common Irish ivy in the dressing of a screen covering an ugly wall in a public garden.

An alcove has been constructed of rustic woodwork, the uprights and arches of which are clothed with ivy, and a few basket plants, statues, and plants in pots are scattered about to make up a picture, and the result is an effective arrangement, which may be called a screen or an alcove, the principal colour and character of which are determined by the rich growth of the ivy. At the time of our visit a few tree ferns had been thrust in, as though to aid them in their new growth by the subdued light of the alcove, and they added very much to the general effect.

The uses of the ivy are simply innumerable, but this may be counted as amongst the most important. The plant will thrive under conditions adverse to many other kinds of vegetation, and where light is deficient and fresh air not plentiful the ivy is likely to live and look

INFLUENCE OF FORESTS ON CLIMATE.

By R. SCHOMBURGK, Dr. Phil., Director of Botanic Gardens and Government Plantations Adelaide, South Australia.

It is still doubted by many if forests are of importance to climate. In 1870 I read a paper before the Philosophical Society on the subject. Since then many more important observations have been made in Europe, especially in France and also in India, on the matter, which have proved the influence of forests on climate.

As the late Forest Board has offered large numbers of forest trees *gratis* to persons who intend planting them, public bodies and farmers should not allow this opportunity to pass. Farmers can always find plenty of spare room on their land for growing forest trees. There are always some odd corners, strips, stony or damp patches which it does not pay to cultivate. Why not plant forest trees? Once planted and fairly started, they will take care of themselves and give no trouble. They are not only ornaments to a country, and the most useful product of nature, but give shade and shelter, retain moisture, and produce timber.

Many people give as their reason for not planting forest trees that they will not live long enough to derive any profit from them. I cannot omit to mention here, for persons who have a family, the following anecdote:—"When Ulysses, after a ten years' absence, was returning home from Troy, he found his aged father planting trees in the field. He asked him why, being now so far advanced in years, he put himself to the fatigue and labour of plant-



RUSTIC ALCOVE WITH IVIES AND POT PLANTS, BOTANIC GARDEN, AMSTERDAM.

well, and in many possible cases is the only plant that could be employed with a reasonable prospect of success. We say, "possible cases" advisedly, because ten thousand possible cases may be found where there is no ivy at all, and no one has ever thought of planting anything. How many entrances and exits, corridors and canopies, recesses and reserves, that are ugly, dry, and repellent might be made amenable to healthy taste by a garniture of ivy! As regards the first consideration, it may be said that it costs nothing, and will grow anywhere under any conditions. That, of course, is not quite true, but it is so nearly true that the common-sense-grain-of-salt abolishes all difficulty. The manner in which in many houses in Paris the ivy is trained around a room far away from the windows, and with very poor provision for the roots, tells with remarkable emphasis of its exceeding usefulness in situations where vegetation is for the most part "forbidden fruit." In the instance before us the Emerald Ivy would surpass in beauty and neatness of growth by many degrees the variety employed. But this is no matter. People are apt to seize on the thing that is nearest to them, and a healthy breadth of Irish ivy has a value that no one could express in commonplace words.

ing that of which he was never likely to enjoy the fruits. The good old man, taking his son for a stranger, gently replied, 'I plant for my son Ulysses when he comes home.'

I reprint my lecture, with the additional observations which have since been made in connexion with this so important subject.

Whether or not forests are of importance to climate is a question pretty freely ventilated of late by science; but how important they are in the household of nature, and how closely connected with them is civilization, I shall endeavour to prove.

Several of my remarks were gathered out of a work, "The Forest," of Professor Schacht, a German botanist, who, having distinguished himself by his works on botany, died in the prime of manhood, and too soon for science, which lost in him one of its talented disciples.

Wherever we look we find the produce of the forest; wherever we go we come in contact with it. Our dwellings, furniture, ships, railroads, tools, &c.; our minds could not exist without it, nor could we protect ourselves from the cold of the winter—could not prepare our food—could not use the power of steam to fly across land and sea, if there were not, or had not been, forests. The climate, sheltered situation, humidity, and fertility of soil depend on them.

In Nature we behold a constant circulation of matter. The plants and trees absorb the carbonic acid generated by breathing or liberated by decomposition, and exhale instead oxygen, and this oxygen is necessary to the breathing of the living creation.

The green leaves and young branches of trees derive a great deal from the atmosphere by binding the carbon of the carbonic acid for the purpose of producing woody substance, anylon, fibre, &c. Likewise the soil gets the benefit by the dropping of the leaves, which, decomposing, return to it partially the material taken out of the ground by the roots. But what is equally important, the leaves also cover the surface, when decaying, with a rich layer of humus, the shadows of the trees keep the ground moist, so a constant decomposition takes place.

Now, we know that water is necessary for the existence of plants, for without water no diffusion—without diffusion, no vitality. If on one side the forests absorb a great deal of water out of the atmosphere, they also on the other side exhale humidity on a large scale. As a rule humidity surrounds them, rain falls, and dew. In the same manner as the lightning conductor attracts the electric fluid, the forests attract and draw down the rain clouds, which benefit themselves, and likewise the neighbouring agricultural land. We find therefore, as a consequence, always good agricultural land near forests.

Without doubt we are all acquainted of the fact that plants are not only nourished by their roots, but also by their leaves, which are the lungs, and by their inhaling and exhaling purify the air in a great measure. It is perfectly understood that dew is nothing else but a deposit of mist or vapour on the surface of the earth; which can only be generated by having been exhaled or evaporated from the surface of the earth; but the dry sand and naked rock cannot exhale any humidity, therefore dew very seldom falls on them, and only in consequence of attraction by a neighbouring forest. The forest itself, presenting a very large surface for evaporation, returns the loss of the soil in the shape of a refreshing dew, which falls on it in abundance. If we find that very little dew falls on the soil of a very dense forest, the reason is the rays of the sun cannot penetrate deep enough and convey heat thither, consequently very little evaporation can take place and produce radiation of heat.

It is perfectly well known that most of the rivers spring from wooded mountains. The forests conserve the water of a country, and thus nourish the rivers and springs. In a desert the rivers generally dry up. All those magnificent and powerful rivers of North America spring from primitive mountainous forests; but I doubt if they will continue to discharge the same quantities of water into the sea in the future, when their mother forests are gone. We already hear that the Mississippi is getting perceptibly lower since the last decennium.

We also know that when, during the winter, when snow and ice melt, great bodies of water suddenly gather in the mountains, and come rushing down with disastrous effect. But even here we perceive a great difference in the manner the waters are drained off. For instance, if such a stream springs from a dense forest, a great deal of ice, snow, and water are retained by the layer of humus, acting like a sponge, and consequently the water is drained off gently, and with much less danger. But when once the forests of a country are gone there is nothing to check the wild impulse of the waters, and very destructive inundations take place. With reference to this, I wish to point out, as one instance only, the fearful inundations caused every year by the Rhône in France.

A mountain range, a forest, protects us against the winds, and we have no business to undervalue this protecting power of the forests, for it favours the growing up of your plantations, keeps the neighbouring agriculture in good condition, stops the progress of sand, keeps swamp fever and ague away, and counteracts the drying effects of some winds, besides affording cooling shades. We note the astonishing fertility of tropical forests. Looking at this, I fancy that nobody could reasonably doubt the beneficial influence of forests.

We have good reason for presuming that a great many mountains, at present naked and denuded of trees, were formerly closely timbered. But when they were cut down, the layer of humus left behind was protected no longer, the springs dried up, every violent rain washed some of the good soil away, and that remaining became poor, and the vegetation died.

A government or public body assuming the direction of a newly-established colony ought always to make the preservation of forests a first consideration, and to establish protective laws whereby the forests could be preserved and be made to yield a handsome revenue to the State at the same time.

No doubt some countries at the present time bearing the character of a hopeless desert were always so—for instance, the Sahara; but other countries now in a similar plight were formerly in a different condition. All those vast and almost endless savannahs or plains and prairies of Australand, South Asia, were once heavily timbered; Diodorus, of Sicily, at least, mentions the existence of immense forests destroyed by fire.

According to Caesar and other Latin authors, Germany was covered with immense forests; and according to Herodotus and Thucydides the same was the case with Greece, Italy, Spain, France, and England. If we believe in the testimony of Diodorus, the forests of Spain were devastated to a large extent. We know that this country, when subjugated by the Romans, was covered with large forests, especially its southern provinces. But at the present time only her coast retains the forests, and the interior presents the aspect of a vast plain covered with heath, lavender, and rosemary.

The forests of the Peloponnesus were burnt down by Ali Pasha, and in consequence there came famine and drought. Likewise a Russian general, in modern times, rendered his name infamous for ever by burning and destroying wholesale the forests of the Caucasus, for the purpose of routing out and starving the brave Tsherkessians. The name of the man is Dibitsch Balkansky. Since the destruction of these forests the climate has entirely changed; the country has become barren, droughts and famine set in, and in consequence thousands of these brave people emigrated to seek a new home in Turkey.

In the Islands of Mauritius, Jamaica, and the Azores, in the two former, for the purpose of extending the sugar cultivation, where the forests have been cut down, so that some parts of these islands are now totally denuded of trees, the results are felt most alarmingly. The rain has become less every year; springs and rivulets, which before flowed uninterruptedly, have now ceased to flow.

The respective governments of those islands, convinced of the injury done to the country, have taken steps to replant the forests. Especially in Mauritius, the replanting has begun in full earnest, and our gums are partly used for the purpose.

If in tropical countries the influence of forests on climate is so apparent, how much more must it not affect a dry climate like South Australia!

From Denmark, Sweden, Russia, Germany, and North America, in fact from almost every direction, we hear accounts how forests disappear, how fuel becomes dearer every year, and the re-establishment of forests becomes a question of a very grave aspect and immediately connected with the welfare of a country.

A gentleman and scholar, knowing his Homer and Horace by heart, and travelling through modern Greece, could never find out the meaning of the famous wine of Moretis, for its vineyards a long time ago ceased to exist. He nowhere could behold the sacred pine grove of Posidon. Where are now the pastures around the sacred castle of Dardanus, on which 3,000 marcs used to browse?

Let us hope that the times have passed for ever when the progress of civilization was equal to wasting and desolating the surrounding nature. One thing is certain, a broad strip of waste land follows in the wake of culture, and noxious weeds like henbane, solanum, thistles, &c., serve to mark the footsteps of man. Before him Nature in all her beauty; after him desolation and hopeless waste. Looking at this picture, we have no cause at all to be proud of being called the lords of creation, but let us hope that the future generations will be wiser than the past.

If any one still feels inclined to doubt the influence of forests on the climate of a country, I beg to give several instances of modern times. The Delta of Egypt, well known for its dry climate after the destruction of its forests, olive, and other plantations, had about six rainy days every year on an average, but since so many millions of useful trees have again been planted the rainy days have increased to forty days annually. It is also mentioned that the Viceroy, Mehemed Ali, had planted on the Delta twenty millions of trees. These results are confirmed by renowned travellers in Egypt, but especially by Mons. Pouchet.

Napoleon III., with all his faults, has given the world an example, which, at least in France, will render his name for ever immortal. Convinced of the great benefit the barren and swampy districts of France would derive if planted with trees, by his command many millions of trees have been planted in such districts of his empire; also by his command thousands of acres of the desert of Algiers have been transformed into forests, with trees suitable to the climate, and with surprising results.

By the last accounts these plantations, especially of the Australian species, have already reached the height of 30ft., to 40ft., and with their rapid growth a great change of the climate is observable, and twice more rain and dew has fallen in the neighbourhood of these forests than before. By his command more than sixteen geographical square miles of the swampy and unhealthy country along the coast of the Bay of Biscay, in the Department of Landes, where swamp fever prevailed, have been planted with millions of trees, especially the cork-oak and swamp pine (*Pinus maritima*), with a surprising beneficial result. Not alone that the trees have drained the land, but have changed it into a healthy country with fine forests.

In 1856 Messrs. Bequerel (father and son), in France, published a series of observations on the importance of forests on climate, and the great influence they have in regard to rain and temperature, and showed at the same time the injurious effects on the climate by cutting down the forests. In consequence, to test those observations, the French Government ordered to be made by the Forest Academy at Nancy a series of meteorological observations in the neighbourhood of forests and also in plains denuded of trees. These observations were read some time ago before the Academy of Science at Paris, and the result showed that during the time the investigations had been made one-quarter more rain fell annually in the neighbourhood of forests than in plains denuded of trees. It is further stated, in regard to the temperature near forests, "The forest effects the same equal temperature as the sea does along the coast, and that a great contrast in this regard was found in the temperature of plains."

Since Messrs. Bequerel's, most important observations have been made in France by Messrs. L. Fantrat and A. Sartiaux, which were continued over a period of three years in the forests of Hallate, having an extent of surface of 5,000 hectares.

It is an established fact that of the rain which falls over a normal forest only about half of the quantity reaches the ground, the other parts remaining on the leaves, branches, and trunks of the trees. Mr. Fantrat, therefore, erected a platform, which reached two metres higher above the tops of an oak and beech forest of twenty-six years' standing. The following meteorological instruments were fixed on the platform, viz.:—Rain gauge, psychrometer, maximum and minimum thermometer, and an evaporimeter, to learn the exact quantity of rain falling over the forest, the degree of the moisture, the temperature of the air, and the evaporation of the water.

Three hundred metres from the forest, on a plain denuded of trees, another platform of the same height was erected, with the same instruments.

The observations of the first six months, from February to July, the rain which fell over the forest was 7.578 in., and over the plain (300 metres distant from the forest) it was 6.956 in., or .610 in. less than that which fell over the forest.

The hygrometrical observations proved that above the tops of the trees a large portion of vapour exists, which does not appear on the plain.

From the 1st of March till the 1st of December the average of the damp atmosphere was 66 deg., and over the plain 61.72 deg.

An interesting fact was observed, that the highest degree of vapour in the forest exists during the spring, when the young growth of the trees appears, and when the trees exhale the greatest quantity of carbon. These vapours are beneficial for the cultivated lands surrounding the forest—they spread over the neighbouring ground, and fall during night as a fertilizing dew.

Mr. Fautrat, after his observations in the Hallate forest, made similar observations in the pine forest of Ermensville, to ascertain if a pine forest has the same condensing property as a deciduous forest. Similar platforms like those in the forest of Hallate, and the same meteorological instruments, were used. The other was erected in a treeless sandy plain near by.

The results of these observations during fourteen months were, viz.:—The fall of rain over the pine forest was 33.098 in., and in the plain 29.832 in. Mr. Fautrat also came to the conclusion that the pine forests possess still a greater condensation influence than the deciduous forests.

The hygrometrical observations showed that the average humidity was 63 deg., and that of the plain 53 deg. But the evaporation of the pine forest is much quicker than that of another forest.

In Japan a law exists that whoever cuts down a tree is obliged to plant another in its stead. In Biscay every proprietor plants two for one which he cuts down, and the law compelling them is severely executed.

By an ancient law of some nations he forfeited his right hand who cut down a tree without permission of the owner.

Truly, the desolation, the waste, and the destruction of our forests in the earlier days of the colony has been so general that it was imperatively necessary to take some effectual remedy against the continuance of this evil, and devising a scheme both of protection and production. A forest department under a board and forest reserves were proclaimed in different parts of the colony for the purpose of regenerating forests, for which the next generation will, no doubt, bless us for this important underlaking.

The House, Garden, and Apiary.

A LESSON OF CHEERFULNESS.

I THINK we are too ready with complaint
In this fair world of God's. Had we no hope
Indeed beyond the zenith and the slope
Of yon grey blank of sky, we might grow faint
To muse upon eternity's constraint
Round our aspirant souls; but since the scope
Must widen early, is it well to droop,
For a few days consumed in loss and taint?
O pusillanimous heart, be comforted,
And, like a cheerful traveller, take the road,
Singing beside the hedge. What if the bread
Be bitter in thine inn, and thou unshod
To meet the flints? At least it may be said,
"Because the way is short, I thank thee, God?"

ELIZABETH BARRETT BROWNING.

THE HOUSE.

AT this season of the year, when the flower garden is brilliant with colour, the subjects most suitable for the decoration of indoor apartments are ornamental-leaved plants with green and variegated foliage, palms, and ferns. Amongst the plants with massive leafage, the India-rubber Plant is simply invaluable, as it is at once most easily grown and remarkably effective. One of the most useful of the variegated-leaved plants for the window is *Aspidistra lurida variegata*, which is quite hardy and may be grown in a room for an indefinite period, as, unlike many other subjects, it increases in size very slowly and may be readily kept within bounds by dividing it when it is becoming too large. Amongst plants with green leafage, exclusive of the palms, is the well-known *Acacia lophantha*, which is readily raised from seed and can be kept in excellent health in positions where it has but little light, and it is exceedingly elegant. Some of the palms are of special value, the most generally useful being *Chamærops humilis*, *Corypha australis*, and *Rhapis flabelliformis*, amongst those with fan-like leaves, and *Kentia australis*, *K. Belmoreana*, *Areca lutescens*, *Phoenix rupicola*, and *Seaforthia elegans*, of those with plummy foliage. These are mentioned because of their being comparatively hardy in constitution and well able to withstand without material injury the adverse influences to which plant life is subjected indoors. Green-leaved and variegated *Dracenas* form a splendid group from which to select for indoor decorations, and as all are so it is not necessary to make a selection. The hardest perhaps is *D. congesta*, a bold and elegant species with dark green leaves.

THE GARDEN.

AZALEAS should now be occupying a rather shady position with their pots upon a hard surface or upon a bed of coal-ashes. It is very important that the watering should have the most careful attention, for if they are subjected to drought at this season of the year they will suffer severely. On the other hand, they must not be kept so wet that the soil will become sour.

CHRYSANTHEMUMS in the open ground to be topped again, and the soil between them lightly pricked over with a small fork, and some quite rotten dung worked in. It will be found that they always root near the surface, and a dressing of dung will greatly help them and save the labour of watering.

FIGS producing a second crop to be fed liberally, and have a top-dressing of quite rotten dung. The top growth must be pinched back.

FUCHSIAS not yet in bloom must be syringed twice a day and have moderate shade. Fine plants in comparatively small pots will be greatly benefited with weak liquid manure every three or four days.

HARD-WOODED PLANTS requiring a shift this season must have it at once, or the time will go by for them to derive full benefit from the operation. The most important matter of all is to secure good drainage, and to use the compost in as rough a state as possible consistent with the size and nature of the plant.

MELONS swelling fruit to have plenty of weak liquid manure; those ripening their fruit to be kept tolerably dry, but if kept too dry the foliage will become infested with red spider; so endeavour to keep them in good health on the smallest possible supplies, and give plenty of air.

PEACH and NECTARINE TREES must be fully exposed to the atmosphere as soon as the fruit is gathered. Where the fruit is still hanging, give plenty of air, and every morning a light skiff with the syringe over the leaves. Wall trees are generally loaded with superfluous wood, through the prevalence of a delusion in favour of plenty to choose from at the winter pruning. Choose now, and remove all that will not be wanted and what is left will ripen properly.

PELARGONIUMS, as they go out of bloom, to be placed in a warm, sheltered, and rather shady place for a week; then to be cut down and put in the full sun, and kept rather dry at the root, with occasional sprinklings of the stems and leaves till they break, and then to be re-potted back into small pots with sound lumpy turf to make their new roots in.

PINES.—Where the fruit is swelling nicely, sprinkle the surface of the paths and soil frequently; but where the fruit is changing colour discontinue the sprinkling, and give only just enough moisture to keep the plants in health.

VINES now require air night and day from the time the grapes are gathered, unless they are in poor condition, and the wood very green. If so, shut up early, and in another eight or ten days the wood will be hardened, and then there may be air on night and day. Grapes ripening not to be syringed, but to have a moderately moist atmosphere and plenty of air.

WINTER GREENS to be planted out in plenty now, as peas, potatoes, and other crops are taken off. Coleworts, Brussels Sprouts, and other quick-growing subjects that will mostly be used before Christmas, to be planted in manured ground, but those to stand till next spring, to furnish sprouts, not to be manured, as it renders them less able to withstand severe frosts. Continue to plant Broccoli, Brussels Sprouts, Scotch Kale, and everything else of the kind from the seed beds.

THE APIARY.

IN districts favourable to the gathering of honey supers that were put on strong hives in April will be ready for removal. They should at all events be examined, and if it is found that they are well filled and the honey sealed they should be removed and others put on to take their places. These latter should be somewhat more capacious than those removed, to afford the bees plenty of room, and if furnished with guide combs to facilitate their being filled it will be an advantage. It may not be amiss to remind beekeepers who have not had very much experience that hives ought not to be fully exposed to the sunshine during the summer season, because an excess of heat prevents the bees working so freely as could be wished, and, moreover, makes them very irascible. When the hives stand out in the open, a garden mat doubled and laid over them will be of material assistance in helping to prevent the temperature rising too high. A covering of old carpet or any woollen material may be employed if mats are not available. Large milk pans turned over the hives and then covered with mats or strips of old carpet form perhaps the most serviceable covering that could well be had for the summer season. When glass supers are employed they should as a matter of course be protected with empty hives.

FLOWER TRIALS AT CHISWICK.

THE Chiswick garden of the Royal Horticultural Society has for a long time past been as gay as any garden of its kind can possibly be. A place devoted to work cannot appear everywhere and at all times perfectly picturesque, but very much is accomplished here to gratify the senses without interfering with, but rather perhaps in aid of, the experimental culture to which in the main the garden is devoted. One of the most beautiful amongst many good features of the place is the Rockery, which is brilliant now with summer flowers, as, at the time of our last visit, it was hight with spring flowers. The little Indian strawberry riots on one of the banks in the most glorious manner, sprinkled with its yellow flowers and scarlet fruits. Wallace's saxifrage still displays copious sheets of white flowers, as though destined to be in flower for ever without an hour of rest. The campanulas are very conspicuous, especially *C. carpatica* and *turbinata*, which are sheathed with flowers, while the rosy purple *C. nobilis* is fresh and bright and flowering freely. The sedums are conspicuous by their masses of flowers, and dianthus, erodium, polygonum, iberis, and potentilla are well represented. A remarkable rock plant is *Thymus rotundifolius*, which is now so densely covered with rosy lilac flowers that the undergrowth is hidden, so that we do not look for its round leaves. This rockery might be visited three times in the year at least with advantage by any one interested in the kind of vegetation it accommodates.

VARIETIES of MIGNONETTE have been largely grown for trial, and the Floral Committee were on Saturday last called upon to adjudicate upon their several merits. There are some large open ground pieces, and a considerable collection of plants in pots. Although these differ in degrees that are far from striking, except to eyes accustomed to minute criticism, they may be classed as white, red, and yellow. Amongst the first group are Parson's White, Carter's New White, Hemsley's Giant White, and Vilmorin's Odorata Grandiflora. The most conspicuously white in this series is the first named; but Hemsley's is a more robust variety, and a fine thing in its way; and Vilmorin's is the earliest. This last has other good qualities: it is peculiarly compact in growth, the heads of bloom are large and highly fragrant, and the samples obtained from several sources are remarkably uniform in growth, showing satisfactory fixity of the characters. The committee selected this as the best of its class. The red varieties are well represented by Barr and Son's *Pyramidalis Gigantea*, Veitch and Sons' Giant Red, and one named *Odorata Pyramidalis Grandiflora*; Messrs. E. G. Henderson contributed *Gigantea Pyramidalis*, and Messrs. Carter and Co. the *Crimson Giant*. These differ but in very slight degrees, for there is no red mignonette so strikingly red as Parson's White is strikingly white. The choice of the committee fell upon *Pyramidalis Grandiflora*. The yellow class is good throughout, but far ahead of all the rest in its striking tone of orange-yellow and its robust even growth is the *Golden Queen*, which has had many words of commendation in these pages. To this the committee awarded a first-class certificate.

Other kinds that were noted as good but were not certificated were Miles's Spiral, well adapted for pot culture, and Dwarf Compact, with a red tone of colour, also well adapted for pots. Dwarf *Pyramidal Bouquet* is also a good variety, but better adapted for bedding than for pot culture.

PELARGONIUMS fill several houses, those occupied by the decorative and fancy varieties and the zonals being gloriously gay with colour. The collection of species has its special attractions, but the committee had other work to do than to look at them. Many new zonals and some few old ones were brought forward and subjected to searching criticism. Miss Hamilton, a finely formed blush-coloured flower, obtained a first-class certificate. The same honour was bestowed on Lemoine's Kleber, a remarkable nosegay with narrow-petalled flowers, the colour vivid purple with strong orange spot. In respect of colour this is probably the finest variety of its class known. Lamerlaye, a large scarlet, with clear white eye; Attala, light vivid scarlet; Eva, strong purple red; Olive Carr, a grand thing of the *Beauté du Surcne* class, very fine in colour and a splendid trusser, were selected for first-class certificates. All these are Pearson's. A very fine double also from the Chillwell seed-bed, named Aglaia, was selected for the like honour. This produces compact trusses of a deep crimson colour, and appears to have every quality required in a double zonal. A grand double from Lemoine, named Got, with bright green leafage and immense trusses of clear scarlet, obtained the award of F.C.C. by acclamation, as did some others from the famous nurseries of Nancy. Mons. G. Hardy, double rose-pink, very soft, the truss complete, and holding well in the centre; Candidissima, light green leaves, large globular trusses, pure white, the finest of its class; Comte Horace de Choiseul, double ivy-leaved, no zone, flowers light cerise shaded rose; Contesse de Choiseul, double ivy-leaved, small zone, flowers pure rose; Belle du Jour, and Madame Hermant, complete the list of those of Lemoine's that were certificated. The last two are decorative varieties of the finest character, the last on the list being in the way of Lucy Lemoine. The following were also noted in the collection sent for trial culture, but there was no award made in respect of them: Dr. Cervain, double zonal, rich plum colour, considered scarcely so good as Darwin; Augusto Gwilliamus, double salmon, rich and clean; La France, hybrid ivy-leaf, with very much of zonal character, flowers salmon pink. The committee expressed an opinion that this could not be shown in a class devoted exclusively to ivy-leaved varieties: Rossini, single ivy-leaved, flowers rich purplish crimson. A pleasing decorative variety named Annie Hemsley obtained some attention; the flowers are

cherry carmine with blush-tinted centre and blush margin, maroon blotch on the top petals; no award.

TUBEROUS-ROOTED BEGONIAS are a great feature at Chiswick, both because of the many fine varieties and their perfect cultivation. There could be no more effective lesson of the value of these plants for decorative purposes as well as for exhibition than the begonia house now affords. Mrs. Stevens has large flowers, slightly drooping, colour blush pink, very distinct and pleasing; A. F. Barron, very large flowers, brilliant cinnamon-red; Thomas Moore, superb scarlet flowers and fine style of growth—these three were selected for first-class certificates.

GLOXINIAS make a pleasing display in a smallish lean-to house, where they are arranged with maidenhair ferns to form a green bed, above which the splendid flowers make a brave show. From the general mass, all surprisingly beautiful, was selected Major Mason, the flowers large, deep blue purple with paler edge, the leaves turning down to hide the pot. This well deserves the award made of a first-class certificate.

LANTANAS make a good show in the mass, but do not satisfy when examined singly. Some varieties display three or four distinct colours, which are developed in succession as the flowers pass from infancy to age. Thus some of them open a buff yellow, then change to vinous red, and finally to purple; and as there are flowers of different ages, so we have these several colours displayed in blotches all over the head of the plant. The committee settled on one only, named Phosphor, a clear golden-yellow self which does not change in tone, and to this was awarded a first-class certificate.

OLEANDERS.—There is a small collection of these in the great vinery. It is well the varieties should be collected and compared, but it did not strike us that Nerium oleander obtained sufficient vindication in this display. Indeed, anywhere except in France it appears like a fish out of water, unless indeed we make an exception in favour of the river Jordan, where it is a fish in the water, and one of the grandest flowering trees in the world. Madonna Grandiflora has large white flowers of fine quality, and was considered the best white; Sœur Agnes, single white, very showy; Monsieur Balaguier, pale pink—these three were selected for first-class certificates. Professor Duchartre, rich deep crimson, was certificated last year. Golfin, single rich rose pink, and Professor Planchon, pale buff, were noted as extra good, but were not certificated.

The Fruit and Vegetable Committee were at work at the same time, and we shall have to report on the results. In the meantime, looking round the garden once more, and regretting that the Fellows do not derive all the advantages from it that are at their service, we would remark that the permanent subjects, such as wall trees, rockery plants, &c., &c., need a better system of labelling than prevails. The means at Mr. Barron's command would not, we feel assured, suffice for carrying out any really effectual system, and even if the means were provided, it is likely enough that his broad shoulders are as heavily laden as need be. It appears to us that a distinct office under suitable direction is required for this work, and when certain difficulties at South Kensington are disposed of we shall again make mention of the subject.

Literature.

The Leopold Shakspeare, now in course of publication by Messrs. Cassell, has some peculiar claims on the buyers of cheap books, by reason of its authentic character and superior style of production, the price being such as we might describe as "nominal," the sixpenny part before us containing the astonishing quantity of eight sheets, amounting to 123 pages, with a beautifully-engraved portrait and forty wood engravings. The editor, Mr. F. J. Furnivall, has selected for his purpose the text of Dr. Delius, and, with a view to make this the completest as well as the cheapest edition of our national poet, he has incorporated the full text of the "Two Noble Kinsmen," and "Edward III.," respecting the authorship of which he discourses in his learned introduction. Wherever in any house there is room for another Shakspeare, and one especially adapted for every-day use, the "Leopold" edition will be eminently serviceable.

Little Folks appeals to little folks, and trots out monthly for their peace and joy. The July number is glorious for its fables, stories, puzzles, pictures, and, above all, for its "fifth list" of officers and members of the Little Folks' Humane Society.

The Welcome. (9, Paternoster Row.)—The July part contains portraits of Joseph Livesay, Dr. Brown (with "Rab"), Arminius Vambery, Garibaldi and his daughter Theresa, Midhat Pasha, Thomas Cook the excursionist, and a great gallery of miscellaneous pictures.

Amateur Work. (Ward and Lock.)—The July part is occupied with papers on the Construction of a Harmonium, a Telephone, a Violin, a Velocipede, and a Gymnastic Apparatus, and essays (tending to practical results) on the Electric Light, Wood Carving, Bookbinding, Soap Manufacture, Plaster Casting, and some subjects that belong more to the domain of art than to mechanics.

From Messrs. Ward and Lock we have also received continuing parts of Beeton's *Dictionary of Science*, Hallam's *Literature of Europe*, Rollin's *Ancient History*, D'Israeli's *Curiosities of Literature*, Haydn's *Dictionary of Dates*, Dr. Adam Clark's *Commentary on the Bible*, *Thrift Book*, *Holy Thoughts*, *Scientific Recreations*, *Household Medicine*, *Land, Sea, and Sky*, *History of the World*, *Epochs of History*, Beeton's *Book of Poetry*, *Universal Instructor*, *Family Altar*, &c., &c.

Vegetable Technology: A Contribution towards a Bibliography of Economic Botany. By BENJAMIN DAYDON JACKSON. (Longmans.)—This is a small quarto volume uniform in type and style with Mr. B. D. Jackson's "Guide to the Literature of Botany," which was noticed by us a year ago, and is also published under the auspices of the Index Society. The present work, like the one just issued, is strictly an index, but restricted to what may be termed "applied botany," the foundation of it being a catalogue of books, essays, lectures, &c., prepared by Mr. G. J. Symons, and supplemented by Mr. P. L. Simmonds, whereof a portion was published in the *Colonies and India* newspaper. The classification is very simple. It comprises a catalogue of authors, a catalogue of serials, and a list of anonymous publications. The index affords a key to the subjects. With these two volumes at hand the student of any subject in which plants or the products of plants have any prominent place may quickly ascertain what has been written and by whom on the matter that concerns him. Mr. Jackson may properly claim our thanks for these admirable books of reference.

Exhibitions and Meetings.

OXFORD ROSE SHOW, JULY 6.

On the above date, amid continuous showers of rain, the Oxford Rose Society held its thirty-first annual exhibition in the gardens of Trinity College, Oxford, kindly lent by the Rev. President and Fellows of the college. The gardens are noteworthy in the annals of university history, and are famous in regard to the many ancient yews and an avenue of pollarded limes, supposed to date back 300 years, whose branches have become so interlaced as to form a rustic Gothic groined roof. The display of roses on this occasion was somewhat small as compared with many previous shows held by this society, the number of blooms staged in competition being just about a thousand, and in point of quality very good. The blaze of sunshine in the previous week had the effect of raising the expectations of the rosarians in the locality to the highest pitch; for, despite cold winds and general attacks of insect pests, the prospect of some good blooms on the 6th seemed sure; nor were these hopes disappointed, for rarely have the Oxford amateurs produced finer built or cleaner flowers than those now under review. The numerous rose exhibitions held on the same day and the previous one somewhat affected the number of entries; still, more were booked than for the past three seasons, and preparations were made for an extensive display, which, alas! was not realized, owing to several large exhibitors being unable to attend through their roses being more or less damaged by the storms on Tuesday and Wednesday. In consequence of the unsettled state of the weather, the stages had to be transferred from the "Lime Tree Avenue"—where they had been erected—to the more secure shelter of a monster marquee, which arrangement proved of great service and comfort to the visitors, some eight hundred of whom braved the storms.

In making a few notes on the several classes we observe that, for forty-eight triplets no competitor appeared, while in the two next classes—viz., for forty-eight and thirty-six single trusses—Mr. Charles Turner, Slough, experienced a "walk over." The whole of the blooms were stout well-built flowers, and arranged with considerable ability, and we append the names of the varieties in

MR. TURNER'S BOX OF FORTY-EIGHT SINGLE TRUSSES.—Dupuy Jamain, Capt. Christy, Prince Camille de Rohan, Victor Verdier, Lord Macaulay, Mme. H. Jamain, Alfred Colomb, François Michelin, Mdle. Thérèse Levet, A. K. Williams, Marie Van Houtte, Baroness Rothschild, Sénateur Vaisse, François Louvat, La Duchesse de Morny, Catherine Mermet, Marguerite Brassac, Camille Bernardin, Marguerite de St.-Amand, Mons. Noman, Mons. E. Y. Teas, Elie Morel, Ville de Lyon, Mdle. E. Verdier, Général Jacqueminot, Paul Neron, Souv. d'un Ami, Augusté Rigotard, Mons. Gabriel Tournier, Abel Grand, Marie Baumann, Mme. Laurent, Constantine Fretiakoff, Avocat Duvivier, Comtesse d'Oxford, Devoniensis, Mrs. Harry Turner, Mme. Lambard, Sir Garnet Wolseley, Edouard Morren, Beauty of Waltham, Louis Van Houtte, Countess of Rosebery, Abel Carrière, Mme. Charles Crapelet, Mme. Lacharme, and Duke of Edinburgh; the varieties being much the same in the class for thirty-six. In the next class several good boxes were staged, noticeable being

MR. JOHN WALKER'S BOX OF TWENTY-FOUR SINGLE TRUSSES.—In this arrangement were some very stout flowers, and remarkable for depth of colour and finish; the varieties represented were Mabel Morrison, Lord Clyde, Charles Lefebvre, Marquise de Castellane, La France, Comtesse d'Oxford, Prince Camille de Rohan, Belle Lyonnaise, Duchesse de Caylus, Madame V. Verdier, Triomphe de Rennes, Lord Macaulay, Madame C. Crapelet, Général Jacqueminot, John Keynes, Mdle. Bonnaire, Marie Baumann, Jean Liabaud, Madame Thérèse Levet, Gloire de Dijon, Duke of Edinburgh, Dupuy Jamain, and Mdle. Eugénie Verdier. For second place, Mr. George Humphries, rose grower, Kingston Langley, Chippenham, presented a very good assortment of well-formed examples, including Mrs. Baker, Marquise de Castellane, Penelope Mayo, François Michelin, Mdle. Marie Rady, Elie Morel, Duke of Wellington, Xavier Olibo, Duke of Edinburgh, Baroness Rothschild, Marie Baumann, Ferdinand de Lesseps, Baron Adolphe de Rothschild, Duke of Teck, John Hopper, Madame Louis Pernet, Madame H. Jamain, Madame Ferdinand Jamain, Pierre Notting, La France, Maréchal Vaillant, La Duchesse de Morny, and Avocat Duvivier. Class 5, for twelve blooms of one variety of any hybrid perpetual, produced several competitors, the chief award falling to Dr. Bywater Ward, Warneford Asylum, Oxford, for a magnificent dozen of Madame Lacharme; Miss Watson-Taylor second with neat though bright-looking examples of a goodly number of varieties; J. T. Strange, Esq., Aldermaston, third, for Baroness Rothschild. Class 6 proved a premier class: a goodly number of boxes were staged, and the judges spent some little time in making the awards, the "card" being allotted to

REV. E. L. FELLOWS' BOX OF TWELVE TEAS OR NOISETTES.—Anna Olivier, Amazone, Souv. de Paul Neyron, Madame Camille, Comtesse de Nadaillac, Catherine Mermet, Madame Caroline Kuster, Madame Willermoz, Jean Ducher, Souv. de Madame Pernet, Rubens, and Bouquet d'Or; Rev. E. P. Wellings second with Marie Van Houtte, Triomphe de Rennes, Souv. de Madame Pernet, Souv. d'un Ami, Souv. d'Elise Vardon, Amazone, Maréchal Niel, Belle Lyonnaise, Catherine Mermet, Jean Ducher, and Anna Olivier; Miss Watson-Taylor, Manor House, Headington, Oxford, third. The above classes were "open to all England" in the first division; the second division being provided for thirty-six, twenty-four, and twelve single trusses. In the first-named class stood

MISS WATSON-TAYLOR'S FIRST-PRIZE BOX OF THIRTY-SIX, in which were the following varieties:—Dr. Andry, Countess of Rosebery, A. K. Williams, Baroness Rothschild, Devienne Lamy, Captain Christy, Auguste Rigotard, Beauty of Waltham, Hippolyte Jamain, Charles Lefebvre, Julius Finger, Ferdinand de Lesseps, Duchesse de Valombrosa, John Stuart Mill, Duchesse de Caylus, Dupuy Jamain, Elie Morel, Edouard Morren, Madame Lacharme, Le Havre, La France, Louis Van Houtte, Madame Gabriel Luizet, Mdle. Marie Finger, Mdle. Marie Rady, Madame Vidot, Madame Marie Verdier, Mdle. Thérèse Levet, Marie Baumann, Niphotos, Marie Louise Pernet, Marquise de Castellane, Mons. E. Y. Teas, Mons. Paul Neron, Sir Garnet Wolseley, Pierre Notting, Sénateur Vaisse, François Michelin, and Star of Waltham; the premier award in the next class going to

REV. E. L. FELLOWS' BOX OF TWENTY-FOUR VARIETIES, which in

cluded a charming collection, represented by examples of Le Havre, Mdle. Marie Finger, Sir Garnet Wolsley, François Michelin, Mme. Berard, Thomas Mills, Mme. Gabriel Luizet, A. K. Williams, Louis Van Houtte, Leopold I., Hippolyte Jamain, Camille Bernardin, Comtesse de Serenye, Duc de Rohan, Etienne Levet, Edouard Morren, Marie Baumann, Captain Christy, Souv. de Spa, Mme. Sophie Fropot, Mons. E. Y. Teas, and Mme. Thérèse Levet; Mr. A. Evans, Marston, Oxon, second, with Mons. E. Y. Teas, Magna Charta, Auguste Rigotard, Hippolyte Jamain, Mrs. Baker, Mme. A. Jacquier, Dupuy Jamain, Princess Charlotte de Trival, Oxonian, Mme. Marie Verdier, Léon Renault, Marquise de Castellane, Sultan of Zanzibar, Charles Lefebvre, La France, Auguste Rigotard, Mme. Gabriel Luizet, Alfred Colomb, Captain Christy, Mons. L. Pernet, Mme. Lacharme, Star of Waltham, and Marie Baumann; Mr. Joseph Freeman, Market Street, Oxford, third; and the Rev. W. H. Jackson, Stagden Vicarage, Bedford, receiving a very high commendation in this class. The only other class in the second division was for twelve blooms, distinct; and here stood out conspicuous for purity of colour, size, and form,

DR. BYWATER WARD'S BOX OF TWELVE VARIETIES, containing grand blooms of Marie Rady, François Michelin, Alfred Colomb, La France, Thomas Mills, Madame Lacharme, Hippolyte Jamain, Madame Marie Verdier, Louis Van Houtte, Baroness Rothschild, Marie Baumann, and Souv. de la Malmaison (this was regarded as the most perfect set in the show); W. Wootten-Wootten, Esq., Headington House, Oxford, second, with Baroness Rothschild, Duke of Wellington, Edouard Morren, La France, Marie Rady, Marie Baumann, Marguerite Brassac, Madame Lacharme, Caroline Kuster, John Bright, and Perle des Jardins; third place filled with a nice lot of clean flowers by Mr. John Allin, Temple Farm, Sandford-Thames, Oxon, with Marie Van Houtte, Devienne Lamy, Ferdinand de Lesseps, Baroness Rothschild, Maurice Bernardin, Marquise de Castellane, Gloire de Vitry, Madame Charles Wood, Solfaterre, Alfred Colomb, and Marie Baumann. The third division was devoted to the exhibits of "amateur members of the society," and comprised many good arrangements. First in the list was

REV. W. H. JACKSON'S FIRST-PRIZE BOX OF TWENTY-FOUR VARIETIES, including well-finished examples of Duke of Edinburgh, Baroness Rothschild, François Michelin, Captain Christy, Horace Vernet, La France, Alfred Colomb, Paul Neron, Niphetos, La Duchesse de Morny, Louis Van Houtte, Mme. G. Luizet, A. K. Williams, Marie Baumann, Mme. Lacharme, Xavier Olibo, Emilie Hausberg, Mdle. Marie Finger, Fisher Holmes, Reynolds Hole, Duke of Wellington, Madame Marie Verdier, and La France; Rev. E. Penwarne-Wellings, Stanford Vicarage, Faringdon, a good second with Belle Lyonnaise, Camille Bernardin, Captain Christy, Catherine Mermet, Comtesse d'Oxford, Harrison Weir, Hippolyte Jamain, La Duchesse de Morny, La France, La Fontaine, Louise Peyronney, Mdle. Marie Finger, Madame Nachury, Madame Vidot, Magna Charta, Madame Prosper Langier, Madame Marie Verdier, Royal Standard, Souv. d'un Ami, Souv. d'Elise Vardon, Villaret de Joyeuse, Wilhelm Koelle, W. Wilson Saunders, and Perle de Lyon. In the following class the best collection was

MR. A. EVANS'S BOX OF EIGHTEEN VARIETIES, in which were noticeable prime specimens of Magna Charta, Charles Lefebvre, Mons. Pernet, Madame Hippolyte Jamain, Devienne Lamy, Mdle. Marie Finger, Alfred Colomb, Royal Standard, Le Havre, Baroness Rothschild, John Stuart Mill, La France, Mrs. Baker, Madame G. Luizet, Marquise de Castellane, and Captain Christy; Mr. J. Freeman, second; Mr. Charles Taylor, Headington, third; and Mr. W. Garroway, Headington Quarry, Oxon, fourth. In the class for twelve, the "card" again fell to Mr. A. Evans; Mr. W. Garroway, second, and the Rev. H. A. Pickard, Oxon, third. In the next class the best was

MR. CHARLES COLCUTT'S BOX OF NINE VARIETIES, clean well-built flowers of La France, Louis Van Houtte, Star of Waltham, Marie Baumann, Pierre Carot, Captain Christy, Charles Lefebvre, Madame Lacharme, and Comtesse d'Oxford; Mr. Thomas Wheeler, Kingston Road, Oxford, second; Mr. F. Freeman, Park Street, Oxford, third; and Mr. B. Hounslow, jun., Holywell, Oxford, fourth; altogether a good class. Another bright lot was

MR. WALTER HARRIS'S BOX OF SIX VARIETIES, which contained La France, Duke of Edinburgh, Marie Rady, Comtesse de Serenye, Comtesse d'Oxford, and Marquise de Castellane; Mr. F. Harris, Walton Crescent, Oxford, second; Mr. E. Collins, Grove Street, Oxford, third, and Mr. John Allin fourth. Among other good things were

MR. JOSEPH FREEMAN'S BOX OF TWELVE TRIPLETS, in the following varieties:—Sénateur Vaisse, Charles Lefebvre, Souv. d'un Ami, Marquise de Castellane, La France, Marie Van Houtte, Rev. J. B. Camm, Nardy Frères, Captain Christy, Le Havre, Félix Genaro, and Beauty of Waltham; Rev. E. P. Wellings second with Baroness Rothschild, America, Camille Bernardin, Madame de Montchateau, Catherine Mermet, Belle Lyonnaise, Jean Pernet, Général Jacqueminot, Marie Baumann, Magna Charta, and Fisher Holmes. In the corresponding class for half a dozen kinds the post of honour was assigned to

MR. CHARLES COLCUTT'S BOX OF SIX TRIPLETS, containing Madame Lacharme, Marie Baumann, Louis Van Houtte, La France, Etienne Levet, and Comtesse d'Oxford; Mr. Thomas Wheeler second with Marie Baumann, La France, Pierre Notting, Madame Lacharme, Louis Van Houtte, and Catherine Mermet; Rev. E. L. Fellowes third with a bright well-displayed set, including Edouard Morren, La France, Madame Sophie Fropot, Marie Baumann, Baroness Rothschild, and Paul Verdier; this was a splendid class. For six trusses of one variety Mr. A. Evans led with a charming half-dozen Baroness Rothschild; Rev. E. L. Fellowes second with Catherine Mermet; Mr. C. Taylor third with Marie Baumann, and Rev. W. H. Jackson fourth with Captain Christy. For a "specimen" bloom Mr. C. Colcutt, Holywell Street, Oxford, presented a fine Marie Baumann, the best crimson bloom in the show; Mr. A. Evans second with a bright Charles Lefebvre; Mr. F. Freeman, 3, Park Street, Oxford, third with a large truss of Madame Willermoz bearing two large flowers; these, however, were inclined to "quarter" in the centre, or otherwise either bloom would have stood high as a specimen.

The judging was entrusted to E. S. Dodwell, Esq., Stanley Road, Oxford; Mr. A. Turner, Slough, and Mr. G. W. Emberlin, Magdalen Street, Oxford.

The proceedings were enlivened by the strains of the Oxford City band, and the arrangements went smoothly at the hands of the secretary.

Oxford.

WILLIAM GREENAWAY.

HEREFORD ROSE SHOW.

In consequence of the date following very closely upon that fixed by the National Rose Society for its Bath meeting, the exhibition at Hereford was somewhat less extensive than in previous years. In other respects it was most successful, for there were sufficient roses to produce a very attractive display, the quality of the flowers was high, and, owing in part to the fine weather and in part to the popularity of the West of England exhibitions amongst the residents within a convenient distance of the city of Hereford, there was a large attendance of visitors. There was indeed so good an attendance that throughout the afternoon the Shire Hall, in which the show was held, had its capacities tested to the utmost.

Although some of the nurserymen who usually exhibit at Hereford were on this occasion absent, there was a good competition in most of the trade classes, and an abundance of high-class flowers. The leading exhibitors were Messrs. Cranston and Co., Hereford, and in the class for seventy-two they were first with superb blooms of Mons. E. Y. Teas, Edouard Morren, Mme. Caroline Kuster, Hippolyte Jamain, Pierre Notting, Marquise de Mortemart, Maurice Bernardin, Le Havre, Marguerite Brassac, La Duchesse de Morny, Etienne Levet, Sénateur Vaisse, Mme. Gabriel Luizet, Mme. Eugène Verdier, Dingée Conard, Mme. Nachury, Mons. Noman, General Jacqueminot, Mme. Charles Wood, Louise Peyronney, Prince Arthur, Exposition de Brie, Louis Van Houtte, L'Espérance, Baroness Rothschild, Marguerite Manoin, Charles Lefebvre, Captain Christy, Alfred K. Williams, Caroline de Sansal, La France, Alice Durcau, John Stuart Mill, Madame Victor Verdier, Mdle. Marie Cointet, Alba rosea, Victor Verdier, Jean Liabaud, Sir Garnet Wolsley, Mdle. Marie Finger, Mrs. Baker, François Michelin, Alfred Colomb, Marie Baumann, Comtesse d'Oxford, Duke of Edinburgh, Marquise de Castellane, and Duchesse de Valombrosa. Messrs. Curtis, Sandford and Co., Torquay, were second with a very excellent collection of blooms, in which most of the varieties mentioned above were represented; Messrs. Dawson and Whiting were third. The only exhibitors in the class for seventy-two varieties, in which the competition was limited to growers beyond the boundaries of Herefordshire, were Messrs. Curtis, Sandford, and Co., who were awarded an "extra" of the value of £5, instead of the first prize.

The classes open to amateurs resident in any part of the United Kingdom contained a fine lot of flowers. In the leading class for thirty-six varieties the premier award, consisting of £5 in cash, and the silver medal of the National Rose Society, was made in favour of Mr. Grant, Ledbury, who staged a fine stand of blooms, in which such fine kinds as Alfred Colomb, Madame Victor Verdier, Duke of Edinburgh, Souv. d'Elise Vardon, Duchesse de Valombrosa, Alba rosea, Etienne Levet, and Marie Baumann were conspicuous. Miss Bulmer, Broadlands, Hereford, was a good second. The most successful of the competitors in the class for twenty-four varieties, single trusses, were the Rev. C. H. Bulmer, Credenhill Rectory, Hereford; Miss Bulmer, and Mr. Berrington, who were awarded the prizes in the order of their names.

The competition was spirited in the classes set apart for amateurs resident in Herefordshire and other specified counties, but the quality of the blooms was by no means high. One of the most successful exhibitors in this division was Mr. C. Williams, of Lower Eaton.

In the open class for twenty-four trusses of any one rose Messrs. Cranston and Co. were first with superb blooms of La France, and Messrs. Dawson and Whiting, who were second, had a capital stand of that exquisitely beautiful variety. Messrs. Curtis, Sandford, and Co. were successful in taking the first prize for twelve trusses of any new rose with Madame Alfred Dumesnil, a hybrid perpetual possessing considerable merit. The same exhibitors were also first for twelve new roses with a good stand, in which Ferdinand Chaffotte and Pride of Waltham, two of the very finest roses of recent introduction, were staged in capital condition.

WANSTEAD HORTICULTURAL SOCIETY, JULY 6.

The annual exhibition of this society was held on the date given above in the extensive and beautiful grounds of Forest House, Leytonstone, the residence of W. Fowler, Esq., M.P., and as a whole was fully up to the high average of previous years, if not somewhat above it. All classes of ornamental plants, flowers, fruits, and vegetables were staged in large numbers and in high class condition, and the show was remarkable alike for its comprehensive character and great excellency, and a more satisfactory demonstration of the horticultural skill of the district could not have been desired. The arrangements were admirably conceived, and, thanks to the energy and judgment of Mr. Windebank, the courteous secretary, Mr. S. Abbott, the chairman of committee, and other members of the executive, they worked very smoothly and to the satisfaction of all concerned.

The schedule, which contained about one hundred and twenty classes, was divided into four sections, one of which was open to all comers, one to gardeners, one to amateurs, and the other to cottagers, and in a few classes the competition was limited to ladies only.

The gardeners' classes were particularly well filled, and the productions generally were exceptionally good. Stove and greenhouse plants in bloom were admirably shown, considering that the whole of the specimens were the productions of gardens in the neighbourhood. Mr. Monk, gardener to W. Fowler, Esq., Forest House, was first in the class for six with modinunized and exceedingly well-flowered specimens, and in the class for four Mr. Simmonds, gardener to Alderman Finnis, Wanstead, and Mr. Mobsby were first and second respectively with highly creditable specimens. The ferns were particularly meritorious, more especially those from Mr. Mobsby, Mr. Monk, and Mr. Peters, Snarebrook. Fuchsias in collections of six were staged in splendid style by Mr. Monk, Mr. Simmonds, and Mr. Mann, who were first, second, and third respectively. Caladiums were admirably represented by the contributions of Mr. Fitch, Wanstead, Mr. Mobsby, and Mr. Mann, who were successful in taking the prizes for those attractive subjects. Colons were considerably above the average, the specimens being of large size and exceeding well coloured. The successful exhibitors of these were Mr. Monk, Mr. Fisher, and Mr. Simmonds. There was a spirited competition in the two classes for collections of ornamental-leaved plants, and in one the prizetakers were Mr. Monk, Mr. Simmonds, and Mr. Mobsby; and in the other Mr. Fitch and Mr. Peters were successful in taking the first and second awards. Hydrangeas, which are usually shown in grand condition at Wanstead, were hardly so good as usual, although the specimens were much finer than those generally seen at the exhibitions. The finest specimens were those from

Mr. Simmonds and Mr. Fisher. Lycopodiums included large well-developed specimens from Mr. Mobsby, Mr. Simmonds, and Mr. Peters. Zonal pelargoniums were largely represented and of splendid quality, and much praise is due to Mr. Cook, Leytonstone, Mr. Fitch, Mr. Peters, and Mr. Simmonds for the excellency of the specimens they staged in the several classes. Ornamental-leaved bogonias were admirably shown by Mr. Mobsby, Mr. Fitch, and Mr. Simmonds; and an excellent collection of achimenes came from the exhibitors last mentioned. Gloxinias and cockscombs were admirably staged by Mr. Monk and Mr. Fisher, who were first and second respectively in the two classes for these subjects. Mr. Botwright, Wanstead, also exhibited gloxinias, and Mr. Johnson cockscombs in capital style. Mr. Monk was successful in taking the first prize for a single specimen plant in bloom with a grand example of *Clerodendron Balfouriana*, and Mr. Simmonds, who was second, had a large well-bloomed specimen of *Stephanotis floribunda*. Mr. Monk was also first for a single specimen fine-foliage plant, and had *Croton variegatum*; and Mr. Fisher, who was second, staged *Dicksonia antarctica*. The prizes offered for orchids were awarded to Mr. Monk and Mr. Botwright.

The cut flowers staged by the gardeners were so good that they produced a very effective display. To speak of the collections in detail would occupy much space, and it must suffice to say that the most successful exhibitors in the numerous classes were Mr. Clarke, Mr. Monk, Mr. Peters, Mr. Fitch, Mr. Fisher, Mr. Mobsby, and Mr. Crook.

There was a large and representative display of fruit, and the quality was very high. The first prizes for a collection of fruit, a dish of black grapes, and a dish of peaches were awarded to Mr. Monk, and the first prizes for a scarlet-fleshed melon and a dish of raspberries to Mr. Simmonds. The finest dishes of strawberries were those from Mr. Fisher, Mr. Mann, and Mr. Thurgood, and the first prize for a dish of cherries was awarded to Mr. Fitch.

The vegetables were of quite exceptional excellence, and merit the highest praise. In the class for a collection of eight kinds the competition was very keen, and Mr. Johnston was first, very closely followed by Mr. Monk, with Mr. Fitch third. The competition was very spirited also in the class for six kinds, and Mr. Peters was first, Mr. Mann second, and Mr. Mobsby and Mr. Crook equal third.

The open division included the classes for groups of plants arranged for effect, plants and decorations for the dinner table, hand bouquets, and designs for flower gardens. In competition for the prizes for designs for the dinner table, of which there was a large number of exhibitors, Mrs. Douglas was first with three most tastefully-dressed stands; Mr. Sutton Abbott, who was second, had a charming arrangement, and Mr. Barnes was third with decorations evincing much taste. For a single vase Miss Cluse and Mr. Medland was first and second with stands very evenly matched in point of merit, and Mr. Thurgood was third. In the two classes for dinner-table and drawing-room decorations, in which the competition was limited to ladies, Mrs. S. Abbott was first. For a vase of wild flowers Miss Cluse and Mr. Abbott was first and second; and in the class for a hand bouquet Mrs. Douglas, Mr. S. Abbott, and Mr. Medland were the prizetakers in the order of their names. In competition for the prizes offered for groups of plants arranged for effect the prizetakers were, for the larger group, Mr. Monk, Mr. Fitch, and Mr. Simmonds, and for the smaller group Messrs. Fisher, Johnson, and Crook. Mr. Monk, Mr. Fisher, and Mr. Botwright staged excellent collections of plants suitable for the decoration of the dinner table, as also did several other exhibitors who were not successful in taking prizes. Designs for flower gardens were well done, and that from Mr. Smith, who was awarded the first prize, was remarkable for skillful workmanship and the taste evinced in the arrangement of the colours. Prizes were offered in this division for three bunches of grapes, and the first was awarded to Mr. Douglas.

The productions in the amateurs' division were much better than usual, and the contributions from Mr. S. Abbott and Mr. Barnes, who were the two leading exhibitors, were of a high degree of excellence.

The judges were Mr. John Fraser, Mr. J. Ward, and Mr. George Gordon.

WIMBLEDON HORTICULTURAL SOCIETY, JULY 5.

The annual exhibition of this ably-managed society was held on the above date in the grounds of Cannizaro, the residence of Mrs. Schuster, and in all but the weather was a great success. It was unquestionably one of the largest and best shows yet held by the society, for if weak in one or two features as compared with some of the earlier gatherings [it was strong in others, and the increase in extent was proved by the fact that the entries exceeded by fully twenty per cent. those of last year. Three large tents were provided for the productions staged in competition for the large array of prizes—one for the stove and greenhouse plants in and out of bloom, groups arranged for effect, and soft-wooded plants in bloom; one for the fruits and cut flowers, which were remarkably good, and the other for the productions of cottagers, who exhibited well in all the classes provided for them. Not less remarkable than the high quality of the productions was the completeness of the arrangements, and Mr. Rolt, the indefatigable secretary, Mr. Lyne, Mr. Thompson, and the members of the committee are deserving of much praise for the able manner in which their respective duties were performed.

The competition for the prizes for groups arranged for effect was very spirited, and the several groups contributed much to the attractions of the exhibition. Especially good were those in the open class, in which Mr. Runnacles was first with excellent plants admirably arranged, and Mr. G. Stevens, Putney, a very close second with a beautiful arrangement in which some well-grown gloxinias were employed with good effect; Messrs. Peed and Son, Lower Streatham, third. In the class open to gardeners and amateurs Mr. Bridger, Mr. J. Bentley, and Mr. W. Stratton exhibited remarkably well, and were awarded the prizes in the order in which their names are here placed. The prizes for stove and greenhouse plants in bloom brought out a spirited competition, and were awarded to Mr. Runnacles, Messrs. Peed and Son, and Mr. Stevens. Fine-foliage plants were represented by admirable collections from Mr. Runnacles, Mr. Law, and Mr. Stevens. Mr. Bentley was successful in taking the first prize for single specimen plant in bloom and single specimen remarkable for the beauty of the foliage. Ferns included numerous excellent collections, and especially worthy of note were those from Mr. Stevens, Mr. Bentley, and Mr. Bridger. Achimenes were admirably shown by Mr. Runnacles and Mr. Law; gloxinias by Mr. W. Stratton, Mr. D. Bridger, and Mr. Bentley; flowering begonias by Mr. Runnacles and Mr. Law; caladiums by the last-mentioned exhibitor, and coleus by Mr. Runnacles, Miss Hatfield, and Mr. Cole, and the leading prizes for the respective subjects were awarded to the exhibitors mentioned. Two classes were provided for plants suitable for the decoration of the

dinner table, and in that for twelve Mr. Law, Mr. Bentley, and Mr. Bridger were the prizetakers, whilst in that for six the awards were made in favour of Mr. Bentley, Mr. Bennett, and Mr. Law. Selaginellas were fully up to the average, and the prizes offered for them were awarded to Mr. W. Stratton, Mr. Cole, and Mr. Bentley, all of whom staged splendidly-grown specimens.

Both fuchsias and zonal pelargoniums were staged in capital style. There were two classes for fuchsias, and in each the premier award was made in favour of Mr. Stratton, who staged medium-sized and well-flowered specimens. The zonal pelargoniums produced a rich display of colour, and in the five classes Mr. J. Law, Mr. Bridger, and Mr. Burrows had exceptionally fine collections, and Mr. Bentley and Mr. Stratton exhibited remarkably well.

The classes for cut flowers were more numerous than at most of the local exhibitions, and as they were well filled and the contributions of much merit this part of the exhibition was very attractive. The roses were particularly good both in point of numbers and quality. In the great open class for twenty-four roses Mr. Wilkins, Sutton, was first with a magnificent stand of blooms; Mr. J. W. Moorman, Kingston, second with flowers of splendid quality, and Mr. C. Gibson third. For twelve roses Mr. Moorman was first, Mr. Starr second, and Mr. Berry third. There was a good competition in the class for six, in which the successful competitors were Mr. Wilkins, Mr. Coleby, and Mr. Bridger. Mr. Rolt's prize for the best rose staged separately was taken by Mr. Fox. The table decorations were highly meritorious, and in one of the two classes Mrs. Douglas was first, and in the other Mr. J. Law occupied the first place, the arrangements, more especially of Mrs. Douglas, being particularly good. Mr. Haines was first for a hand bouquet.

The fruit classes were not less satisfactorily filled than those for cut flowers, and as the quality was exceedingly good the display was very large and exceedingly attractive. Mr. Davis, Mr. Gibson, and Mr. Starr staged well-finished examples of Black Hamburg in the class for black grapes, and in the class for white grapes Mr. Bentley occupied the first place. Melons were admirably shown by Mr. Dove, Mr. Davis, and Mr. Alderman; peaches by Miss Hatfield, Mr. Davis, and Mr. D. Bridger; nectarines by Mr. Davis and Mr. Bridger; strawberries by Mr. Cole and Mr. Haines. The first prize for a collection of fruit was awarded to Mr. Davis.

Vegetables were so plentiful and good as to deserve the highest praise, and special mention must be made of the collections of twelve from Mr. Starr, Mr. Gibson, and Mr. Bentley, and of six from Mr. Bridger, Mr. Berry, and Mr. Cole, who were the prizetakers in the respective classes.

The productions from amateurs were more numerous, and of higher quality than is customary, and formed a very satisfactory feature. The most successful of the exhibitors in the several classes in the division in which the competition was limited to amateurs were Mr. W. H. Cannon, Mr. E. Collins, Mr. T. Conway, Mr. F. Fox, Mr. T. List, Mr. E. Bloxam, Mr. J. P. Brookless, and Mr. T. E. Parsons.

The miscellaneous collections included a magnificent collection of roses in pots from Messrs. J. Veitch and Sons, consisting of about one hundred beautiful specimens; several boxes of roses from the same exhibitors, and large and tastefully-arranged collections of stove and greenhouse plants from Mr. D. S. Thompson, Wimbledon, and Messrs. J. Laing and Co., Forest Hill.

The judges were Mr. James, Mr. J. Douglas, Mr. George Gordon, and Mr. Jordan.

TUNBRIDGE WELLS HORTICULTURAL SOCIETY, JULY 7.

The executive of the Tunbridge Wells Horticultural Society may be heartily congratulated on the great success which attended the exhibition held on the above date. Tunbridge Wells has long been famous for its flower shows, but the exhibition of this season was much larger than for some years past, and there was a general concurrence of opinion amongst those well qualified to judge that the subjects brought together were in quality fully equal to the high average of previous seasons. The Great Hall and the adjoining grounds were devoted to the purposes of the show, and a more suitable place could not well have been found in the neighbourhood.

The stove and greenhouse plants were in every way equal to those usually staged at the metropolitan exhibitions, and formed a very strong feature. The competition for eight plants in bloom was very spirited, and the first prize of £8 was awarded to Mr. T. Gilbert, Springfield Nursery, Hastings, for large, fresh, and splendidly-flowered specimens; and Mr. Bolton, gardener to W. Spottiswoode, Esq., Sevenoaks, was a good second with a collection that did him much credit; Mr. Pope, of Holmewood, was third. In the class for six flowering plants the exhibitor last mentioned was first, and Mr. Bolton second. Mr. Gilbert and Mr. Bolton were first and second for four, and Mr. J. Fennell, Fairlawn Park, third. Fine-foliage plants were grandly shown in the open class by Mr. Rann, Handcross Park, Crawley, Mr. Gilbert, and Mr. Pope; and in the gardeners' class by Mr. Pope and Mr. Johnstone. Ferns were as usual represented by a considerable number of splendid specimens, and chief among the exhibitors were Mr. Rann, Mr. Bolton, Mr. F. Wilkins, Mr. Bashford, Mr. Scammell, and Mr. Allan, who were the prizetakers in the several classes. Begonias in flower and remarkable for the beauty of their leafage were admirably represented, and the most noteworthy collections were those from Mr. Scammell, Mr. Bolton, Mr. Allan, Mr. Beilby, and Mr. Bashford. Selaginellas were admirably shown by Mr. Scammell, Mr. Bashford, and Mr. Earley.

Chief amongst the soft-wooded plants in bloom were the fuchsias and pelargoniums, which were staged in large numbers and in capital style. The finest collections of fuchsias were those from Mr. Earley, Mr. Shoebridge, and Mr. Turner, who, it may be added, were awarded the prizes in the open class provided for these graceful subjects. The prizes for show and for fancy pelargoniums were awarded to Mr. Wilkins, Mr. Allan, and Mr. Shoebridge, who were first, second, and third respectively in the two classes for these types. The leading collections of double and single zonals were those from Mr. Wilkins and Mr. Allan. Gloxinias were admirably represented by collections from Mr. Turner, Mr. Read, and Mr. Pope, and good collections of achimenes were shown by Mr. Allan and Mr. Scammell.

The classes for fruit were unusually well filled, and the quality throughout was remarkably good. The collections were of exceptional excellence, and Mr. Henderson, Mr. Fennell, Mr. Waterman and Mr. T. Hopgood, who were awarded the prizes in the order of their names, staged collections that were as remarkable for the taste evinced in their arrangement as for the great excellency of the fruit. Black grapes were plentiful, and the bunches were mostly of large size and well finished, and white grapes were highly meritorious. Mr. A. Henderson, Mr. Barnes, and Mr. Hopgood were first, second and third in the class for black grapes, and Mr. Fennell and Mr. Weeks were equal fourth. The prizetakers for white grapes were Mr. Johnstone, Mr.

Adams, Mr. Hopkins, and Mr. Barnes. The finest collections of three varieties of grapes were contributed by Mr. Adams, Mr. Johnstone, and Mr. Barnes. Mr. Bashford was successful in taking the prizes for peaches and nectarines, and other successful exhibitors of these fruits were Mr. Goldsmith, Mr. Hopkins, and Mr. Wilkins. Melons were well shown by Mr. Hopgood and Mr. Henderson, who were first in the classes for green and scarlet fleshed varieties respectively. Other exhibitors also contributed good fruits. Strawberries were staged in fine condition by Mr. Goldsmith, and Mr. Bridger; and excellent dishes of cherries came from Mr. Hopgood and Mr. Cotterell.

Roses, as in previous years, formed a very important part of the department devoted to cut flowers, and did not fail to receive a full share of attention. Amongst the most successful of the exhibitors were Messrs. Mitchell and Son, Uckfield; Mr. Slaughter, Steyning; Mr. J. Allan, Mr. Ruston, Mr. Standen, and Mr. Foster. In the classes for cut flowers, other than roses, Mr. Rann, Mr. Read, Mr. Bolton, Mr. Cotterell, and Mr. Johnstone were the most successful exhibitors. Table decorations and bouquets were quite up to the average, and the leading exhibitors were Miss B. Charlton, Mrs. Bishop, Miss Parkhurst, Miss E. Charlton, and Mr. T. Gilbert.

The arrangements were carried out by Mr. J. Charlton, Mr. E. Charlton, and Mr. A. Charlton, and they and the able secretary, Mr. Loof, are deserving of the highest praise for the manner in which their respective duties were performed.

ALEXANDRA PALACE ROSE SHOW, JULY 8.

Owing to the heavy rains which fell during the latter part of the week, many rose growers who had entered were unable to compete, and several of those who exhibited were unable to fill all the entries they had made, and in consequence the exhibition was not of such magnitude as in some previous years. Nevertheless there was an extensive and very excellent display. As the Central Hall is now fully occupied with the large and interesting collection of life-saving appliances, the rose show was held in the Exhibition department on the east side of the building, and so tasteful and judicious were the arrangements that it was the most pleasing and effective exhibition of roses held this season.

NURSERYMEN'S CLASSES were filled chiefly by Mr. B. R. Cant, Messrs. Cranston and Co., Messrs. Paul and Son, and Mr. Charles Turner. In the class for seventy-two varieties Mr. B. R. Cant, Colchester, first with a capital stand of flowers, amongst which were splendid blooms of John Stuart Mill, Alfred Colomb, Maurice Bernardin, Prince Arthur, Etienne Levé, Comtesse d'Oxford, Alfred K. Williams, Mme. Crapelet, Hippolyte Jamain, Sénateur Vaisse, Madame Alphonse Lavallée, Edouard Morren, Louis Van Houtte, and Duke of Wellington. Messrs. Cranston and Co., Hereford, were second with a good stand, in which occurred a good bloom of Gloire de Bourg la Reine. Messrs. Paul and Son, Chesham, were a close third, and staged, amongst others, fine flowers of Duke of Teck, La Duchesse de Morny, Duke of Edinburgh, and Marie Baumann. For forty-eight varieties, three trusses of each, Messrs. Cranston and Co. were first with an even lot of flowers, which included especially well-developed blooms of Ferdinand de Lesseps, Marquise de Castellane, Charles Lefebvre, Reynolds Hole, Mons. E. Y. Teas, Constantine Fretiakoff, Magna Charta, Royal Standard, Mrs. Jowitt, Etienne Levé, and Alfred K. Williams; Messrs. Paul and Son second with a capital stand, in which Countess of Rosebery, Dr. Andry, Rosieriste Jacobs, Pride of Waltham, Star of Waltham, Sénateur Vaisse, and Alfred Colomb were conspicuous.

In competition for the prizes for twenty-four hybrid perpetuals, three trusses of each, Mr. B. R. Cant was first, and staged splendid blooms of A. K. Williams, Comtesse d'Oxford, Etienne Levé, J. S. Mill, Maurice Bernardin, Madame Gabriel Luizet, Duke of Edinburgh, Prince Arthur, and other well-known varieties. Messrs. Cranston and Co. were second with large well-finished blooms, amongst which those of Duke of Edinburgh, Beauty of Waltham, Etienne Levé, Royal Standard, Mrs. Jowitt, and Sénateur Vaisse were the most noteworthy. Mr. C. Turner was a close third, and staged superb blooms of Devienne Lamy, Baroness Rothschild, La France, Camille Bernardin, and Abel Carrière. For twenty-four varieties, single trusses, Mr. F. Cant, Mile End Nurseries, Colchester; Mr. B. R. Cant, and Mr. C. Turner were first, second, and third; and the prizetakers in the class for twelve tea-scented or noisettes were Mr. B. R. Cant, Mr. C. Turner, and Messrs. Paul and Son.

AMATEURS' CLASSES were hardly so well filled as could have been desired, but the flowers staged were mostly of good quality. The weakest class was perhaps that for forty-eight varieties, single trusses, in which there were only two competitors. These were Mr. C. Davis, Aynhoe, near Banbury, and Mr. J. Hollingsworth, who were first and second respectively with capital stands. The most noteworthy flowers in the first-prize collection were Louis Van Houtte, Constantine Fretiakoff, Pitord, Exposition de Brie, John Hopper, Duke of Teck, Sénateur Vaisse, Madame Nachury, and François Michelon. The competition was spirited in the class for thirty-six, and at the head of the competitors was E. R. Whitwell, Esq., Barton Hall, Darlington, who staged a splendid lot of flowers. Especially good were Marquise de Castellane, Dupuy Jamain, Charles Lefebvre, Alfred Colomb, Madame Prosper Langier, Madame Charles Wood, and Thomas Mills; Mr. C. Davis second, and Mr. J. Hollingsworth third. Mr. Whitwell also occupied the first place in the class for twenty-four varieties with blooms of superb quality, and Mr. C. Davis and Mr. J. Hollingsworth, who were second and third, also exhibited remarkably well. The first prize for twenty-four varieties, single trusses, was awarded to Mr. J. H. Pemberton, Havering, Romford; and in the class for twelve Mr. J. Wakeley, Rainham, was first. Other successful exhibitors in these classes were Mr. Harrington and Mr. W. H. Wakeley. The finest stands of twelve tea-scented and noisettes were those of Mr. J. H. Pemberton, Mr. W. Harrington, Mr. C. Davis, and Mr. J. Hollingsworth.

OPEN CLASSES included those for new roses, one thousand trusses, and for bouquets, baskets, and vases of roses. Messrs. Paul and Son were the only competitors in the class for a collection of roses sent out since 1879, and were awarded the first prize for good blooms of Countess of Rosebery, Ferdinand Chaffotte, Rosieriste Jacobs, Comtesse de Comand, Masterpiece, Comtesse de Ludrie, Lady Sheffield, George Baker, Duchess of Bedford, White Baroness, Mrs. Jowitt, Duke of Teck, Madame Isaac Perrier, Mrs. H. Turner, George Moreau, William Warden, Edouard André, Julius Finger, Guillaume Guillemot, and Souv. de Madame Alfred V. Messrs. Paul and Son were also awarded the first prize for the best thousand trusses of roses.

The first prizes for white or light roses, for dark roses, and for pink roses, in collections of three trusses, were awarded to Mr. B. R. Cant, and the

seconds in the three classes were awarded to Mr. C. Turner. Messrs. E. P. Francis and Co., Hertford, were the only exhibitors of rosebuds, and Mr. B. R. Cant was the only competitor in the class for a collection of yellow roses, and the award of the first prize was in each case made. Five classes were provided for bouquets of roses, and the most successful exhibitors were Messrs. Paul and Son, Messrs. Kimmont and Kid, Mr. W. Meadmore, Romford, and Messrs. E. P. Francis and Co. The first and second prizes for a vase of roses not less than a yard across were awarded to Miss Welby and Mr. Sutton Abbott, Wanstead; and in the class for a basket of roses Mr. J. R. Medland, Woodford, and Mr. Sutton Abbott were first and second respectively with charming arrangements.

MISCELLANEOUS CONTRIBUTIONS included an immense collection of roses from Messrs. W. Paul and Son, Waltham Cross, which consisted of about six thousand blooms, and contributed very materially to the attractions of the exhibition. Messrs. W. Paul and Son also exhibited a stand of their new rose Queen of Queens, a pink hybrid perpetual of great promise.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, JULY 11.

Chief amongst the contributions to the meeting on Tuesday last were the collections of achimenes and tuberous begonias from Chiswick, the splendid stands of verbenas from Messrs. H. Cannell and Sons, the large and interesting collection of lilies from Mr. T. S. Ware, the attractive group of pinks, ferns, kalosanthos, and other subjects from Mr. W. Howard, and the splendid novelties and the large collection of peas from Messrs. J. Veitch and Sons.

The group of plants exhibited by Messrs. J. Veitch and Sons, King's Road, Chelsea, included, in addition to those subjects for which they were granted first-class certificates, Lobelia Finsbury Park Blue, a capital variety of the speciosa type, the plants compact and free blooming, and the flowers of the most intense cobalt-blue; it is without question a most valuable bedding variety; Hoya lasiantha, a beautiful species, bearing large yellow flowers; Dracena Thomsonianum, a strong-growing kind, with bold deep green foliage; Polypodium ornatum, a handsome species with large bright green fronds; Cypripedium grande, a fine hybrid raised at Chelsea, the growth very robust, the flowers large, and of a greenish yellow suffused with rose, the long twisted petals rosy purple; Osmunda javanica, a dwarf-growing species, with stout deep green pinnate fronds; Impatiens Sultan, a handsome form, with large bright magenta coloured flowers.

The stands of verbenas exhibited by Messrs. H. Cannell and Sons forcibly demonstrated the great success with which these flowers are grown at Swanley, and added considerably to the interest of the meeting. About thirty varieties were represented, and of each six trusses, large in size and perfect in development, were staged. All the varieties were of a high order of merit in their respective shades of colour, and the following may be mentioned as of exceptional value for pot culture and exhibition purposes, namely, Lord Chelmsford, rich salmon-pink; Dr. Feyerham, deep plum, the flowers and truss very large and of grand form, valuable for its rich and distinct colour; Stars and Stripes, a beautiful and quite new variety, with large flowers striped rose and white; Shakspeare, deep scarlet; Regulus, deep red, very fine; Lady of Lorne, blush, very pleasing; Flower of Dorset, deep crimson; Swanley Striped, an attractive variety, the flowers striped scarlet and white; A. Renny, red with large white eye, very distinct and attractive; Sir Garnet Wolseley, purple; Esmeralda, white spotted and striped blue, very pleasing; Fireball, brilliant scarlet, flowers and trusses of medium size and excellent form; Annie Ford, bright pink; Blue Boy, rich blue; Baron Von Buchner, bright crimson; Annie, striped pink and red, and very attractive; Boule de Neige, white, an old but very excellent variety; Mr. George, dull claret, a distinct but rather ineffective flower; Boy in Blue, very deep blue, and Swanley Gem, delicate lavender. Messrs. Cannell also exhibited huge bouquets of Enothera speciosa, a handsome white-flowered species; Nicotiana affinis, a handsome form with long tubular pure white flowers; Malva moschata alba major, a very handsome pure white variety of the mink mallow, for which the firm were awarded a certificate of the first class last year; and Campanula persicifolia alba plena, a double white form, very attractive in the border, and of immense value for decorative purposes in a cut state.

The tuberous begonias from the society's gardens consisted of large and splendidly-flowered specimens of seedlings raised at Chiswick. The single neriums sent by Mr. Barron were remarkably interesting, and the following were noteworthy for their attractiveness:—Professor Duchartre, a superb crimson variety; Dr. Gollin, a deep pink, very beautiful and pleasing; Sœur Agnes, a fine white form all through, not perhaps so rare in flowering as Pictum argenteum, another white-flowering variety exhibited; Rose Claire, blush, very pleasing; Delphine, a beautiful deep pink flower; Frederick Guibert, salmon-pink, very distinct and effective, and Henri Mares, a very beautiful deep pink variety. Hardly less interesting than the neriums were the achimenes, which included exceedingly well-grown specimens of Dr. Hopf, François Cardians, Pink of Perfection, Dentonia, Carl Wolfurth, Hendersoni purpurea elegans, and Longiflora macrantha, the finest type of this distinct and beautiful variety.

The collection of lilies and other hardy flowers from Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, formed a prominent and interesting feature, more especially to those at all interested in lilies, and the award of a medal was recommended. Amongst other lilies staged were fine examples of Lilium canadense, L. Browni, L. longiflorum, L. Humboldti, L. giganteum, L. dalmaticum, and L. martagon. The miscellaneous subjects included Gladiolus Colvilli, The Bride, a pure white form of special value for indoor decorations in a cut state; Gladiolus insignis, an attractive early-blooming species with orange-red flowers; Calochortus luteus, a charming yellow-flowered species, and the pretty Spiraea filipendula fl. pl.

Messrs. J. Carter and Co., of High Holborn, exhibited excellent baskets of Lilium longiflorum and L. Thunbergianum atrosanguineum, and Messrs. Hooper and Co., Covent Garden, contributed a stand of sweet williams representing a good strain.

Mr. W. Howard, Southgate, staged a large group of decorative plants and cut flowers. The pinks were especially good, and conspicuous amongst them was a very fine scarlet flower, which appears to be particularly strong in growth. Balsams and kalosanthos were also good, and the cut flowers included a large quantity of white sweet peas and the charming sweet sultan. The award of a medal was recommended.

The subjects submitted to the Fruit Committee, with but few exceptions, were wanting in either interest or importance. The most important contributions were perhaps the collection of forty varieties of peas from Messrs. J. Veitch and Sons, and the shallots from Chiswick. Mr. Osman exhibited

good samples of Seville Longpod, and Leviathan Longpod beans; and Mr. Wait sent capital dishes of Messrs. Sutton and Sons' two excellent peas, Reading Giant and General Garfield, both of which are very productive, produce large, handsome, well-filled pods, and are of splendid flavour. Melons of a promising character were exhibited by Mr. Pearse, Grays Court, Henley-on-Thames, and Mr. Read.

The following First-class Certificates were granted:—

To Messrs. J. Veitch and Sons for

Pleopeltis fossa.—A dwarf-growing fern, with stout elegantly pinnatifid fronds.

Davallia tenuifolia Veitchiana.—An exquisitely beautiful variety of this well-known species, with bold and very finely-cut fronds.

Croton Dayspring.—A very handsome form; the leaves broadly lanceolate, about twelve inches in length by two inches in breadth, and of a rich yellow colour, with green margin in a young state, changing with age to a bright rosy red with bronzy green margin.

Croton aureo-marmoratus.—A bold and distinct form of great beauty; the leaves lanceolate, about fifteen inches in length by two and a half inches in breadth, and richly variegated with deep canary-yellow. As it takes on its colour at a very early stage, it will probably be found of much value for decorative purposes in a small state, while its free bold habit will render it most useful for exhibition specimens.

Rhododendron balsamiferum album.—A beautiful variety with large double white flowers which are borne in noble trusses.

Rhododendron balsamiferum aureum.—A handsome double variety, of which the flowers are of a deep yellow colour.

Osmunda japonica corymbifera.—A distinct form of this well-known fern with elegantly-crested fronds.

To the Royal Horticultural Society for

Begonia A. F. Barron.—A fine variety of capital habit, and bearing flowers large in size, circular in form, and of a rich red colour.

Begonia Mrs. Stevens.—A beautiful form, bearing large handsome flowers of a bright pink colour, and remarkable for its free-branching habit.

Begonia Thomas Moore.—A dwarf-growing variety with large leafage, and producing in good clusters large well-formed flowers of a bright red colour.

To Mr. T. S. Ware for

Lilium Thunbergianum cruentum.—A superb variety, with flowers of a rich sanguineous red spotted with black.

To Mr. C. Noble, Bagshot, for

Rose Duchess of Connaught.—A grand hybrid perpetual, the flowers of large size, somewhat globular, very full, and of superb form, the colour rich deep crimson. It has a robust habit, and is not less valuable for the garden than the exhibition stage, the delightful fragrance of the flowers materially enhancing its value.

To Messrs. Daniels Bros., Norwich, for

Godetia Duchess of Albany.—A valuable variety, dwarf and compact in growth, and bearing most profusely flowers of a pure satiny white.

To Messrs. H. Cannell and Sons for

Fansy Lord Waverley.—A distinct pansy with flowers of large size, very double, and of a rich purple colour. It will undoubtedly be found of great value for the border, and afford much gratification to those who are partial to double pansies.

A Second-class Certificate was awarded to Mr. T. S. Ware for

Chrysanthemum La Petite Marie.—A summer-blooming pomponé; the flowers large and double, and white with greenish centre.

UPHILL CASTLE,

THE RESIDENCE OF T. T. KNYFTON, ESQ.

UPHILL CASTLE is one of the many charming residences found on the sea-coast of Somersetshire. Situated a short distance inland, and surrounded by a fertile stretch of country, which is varied by meadow and woodland, it commands scenery, if not very striking, of the most charming description. The Castle itself is not perhaps so imposing as some others in the country; at the same time it is decidedly handsome, and has a single tower rising from a base of well-built masonry, which forms the residential part of the building. The Castle is only a short drive from the favourite watering-place of Weston-super-Mare, and the entrance is from the main road through a grove of handsome trees. On the right as we stand facing the Castle is the rose garden, which consists of beds laid out on a well-kept lawn. There is a very choice selection of roses grown as dwarfs and standards, and on the day of my visit the roses were producing some fine blooms; but here, as elsewhere, there was a deficiency of well-developed flowers. The dwarf roses on the seedling brier were here making a satisfactory growth and flowering well. A tastefully-designed set of flower beds on the grass is the next feature that meets us, the beds being well filled and the colours tastefully arranged; but the season had been against the bedders, for spells of wet and cold alternately are not favourable for tender bedding plants when they occur, as was the case this year, in the month of June. I have no doubt later on the bedding plants at Uphill Castle will be very gay.

A broad expanse of closely-shaven lawn and a wide gravel walk surround two sides of the Castle, and stretching away behind the Castle are sufficient trees to add materially to the general effect, and they are in the condition we might expect to find in such a genial climate. Standing about the lawn, in well-chosen positions, are some handsome coniferous and deciduous trees, notably a fine example of *Pinus insignis*, and several copper-coloured beeches. Retracing our steps to a point nearly parallel with the end of the Castle, a gravel walk leads in the direction of Weston-super-Mare. To the right is a broad stretch of park-like scenery, which embraces rich meadows, dotted here and there with thriving trees, and carries the eye to the far distant hills. On the left hand of the walk is a bank of evergreens in the most luxuriant condition, showing how favourable is the climate to their growth. In especially fine condition were *Garrya elliptica*, and several choice hollies and conifers. Indeed, they were so dense in growth that until I reached the end of the walk I had no idea that they shut out a high sandbank behind them. Such I found to be the case, for on turning to the left we had to mount a sharp incline to reach the top of it, only to meet with a surprise as unexpected as it is difficult to describe. But Mr. Matthews, the gardener, kindly explained how the bank came to occupy its present position, a rather perplexing point, because it can be seen that it was not the work of man.

In height this bank is about ten or twelve feet, and about the same width at the top, sloping down gradually on each side. The bank is formed of the smallest particles of sea-sand; but the interesting question arises, how was it formed? At the present time the distance between this point and the sea is about half a mile, but it is not at all difficult to believe that the sea did at one time reach a point much nearer than it does now. The space of flat country between the bank and the sea and other surroundings shows this very clearly. To understand how the formation of this bank first began, it is necessary to say that a large thorn hedge that had been left to grow wild in its own way stood on the spot now occupied by the bank. It is conjectured that at this point two currents of wind met, one from the sea and the other from the land, and that the hedge assisted to arrest the course of the sand which was brought by every strong gust of wind in its course over the sands which form the sea beach opposite this point. It appears that the deposition of the sand went on until the hedge was no longer visible. What now remains of this bank is utilized by being planted at the sides with choice trees and shrubs, and on the top is a promenade walk. I was much surprised to find how luxuriantly all kinds of trees and shrubs grow in the sand.

The kitchen garden department is well sheltered, and contains the various glass structures. There are three or four vineries. The earliest crop of grapes is grown in pots; the crop I saw just on the point of ripening was very promising; the vines were carrying a fair number of bunches of average size. A young stock of vines are in preparation to take the place of those now fruiting, as directly the fruit is cut the plants are thrown away, and others grown to succeed them, in accordance with the practice of skilful cultivators. The next house is planted with permanent vines, which are bearing a full average crop. The varieties are Lady Downe's Seedling, Mrs. Pince's Black Muscat, and White Nice. Mrs. Pince is showing some handsome bunches, and the cane of White Nice in this house, so Mr. Matthews told me, sometimes bears bunches 7 lbs. in weight. The next vinery is still later, and contains a very serviceable crop of grapes. The bunches are very evenly distributed on all the vines from front to back. Melons and cucumbers have each a separate house devoted to them, and during the winter mushrooms are grown in a house that is fitted up in the most perfect manner.

I spent some time with my friend in the fruit and kitchen gardens, which are for the most part kept distinct, and I found several interesting features in them. The crop of strawberries was an excellent one, the fruit being large and very abundant. The Countess is the variety in most favour, and it certainly deserves it if it bears so well every year as it has this season.

Mr. Matthews is a connoisseur in peas and potatoes and devotes some attention to the new kinds.

The American Wonder Pea, which was sown March 12, and produced pods ready to pick in ten weeks, is indeed a wonder, for it was covered with well-filled pods and only one foot high. Edinborough Beauty is another new variety on trial for the first time; it is a blue pea, and a fine cropper. Amongst new potatoes I was much struck with the distinctness in growth of the White Elephant, of which my friend has a very high opinion. Last year he planted 3½ lbs., from which he lifted rather more than 400 lbs. International is also in high esteem here.

Amongst the hardy outdoor fruits there is a good crop of plums and a fair sprinkling of apples and pears. Of gooseberries and currants the trees were fairly breaking down with the weight of the fruit.

Standing in a prominent position in the centre of the fruit garden is a noble span-roof orchard house sixty-two feet long and twenty wide. It is a substantial structure with glass down to the ground line. In this house peach and nectarine trees are grown in pots. Figs are planted out in a bed of soil and bearing well, as are also tomatoes. Vines are also planted out, and it was worth a long journey to see them, and to learn something of the management of the house and the success attending it. First, it must be explained that the house is not heated, yet Mr. Matthews tells me he is able to ripen such varieties as Mrs. Pince's Black Muscat, White Nice, Lady Downe's, and Barbarossa grapes. When I was there at the end of June all the varieties I have named had advanced sufficiently to be thinned out, and some were just approaching the stoning process; in fact, they were so far advanced that I could see that under the course of management which is adopted there would be no difficulty in having them ripe. But while saying this much it is only right to say the management is directed according to the requirements of the grapes, as the other occupants of the house have to bear with the treatment provided for the vines. This will account for the advanced condition of the vines on the day of my visit to a certain extent, but they could not have made so much progress under an ordinary orchard-house treatment. The house under notice is about the same size as the fruiting houses at Messrs. Rivers's, at Sawbridgeworth, which is so much better than the little toy houses distributed about the country, as it is well known that a small house is quickly heated and soon cooled. But such houses as the one at Uphill Castle, which holds a large body of air when shut up close, retains its heat much longer than a small one. Acting on this fact, Mr. Matthews is able to produce such favourable results. It is his practice not to give any air at the top of the house except in the very hottest weather. Most of the air is admitted at the ventilators at the sides of the house, and by this system of ventilation he is able on bright days to maintain a forcing temperature. This system he continues until the grapes are ripe, and then more air is admitted. It is in fact just one of those cases in which solar warmth is made the most of. Such a course of management has been frequently placed before the readers of the Magazine by more than one writer. But I am bound to confess I have not seen it anywhere practised, and such satisfactory results obtained, as in the case before us. Of course situation and climate have something to do with it. At the same time, the principle remains the same, and it shows very clearly that there is more to be obtained from solar heat than the majority of amateur cultivators are disposed to believe.

J. C. CLARKE.

A HOAX.—Some time ago at Nice a neighbour of Alphonse Karr, a gardener, called *le père Gerard*, and a country wag, brought to him a pinch of silkworm's eggs, which he mistook for rare flower seeds, and sowed conscientiously according to the recipe. When he discovered the hoax he said nothing, but, as a revenge, he caused a packet of herring's eggs to be sent from Paris to *Père Gerard*, together with various real seeds. The cunning old peasant, who perceived the trick at first sight, pretended to be greatly obliged for the present and to sow the new seeds. After a few days, however, he called upon the *littérateur*. "Monsieur Karr," said he, "I have sown those new varieties which you gave me and want to show you the results." They went together to the garden, where Karr was shown a splendid bed of red herring, head upwards, emerging from the earth.

Notes of Observation.

A LEAF-FLOWERED CLEMATIS.

THINKING it might interest you, I forward you a flower of clematis, which is a very good illustration of the well-known fact that flowers are after all only another form of the leaf. But the curious thing is that the whole plant is the same this year. It is a blood-coloured clematis, and every flower has one or two of the petals of the corolla either wholly or partly green like the leaves. It is also perhaps worth mentioning that I have never seen before so many roses with the branch growing right through the centre of the flower. One is particularly curious, having the flowers in succession in this manner.

G. PALMER.

[The sample sent has a proper floral centre in the shape of a bundle of stamens and pistils, which are surrounded by four various-sized green leaves of nearly the form of proper leaves, but striped with a lavender-grey colour, as though struggling to get out of the leaf condition. Where the stripes of colour occur the texture is velvety, but the green parts of these leaves are leafy and in no way differ from leaves in their visible characters. It may be well to add that the clematis does not produce a proper corolla, the gay flowers consisting of coloured sepals only, as there are no petals. Monster forms of roses are plentiful, and if the bad weather continues everything will be monstrous all around.—ED.]

CARNATIONS AND PICOTEEES.

At the Royal Botanic Society's Exhibition of July 5 Mr. C. Turner, of Slough, put up some superb blooms of carnations and picotees. As they do not obtain special mention in your report, I send the names, for lists of such flowers are always acceptable to cultivators. *Carnations*—Meg Merrilees, Mrs. T. Drake, Mrs. Maclaren, Florence Nightingale, Miss Dombain, Jas. Flowdy, Saturn, William Spoor, Lord Stamford, Edward Adams, Sybil, Fanny Gardner, Prince of Wales, Edward Adams, John Keet, Princess Beatrice, Bride, E. S. Dodwell, and Clipper. *Picotees*—Janira, Elizabeth Ladds, Lady Elvy, Clara Penson, Lucy, Nymph, Emily, Meteor, Fire King, Mary, and Picco.

EARLY SUNRISE PEA.

My experience of this pea is the very opposite to that of Mr. Clarke. It is the most productive in pods, as well as in the number in each pod—from seven to nine—but nearly, or quite, a fortnight later than Ringleader, the very best pea for a second crop, and I have so ordered for next year.

KENT.

On many occasions I have made note of this pea, and found it thoroughly satisfactory as to cropping qualities, and I can make a note of a practical kind that I think is of some value. When visiting Messrs. Carter and Co.'s seed farm at St. Osyth last year, in the company of working horticulturists, Mr. Gardiner, the manager of the farm, asked me to select from a plantation of peas the row that should be gathered from for the dinner that was in preparation at the adjoining inn. I had already made an inspection, and fixed my choice on one particular row, because of its fine appearance and the promise of its pods that we should have something to eat. "Ab," said Mr. Gardiner, "you will do very well with a dish of that; it's a capital pea." Then we all asked, "What is it?" And the reply was, "Early Sunrise." And when they were served at table they justified the choice. My friend Mr. James Crute reckons it one of the three best peas in cultivation.

S. H.

TREE YIELDING FRUIT EVERY MONTH.

At the meeting of the British Association in 1857, Mr. N. Niven made a curious communication as to the remarkable result of an experiment he had made upon a fruit-bearing tree. He had been struck by the passage in the last chapter of Revelation, where the "tree of life" is described prophetically as bearing "twelve manner of fruits, and yielding her fruit every month." Stuck with this description, he was led to consider what possible approximation could be made towards such a result, with the means placed, under the present order of things, at his disposal. From amongst our hardy fruit-bearing trees he made choice of the pear, fixing upon a highly vigorous and healthy young specimen then in the course of ordinary training, that had been previously worked or grafted, and which had arrived at fruit-bearing. This tree occupied a portion of the walls of his residence, having been planted on an angle of the building, occupying thereon two aspects, the one east, the other south or nearly so, the leading stem or trunk being on the angle, the side branches being horizontal, thus as it were at this point clasping the two walls of the house. His object was, if possible, to endeavour to construct a tree that would yield a succession of fruits for each month of the year complete. In the specimen fixed upon there were twenty horizontal branches on each side, thus presenting facility for the insertion by grafting of forty varieties or kinds of pears. Accordingly, the following selection and classification of sorts were made, put on, and labelled, viz.:

MONTHS.	NAMES.	MONTHS.	NAMES.
For July	Citron des Carmes	For December	Beurré Bosc
"	Doyenné d'Été	"	Glout Moreau
For August	Jargonelle	"	Hacon's Incomparable
"	Belle d'Aout	"	Winter Nelis
"	Beurré Giffard	"	Triomphe de Jodoigne
For September	Beurré d'Amanlis	For January	Beurré Langelier
"	Denmore	"	Broom Park
"	Franc Réal	"	Winter Crassane
"	Colmar d'Été	"	Knight's Monarch
For October	Autumn Bergamot	"	Soldat d'Espereu
"	Beurré Spence	For February	Easter Beurré
"	Flemish Beauty	"	Winter Beurré
"	Louise Bonne of Jersey	"	Josephine de Malines
"	Onondago	For March	Crassane d'Hiver
"	Seckel	"	No plus Mouris
For November	Bergamot d'Espereu	For April	Beurré Rance
"	Beurré Diel	"	Late Bergamot
"	Colmar d'Aremberg	For May	Beurré Rance
"	Duchesse d'Angoulême	"	Beurré Bretonneau
"	Napoléon	For June	Suzette de Bayoy
"	Thompson's	"	Beurré Bretonneau

In the spring of 1855 the scions of these various varieties were inserted one upon each branch, all of which had been cut back to within six inches of the main stem. Thus the important process of what is called *double grafting* or *grafting upon a graft*, was effected, a process greatly tending to extra

fruitfulness in the tree. Almost each graft of the above succeeded, and the growth of the whole came off simultaneously, and with nearly equal luxuriance, the same healthful progress resulting in 1856, but with the interesting addition of numerous sets of flower-buds on many of the grafts. In the spring of 1857 the blossoms set freely, and when Mr. Niven read his paper there were upwards of one hundred fine specimens of fruit upon so many of the sorts, that they will, he says, "in the order of their ripening, nearly, if not fully, realize the result hoped for."

"The value and importance of the above result," said Mr. Niven, "particularly where wall accommodation is limited, will at once appear; but, besides this, the opportunity that will be presented for comparison between one variety and the other, and the ready ascertainment of their respective qualities and characters, must greatly tend to the enjoyment and pleasure, as well as profit, of the interested cultivator." Has this experiment been repeated?—M., in *Field Naturalist*.

Obituary.

On the 7th inst., at his residence in Enfield, Mr. JAMES ABBISS, J.P., chairman of the Board of Guardians of the City of London, many years alderman of London, and vice-president of the International Potato Exhibition from its foundation in the year 1875. Mr. Abbiss was elected alderman for Bridge ward in the year 1859, but owing to the continued illness of his wife he resigned the aldermanic gown in 1867. He was sheriff of London and Middlesex, having for his colleague Mr. Alderman Lusk, M.P., in the year 1860. The office of chairman of the Board of Guardians he had held for over twenty-five years, and at the last dinner of the guardians, at which he presided, he was presented with his portrait. He was also treasurer of the Asylum for Idiots at Earlswood, and a member of the Court of Lieutenancy of the City of London, and a magistrate for Middlesex. Few men have endured the wear and tear of public life so well as Mr. Abbiss, for although in his seventy-first year he appeared to be not above threescore years at the utmost. This may no doubt be in great part attributable to his evenness of temper and his admirable regulation of his life. As a worker in the public interest he knew no rest, but his prudence and moderation sustained alike his spirits and his health, and he was ever a model of calm self-possession, without fret or haste in anything. Would there were many such to sustain the proper dignity of municipal and parochial councils! On Tuesday, July 4, Mr. Abbiss was stricken with paralysis and died on the Friday following. His name will be long and honourably remembered.

Markets.

COVENT GARDEN.

FRUIT.

Apricots	per doz.	0s. 4d. to 1s. 3d.
Cherries	per lb.	0s. 3d. to 0s. 8d.
Currants	per ½ sieve	3s. 6d. to 6s. 0d.
Figs	per doz.	3s. 0d. to 3s. 6d.
Gooseberries	per ½ sieve	1s. 6d. to 3s. 0d.
Grapes	per lb.	1s. 0d. to 1s. 4d.
Lemons	per 100	5s. 0d. to 7s. 0d.
Melons	each	2s. 0d. to 3s. 6d.
Oranges	per 100	4s. 0d. to 5s. 0d.
Peaches	per doz.	6s. 0d. to 10s. 0d.
Pine-apples, Eng.	per lb.	3s. 0d. to 4s. 0d.
Raspberries	per lb.	0s. 3d. to 0s. 6d.
Strawberries .....	.....	0s. 4d. to 1s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 5s. 0d.
Beans, French	0s. 4d. to 0s. 8d.
Beet	1s. 0d. to 1s. 6d.
Cabbages	0s. 9d. to 1s. 6d.
Carrots	0s. 4d. to 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.
Cucumbers	0s. 4d. to 0s. 9d.
Endive	1s. 0d. to 1s. 6d.
Garlic	0s. 10d. to 1s. 0d.
Herbs	0s. 2d. to 0s. 4d.
Horseradish, per bundle	3s. 0d. to 4s. 0d.
Lettuces, Cabbage, per dz.	0s. 4d. to 1s. 0d.
Lettuces, Cos	0s. 4d. to 1s. 0d.
Mint, Green	0s. 3d. to 0s. 4d.
Mushrooms	1s. 0d. to 3s. 0d.
Onion Spring	0s. 4d. to 0s. 6d.
Parsley	0s. 4d. to 0s. 6d.
Peas	1s. 0d. to 1s. 6d.
Radishes	0s. 1d. to 0s. 3d.
Small Salading	0s. 3d. to 0s. 4d.
Spinach	3s. 0d. to 4s. 6d.
Tomatoes	0s. 6d. to 1s. 0d.
Turnips	0s. 4d. to 0s. 6d.
Vegetable Marrows	0s. 4d. to 6s. 0d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Bonvardias	1s. 0d. to 1s. 6d.
Calceolarias, per doz. bun.	5s. 0d. to 10s. 0d.
Campaulas, per doz. bun.	4s. 6d. to 10s. 0d.
Carnations, per doz. blms.	1s. 0d. to 2s. 0d.
Cornflowers, per doz. bun.	3s. 0d. to 4s. 0d.
Fuchsias	4s. 0d. to 6s. 0d.
Gardenias, per doz. blooms	1s. 6d. to 4s. 0d.
Gladioli	7s. 6d. to 10s. 0d.
Heliotropiums	0s. 6d. to 1s. 0d.
Lapagerias, per doz. blms.	1s. 0d. to 5s. 0d.
Liliums	1s. 6d. to 4s. 0d.
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East Wylam	per ton	15s. 0d.
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Replies to Queries.

Rosière.—The tea rose Gloire de Dijon was raised by M. Jacotot, of Dijon. It was first exhibited at Paris in the year 1853, and in the same year was introduced to this country.

Regular Subscriber.—A load of hay should contain 36 trusses of from 56 lbs. to 60 lbs. each; consequently, the weight of a load should be about half a ton.

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W. H.—Your grapes are badly shanked and mildewed, and the leaves are poor and in some degree mildewed. We must conclude that the mischief begins at the roots, which are probably overfed, and continue in action too far into the autumn, instead of going to rest when the leaves fall. Our opinion rests only on the condition of the samples sent, and it will be for you to consider whether we take a sound view of the case. We have had this season very many examples of diseased and malformed grapes, clearly traceable to bad management in respect of sulphuring and ventilating, many persons being evidently of opinion that grapes may be grown without any change of air or any kind of ventilation whatever.

Names of Plants.—J. S., Alltyferin.—The shrub is *Rhododendron Edgeworthii*. J. M.—Your shrub is *Berberis Fortunei*. R. H. K. B.—1, *Rosa rugosa*; 2, another variety of the same. You must not be led away by the labels. *R. rugosa* and *R. Regeliana* are one and the same, but there are several varieties, the most important being the red and the white. 3, *Rosa lutea*; 4, *R. oxyacantha*. J. B.—Your find on the hill above Worthing is the parasitic dodder, *Cuscuta epithymum*. W. H. Warner.—1, *Jasminum fruticosum*; 2, *J. humile*. There are some half a dozen varieties of the common white jasmine, but they are of small consequence save the golden-leaved, which is extremely beautiful. J. Wells.—1, *Eugenia apiculata*; 2, *Fragaria elatior*; 3, *Adiantum cuneatum*; 4, *A. mesembryanthemum*, the specific name of which we cannot give you; 5, *Euonymus japonica*; 6, *Lonicera japonica*. W. B. B.—*Jasminum grandiflorum*.

THE ANTIQUITY OF MAN.—Professor Mudge has presented some interesting evidence relating to the antiquity of man in an American scientific journal. He starts by assuming the correctness of the generally-accepted opinion among geologists that man was on the earth at the close of the Glacial epoch, and endeavours to prove the antiquity of the race cannot be taken at less than 200,000 years. After the Glacial epoch, American geologists have recognized, by their effects, three others, namely, the Champlain, the Terrace, and the Delta, all supposed to be of nearly equal length. His argument for estimating the duration of these epochs is as follows: He takes the case of

the Delta of the Mississippi, and notes the fact for a distance of about 300 miles of this deposit there are to be observed buried forests of large trees, one over the other, with interspaces of sand. Ten distinct forest growths of this nature have been observed, which must have succeeded one another. These trees are the bald cypress of the Southern States. Some have been observed over 25 ft. in diameter, and one contained 5,700 annual rings. In some instances these huge trees have grown over the stumps of others equally large, and such instances occur in all, or nearly all, the ten forest beds. From these facts, Professor Mudge thinks it is not assuming too much to estimate the antiquity of each of these forest growths at 10,000 years, or 100,000 years for the ten forests. This estimate would not take into account the interval of time—which doubtless was very considerable—that elapsed between the ending of one forest and the beginning of another. "Such evidence," Professor Mudge concludes, "would be received in any court of law as sound and satisfactory. We do not see how such proof is to be discarded when applied to the antiquity of our race. There is satisfactory evidence that man lived in the Champlain epoch. But the Terrace epoch, or the greater part of it, intervenes between the Champlain and Delta epochs, thus adding to my 100,000 years. If only as much time is given to both these epochs as to the Delta epoch 200,000 years is the total result."

HOW TO GROW LILIES.—The lilies may be divided into two groups as regards the soil that suits them: one group needing a loamy and the other a peaty soil. But they will all thrive—other circumstances being fairly favourable—in a mellow well-drained loam, or in a nourishing fibrous peat. A boggy, sour, poor, or chalky soil will not suit a single lily, whether it be the commonest or the rarest. In preparing for lilies, it is not advisable to use stable manure, except as a top-dressing when the planting is completed, but the cowshed will supply a suitable fertilizer to dig in and mix with the staple. Far better, however, as an aid in making up a bed for lilies, is a heap of rotted turf, leaves, and other vegetable refuse, forming what is known to gardeners as "leaf-mould." A good soil they must have, but stimulants are likely to do more harm than good, and their free employment in promoting a grand bloom of *Auratum* will often account for the perishing of the bulbs when the bloom is past. Lilies are often described as needing an abundance of water. As regards those planted out in a deep fertile soil, our opinion is that they do not want any. We have often felt perfectly satisfied that if we could screen our lily beds from rain, and compel the sun to shine upon them from May to August, we should have glorious bloom above and a great increase of bulbs below, and beyond all doubt hot dry summers bring the garden lilies to their highest perfection. The inexperienced amateur is likely to make a fatal mistake in his first venture in lily culture by planting at the wrong season. All beginners have an idea that the spring is the proper season for every kind of garden work, including the planting of lilies. The "proper" time to plant them is as soon as possible after they have flowered. As a rule, therefore, lilies should be planted from July to October, and in every case it would be well to do the work directly the last of the flowers falls from the stem. The florists do their best to keep lily bulbs fresh and plump through the winter for the late-coming customers, but Nature does not alter her ways to accommodate our mistakes. She simply makes us pay for them; and if we will walk in the wrong way, the path before us is soon found to be strewn with stumbling-blocks, but the right way is always easy and pleasant.—From "Familiar Garden Flowers" for July.

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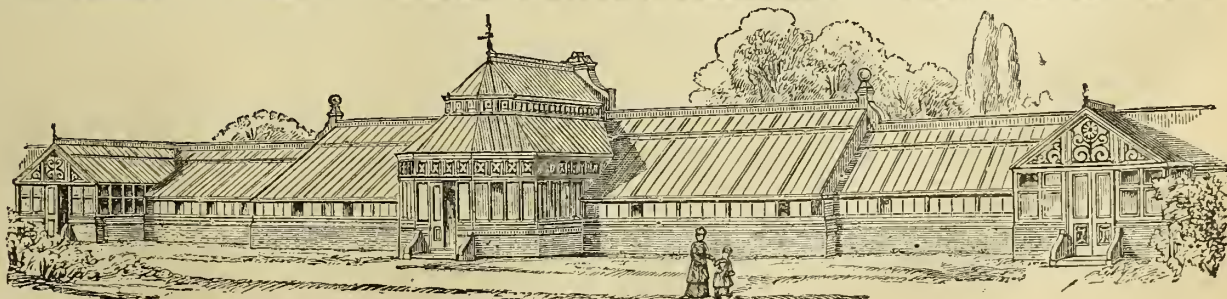
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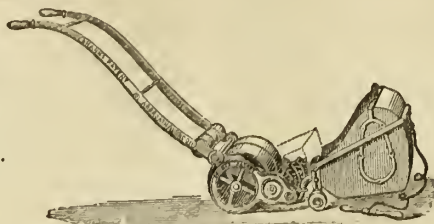
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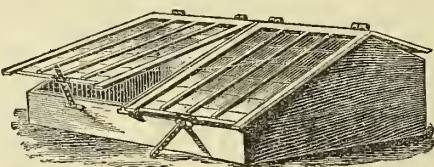
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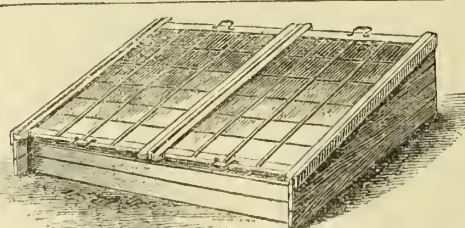
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			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. G.			
1882		Quarter, 10h. 18m. morn.												1882	
23	S	7th Sunday after Trinity.) First	4 11	6 13	8 0	1 7	10 45	6 35	6 55	3 40	4 0	6 34	Agapanthus umbellatus, G.....	Blue.	204
24	M	Princess Victoria of Prussia born, 1890.	4 12	6 14	7 58	2 14	11 16	7 20	7 45	4 20	4 45	6 34	Alliandra Hendersoni, S.	Yellow.	205
25	Tu	St. James.	4 14	6 15	7 56	3 19	11 55	8 13	8 47	5 10	5 38	6 34	Campanula persicifolia, H.	Blue.	206
26	W	St. Anne.	4 15	6 16	7 54	4 23	Morn.	9 25	10 5	6 12	6 50	6 34	Dipladenia ananilis, S.	Rose-pink.	207
27	Th	Battle of Talavera, 1809.	4 17	6 15	7 53	5 29	0 44	10 42	11 20	7 30	8 7	6 33 Brearleyana, S.	Crimson.	208
28	F	Cowley died, 1667.	4 19	6 14	7 51	6 8	1 45	11 52	—	8 45	9 17	6 33	Passiflora lmpetrice Engenic, G.	Rosy lilac.	209
29	S	Battle of Boylan, 1832.	4 21	6 13	7 50	6 50	2 55	0 25	0 50	9 45	10 15	6 33	Tasconia oxoniensis, G.	Purple-crimson.	210

The Gardeners' Magazine.

SATURDAY, JULY 22, 1882.

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EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

MONDAY, JULY 24, TO SATURDAY, AUGUST 5.—AGRICULTURAL HALL, ISLINGTON.—Horticultural Exhibition and Market.

TUESDAY, JULY 25.—IFFLEY HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, JULY 25.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; Carnation and Picotee Show, 1 p.m.; General Meeting, 3 p.m.

TUESDAY, JULY 25.—NATIONAL CARNATION AND PICOTEE SOCIETY (SOUTHERN SECTION).—Exhibition in the Gardens of the R.H.S., South Kensington.

TUESDAY, JULY 25.—BUCKINGHAM HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, JULY 25.—STANDLAKE HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, JULY 26, AND THURSDAY, JULY 27.—NEWCASTLE-UPON-TYNE HORTICULTURAL SOCIETY.—Summer Exhibition.

WEDNESDAY, JULY 26.—WEST OF SCOTLAND PANSY SOCIETY.—Exhibition of Pansies, Roses, and Pinks at Glasgow.

THURSDAY, JULY 27.—GARSINGTON (OXON) HORTICULTURAL SOCIETY.—Annual Exhibition.

EXPERIMENTS WITH MANURES IN THE CULTIVATION OF THE POTATO have been variously carried out and reported from time to time, but not often so satisfactorily as in the scientific work of the Munster Farm in the year 1881. Although the publications of the County Cork Agricultural Society, which have already been cited as of great value, are within the reach of all who will take the trouble to obtain them, our readers will probably find something of service in the analysis we shall now attempt of the report by Dr. Sullivan, which forms a portion of No. IV. of these publications. The object of the experiments was to test the action of what may, for convenience sake, be termed "elementary" manures under the same conditions of soil, climate, and culture. The ground set apart for the purpose was so marked out and managed that the plots showed the effects of the selected manures, single, at the rate of 2 cwt. per acre, and the same selected manures at the rate of 4 cwt. per acre, and again of the several manures in various combinations. A trial for comparison was also made of farmyard dung of two kinds, the one saved in the open, the other saved under cover; and these were used at the rate of 30 tons to the acre. As a matter of course, a certain number of plots were left unmanured to furnish a primary datum for the comparisons.

The special manures were of three categories, namely—A, Nitrogenous, comprising nitrate of soda and sulphate of ammonia; B, Potash in the form of Kainit; C, Phosphates, as, for example, bone-meal, mineral superphosphate, American phosphate, &c. The use of kainit instead of the theoretically proper sulphate of potash was resolved upon because of the cheapness of the former article. Before we look into the results it may be well to restate the mineral constitution of the noble tuber. In Wilson's "Farm Crops" (vol. ii.,

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p. 68), a crop of potatoes amounting to 8 tons is reckoned to contain about 175 lbs. of mineral matter in the following proportions:—

Potash	...	...	...	...	...	90 lbs.
Soda	...	...	...	...	...	8 "
Lime	...	...	...	...	...	5 "
Magnesia	...	...	...	...	...	8 "
Sulphuric Acid	...	...	...	...	...	34 "
Phosphoric Acid	...	...	...	...	...	20 "
Chlorine	...	...	...	...	...	10 "

175 lbs.

Beginning with the unmanured plots, the text of the report says they yielded a crop "corresponding to 5 tons 16 cwt., so that we may take the approximate capacity of the unmanured land for the growing of the Champion potato to be about 5 tons." But on turning to Table IV., page 16, we encounter the startling fact that these unmanured plots produced practically nothing at all, for thus stands the statistical account with no manure (t., tons; c., hundred-weights; q., quarters):—

Gross yield, 5 t. 16 c. Marketable, 0 t. 14 c. 2 q. Small, 5 t. 1 c. 2 q.

We have, say, three-quarters of a ton of marketable potatoes per acre on the unmanured ridges, and this "marketable" value we shall follow as the point of primary interest.

We will begin at the bottom of the ladder. The very smallest yield was with sulphate of ammonia and bone superphosphate, the return being—

Gross yield, 3 t. 19 c. 3 q. Marketable, 1 t. 16 c. 1 q. Small, 2 t. 3 c. 2 q.

Here is certainly one ton of marketable better than with no manure, although, strange to say, the gross yield is nearly two tons less. The following are also poor results:—

	Gross.			Marketable.		
	t.	c.	q.	t.	c.	q.
Sulphate of Ammonia and Bone Meal	4 17 3	...	2 10 3
Bone Superphosphate only	4 10 2	...	1 9 0
Bone Superphosphate and Curaçoa Phosphate	4 10 2	...	1 9 0
Alta Vela Phosphate and Sulphate of Ammonia	5 19 2	...	3 5 0
American Phosphate only	4 10 2	...	1 12 0
American Phosphate, 4 cwt. to acre	4 14 1	...	1 1 3
American Phosphate and Curaçoa Phosphate	4 3 1	...	1 9 0
Curaçoa Phosphate and Bone Meal	5 1 2	...	2 10 3
Curaçoa Phosphate and Bone Superphosphate	4 14 1	...	1 16 1

These are wretched results, and they show how easily we may waste money in artificials, unless we purchase and administer them with prudence. Knowledge is the pivot on which the thing turns, and here for a quickly-earned scrap we have the lesson that phosphates are of themselves of comparatively little value as fertilizers for potato ground. In the case of American phosphate we obtain a better crop with 2 cwt. than with 4 cwt. to the acre, because with the first the marketable bulk is 1 t. 12 c., and with the second it is 1 t. 1 c. 3 q. Bone meal makes a very poor return, but always better than where no manure is used, although certainly the increase in marketable crop is not enough to pay for the fertilizer.

We turn now to the heavier crops, selecting those only which run to 9 tons gross and beyond, and here we shall see the influence of potash and soda, but shall learn that they are not alone the leading fertilizers, the value of the sulphates being not less distinctly manifested.

	Gross.			Marketable.		
	t.	c.	q.	t.	c.	q.
Sulphate of Ammonia and Mineral Superphosphate	9 15 3	...	...	5 1 2	...	...
Sulphate of Ammonia and American Phosphate	9 4 3	...	...	3 19 3	...	...
Bone Meal and Sulphate of Ammonia	9 15 3	...	...	7 19 2	...	...
Bone Superphosphate and Bone Meal	9 4 3	...	...	6 3 1	...	...
Bone Superphosphate and Nitrate of Soda	9 8 2	...	...	7 5 0	...	...
Bone Superphosphate and American Phosphate	9 4 3	...	...	4 14 1	...	...
Mineral Superphosphate and Sulphate of Ammonia	9 15 3	...	...	5 8 3	...	...
Alta Vela Phosphate and Nitrate of Soda	9 1 2	...	...	6 3 1	...	...
Curaçoa Phosphate only	9 1 1	...	...	5 8 3	...	...
Curaçoa Phosphate and Mineral Superphosphate	9 4 3	...	...	4 3 1	...	...

The foregoing may be regarded as costly manures, and unquestionably suitable for the potato crop, and yet the results are far from satisfactory. The difference, between the unmanured plots averaging 5 tons and the last-cited list of examples over 9 tons, is to be found chiefly in the relative size of the tubers, because the 5 tons gave only 14 cwt. of marketable, whereas here we have, as the lowest figure of marketable, the second in the list, making 3 t. 19 c. 3 q. These phosphatic manures, however, do not in the last-cited list sufficiently justify themselves, as probably in the case of wheat they would abundantly. In the analysis of the tuber we find a

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total of potash and sulphuric acid amounting to 124, against phosphoric acid 20. This fact, then, we expect to find illustrated in the examples next to be cited.

	Gross.			Marketable.		
	t.	c.	q.	t.	c.	q.
Sulphate of Ammonia and Alta Vela Phosphate ...	10	6	2	5	16	0
Sulphate of Ammonia and Kainit ...	12	10	0	7	19	2
Nitrate of Soda and Kainit ...	11	19	1	7	19	2
Bone Meal only, 4 cwt. to acre*	10	3	0	6	17	3
Bone Meal and Kainit ...	13	1	0	9	15	3
Bone Superphosphate and Sulphate of Ammonia...	11	19	1	9	1	1
Bone Superphosphate and Kainit ...	13	19	0	8	17	2
Mineral Superphosphate and Nitrate of Soda ...	10	17	2	6	10	2
Mineral Superphosphate and Bone Superphosphate	11	19	1	5	1	2
Mineral Superphosphate and Kainit ..	14	13	2	9	4	3

Thus far the influence of potash is plainly demonstrated, but there is a more distinctive demonstration in the series wherein it plays the leading part, and this series we shall repeat in full as it stands in Table IV. : —

	Gross.			Marketable.		
	t.	c.	q.	t.	c.	q.
Kainit only, 2 cwt. to acre ...	13	19	0	9	15	3
Kainit and Sulphate of Ammonia ...	12	17	1	10	3	0
Kainit and Nitrate of Soda ...	13	11	3	9	15	3
Kainit and Bone Meal ...	14	2	3	10	10	1
Kainit and Bone Superphosphate ...	14	13	2	8	3	0
Kainit and Mineral Superphosphate...	13	19	0	8	17	2
Kainit and Alta Vela Superphosphate ...	14	2	3	8	6	3
Kainit only, 4 cwt. to acre ...	14	6	1	10	3	0
Kainit and American Phosphate ...	11	15	2	8	17	2
Kainit and Curaçoa Phosphate ...	13	4	2	9	12	0

It is worthy of note in the foregoing list that a double dose of kainit did not double the crop or very materially increase it. It is also worthy of note that phosphatic manures, when used alone, do not appear to be profitable, but are in a very different position when associated with potash. But we have not yet reached the highest rate of production, and another small list will be needed. The highest figures in the table are now to come before us, and they belong to the potash series, as will be seen :—

	Gross.			Marketable.		
	t.	c.	q.	t.	c.	q.
Alta Vela Phosphate and Kainit ...	15	0	3	11	8	1
American Phosphate and Kainit ...	15	15	1	11	8	1
Curaçoa Phosphate and Kainit ...	15	19	0	11	4	3
Farmyard Manure from Open Yard...	13	15	2	11	12	0
Farmyard Manure from Under Cover ...	16	13	2	13	15	2

Thus our old friend from the stable overtops all the artificials in this particular trial. It is worthy of note that farmyard manure from the open yard produces a less gross weight than the three crops above it, but surpasses all three in weight of marketable produce. But the greatest crop of all is that from manure made under cover : a re-reading of a good old lesson that has but seldom been taken to heart.

EDUCATION IN FORESTRY.—The following memorial has been presented by the Council of the Society of Arts to the Secretary of State for India, in Council :—

To the Most Honourable the Marquis of Hartington, Her Majesty's Secretary of State for India, in Council.

The Memorial of the Council of the Society for the Encouragement of Arts, Manufactures, and Commerce, sheweth,—

That your memorialists believe that there is a great and growing demand for the services of persons skilled in forest cultivation and analogous occupations in India and the Colonies generally.

That there is also an increasing desire on the part of land agents, land stewards, and bailiffs to acquaint themselves (at all events to a moderate extent) with the scientific and technical treatment of plantations, woods, and forests, as a means of fitting them for the more satisfactory management of landed estates in the United Kingdom.

That your memorialists believe that no suitable provision exists at any of our great centres of instruction, in this country, for the teaching of natural science in its special reference to forestry, nor for the scientific teaching of sylviculture in any of its branches.

That your memorialists are of opinion that, by a proper adaptation of the subjects taught at some of our large educational establishments to the requirements of the two classes of students already referred to, and by the addition of special means of teaching forest cultivation and cognate subjects, much might be done in the direction of fitting our own countrymen for the management and control of the forests in Great Britain and her dependencies.

That your memorialists are aware that in the absence of any proper provision for giving the requisite instruction in the United Kingdom, the existing system of sending forest students to continental schools of forestry has been adopted; but your memorialists have satisfied

* The figures here show that by using an excess of bone a sufficiency of potash may be obtained at a cost beyond its value. In bone ash there is usually over 50 per cent. of phosphate of lime, and only 2½ of potash and about 3½ of soda. This note seems to be needed, because for crops less alkaline than the potato bone is one of the most effective fertilizers, more especially for cereals and pulse.

themselves that, by grafting itinerating classes for observation of the practical method adopted in the regularly-worked forests abroad on classes for scientific teaching at home, established in connexion with such a school as already exists at Cooper's Hill, satisfactory means could be afforded of enabling students to obtain the requisite knowledge, both theoretical and practical, to qualify them for entering upon the duties appertaining to forest management, whether in India, our Colonies, or elsewhere.

Your memorialists, therefore, desire to press this subject upon the attention of your Lordship, and they venture to express their earnest hope that steps may be taken by your Council to establish a department for the teaching of forestry in the Royal Engineering College at Cooper's Hill.

And your memorialists will ever pray.

Signed on behalf of the Council of the Society for the Encouragement of Arts, Manufactures, and Commerce, this 28th day of June, 1882,

F. J. BRAMWELL, *Chairman of the Council.*

H. TRUEMAN WOOD, *Secretary of the Society.*

ESSEX FIELD CLUB.—The members will meet this day (July 22) at Oakhurst, Chigwell. On Saturday next the members will receive a party from the Richmond Athenæum, on a visit to Epping Forest. On Saturday, September 23, the Annual Cryptogamic meeting will be held.

SWEET WILLIAMS AND ANTIRRHINUMS sent up from The Ivies, Wantage, are very various and of high quality. We have seen more than the usual proportion of bad samples of these in the present season, and it is refreshing to meet with such beautiful examples as Mr. Caudwell has forwarded.

IN THE ALEXANDRA PALACE STATION, exactly over where the locomotives stop and belch forth their smoke, sparrows have built their nests. The station master recently abstracted the eggs deposited in one of the nests and replaced them by canaries' eggs, with the result that young birds have now been hatched.

MESSRS. BARR AND SON, of 34, KING STREET, COVENT GARDEN, have secured the fine collections of lachenalias and narcissi possessed by the late Rev. John Nelson, of Aldborough, and in the course of the approaching bulb season will issue a descriptive priced catalogue of them.

DEATH FROM THE STING OF A BEE.—The coroner for Berks held an inquest last week on the body of Mrs. Legge, wife of a farm bailiff, near Wantage, who had died from the effects of the sting of a bee upon her forehead. She died in about an hour from the time she was stung, and before a medical man could be called. The jury returned a verdict of Death from the sting of a bee.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The annual simultaneous collection in aid of the "Pension Augmentation Fund," will take place on the 31st instant, and the collecting cards are now being distributed. Gardeners who are disposed to assist in this laudable work may obtain cards from the secretary, Mr. E. R. Cutler, 14, Tavistock Row, Covent Garden.

THE GOLDEN QUEEN MIGNONETTE was thought so highly of by the seed trade that for the trial culture at Chiswick samples were sent by several firms, including Mr. Benary, of Erfurt, Messrs. Carter and Co., E. G. Henderson and Son, and J. Veitch and Sons, of London. In collections of resedas it will be quickly recognized by its compact habit, strong colour, and powerful perfume.

NATIONAL CARNATION AND PICOTEE SOCIETY.—It may be well to remind the lovers of carnations and picotees that the usual exhibition will be held at South Kensington on Tuesday next, July 25, and the show at Oxford on Wednesday, August 2. It will add to the enjoyment of all to see at both meetings Mr. E. S. Dodwell in renewed health and strength, for he promises to present himself, and is working as hard as ever to ensure the complete success of these exhibitions.

THE CASTOR-OIL PLANT AS AN INSECTICIDE.—The *Bulletin* of the Horticultural Society of Liège states that flies disappear as by enchantment from rooms in which castor-oil plants are introduced. It would be interesting to have further confirmation of this remark. The dead flies found round the plants and the numerous insect remains clinging to the under surfaces of the leaves encourage the belief in the existence of a peculiar insecticidal principle in the latter, which, it is suggested, should be tried as a remedy for green fly.

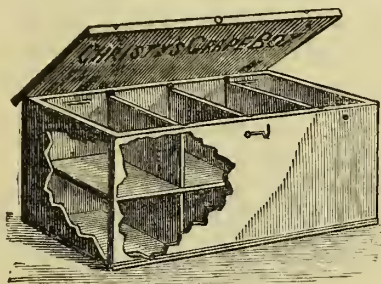
THE WEATHER AND THE CROPS will for some weeks to come obtain much attention. It has of late many times appeared probable that the weather would make an end of the crops, but in a general survey it will be found that the low temperature and the excessive rainfall have not as yet produced results deserving to be described as disastrous. Since the weather has somewhat mended the prospect has brightened and is now fairly good, and we would say very good for such an unfavourable season. Reports are current of the prevalence of potato disease, and we have seen much of it on the shaws, but not much in the tubers. The early potato crop has lifted well, and the markets are supplied with clean samples; and if from this time we have dry and sunny weather the produce of potatoes, hay, and wheat will be at least satisfactory.

THE HORTICULTURAL EXHIBITION AND MARKET, which will be opened in the Agricultural Hall on Monday next, and continue until August 5, will be a great affair, and in some respects a novelty. The great space at command, and the permanent shelter and effective lighting, favour a larger method of procedure than is possible when exhibitions are held in tents or gardens. There will be no prizes given, but exhibitors will be free to sell, and the animation of a market will be added to the usual attractions of a great exhibition.

CHANNEL ISLANDS' VINERIES AND EARLY PRODUCE COMPANY.—This company proposes to promote production of fruit and early vegetables in the Channel Islands, and to find markets for the same on a plan calculated to exclude the middleman from participation in the profits. The consumption of Channel Islands' produce in London, Manchester, and other of our populous cities, is already great, but it cannot be doubted that much more would be taken were much more produced. Those of our readers who desire to be fully informed in respect of this new company may be referred to the offices at 18, Adam Street, Adelphi.

CHILDREN'S FLOWER SHOWS are increasing in number, and at this season of the year they afford a little refreshment of a rural kind to the very many who do not indulge in bathing and mountaineering. At the exhibition of the children of St. Margaret and St. John's, Westminster, there were 950 exhibitors, of whom two-thirds were children. The show of the Aldenham Street schools, held in St. Pancras Vestry Hall on Saturday last, was not wanting in competitors; in fact, their number was surprising. All the exhibitions of this class are this year below the average in the quality of the plants, owing to the unfavourable nature of the season.

CARRIAGE OF GRAPES.—The success of Messrs. Christy and Co.'s experiment in providing all the world with a box for carriage of peaches has encouraged them to the production of a box specially prepared for the carriage of grapes; this, we do not doubt, will prove, like sugar and postage stamps, a "leading article." It is awfully strong and extravagantly cheap. The curious problem of accommodating large or small bunches in the same compartment has been



solved by the adoption of a moveable partition, the principle of the packing being that the bunches are rendered immovable, and therefore the chafing of berries is not to be thought of. Messrs. Christy are doing a good work in providing these boxes, because they are really adapted for innumerable purposes where garden produce has to be quickly packed and despatched, and too many of us know about grand grapes rubbed out of bloom, peaches, nectarines, and eggs smashed out of value, and even plums and pears, that travel so well when properly packed, making the end of a journey in the condition of custards or jelly-fishes.

FLAMELESS COMBUSTION.—At the soirée of the Society of Chemical Industry at Owens College, a new theory of combustion was practically illustrated by Mr. Thomas Fletcher, of Warrington, the results being so totally unexpected that many present would, and in fact did, go away with the impression that some deception was being practised. Mr. Jacob Reese, the inventor of the Reese fusing disc, has stated his belief that if it were possible to produce combustion without flame, the temperatures and duty obtained from any fuel would be enormously increased. It has remained for Mr. Fletcher to not only prove the possibility of flameless combustion in more than one form, but also to demonstrate practically the enormously high temperatures which can be obtained by this means. Taking a ball of iron wire about three pounds in weight, Mr. Fletcher placed it on a slab of fire clay, and, directing a blowpipe flame on it for a few seconds, he suddenly blew the flame out. The temperature increased so rapidly that in a few seconds the wrought iron fused and ran into drops, and this temperature was steadily maintained. The room was darkened, but the closest examination did not show a trace of flame, although the fact that the gas was burning was proved by repeatedly relighting and extinguishing it. The same experiment was repeated in another form by directing the flameless heat into a small fire-clay chamber, in which a refractory clay crucible, made specially for nickel melting, was partially fused and worked in a ball like soft putty, the sides of the fire-clay chamber being at the same time fused. The heat was so tremendous that the blow-pipe laboratory which was given up to Mr. Fletcher for the evening was much too hot to be agreeable, in spite of open windows and ventilators. How far this discovery can be utilized remains to be seen, but it would appear that the presence of flame, usually considered to be a sign of combustion, is really an indication of imperfect results, and the best duty is to be obtained only when flame is totally absent. It is certain that such temperatures as obtained by Mr. Fletcher without flame have never previously been obtained with the fuel used, which was nothing more than a small gas supply for a quarter-inch pipe, assisted by an air-blast. As regards

the soirée, the society may be considered a promising infant. It is under a year old, and about 1,700 were present on Thursday, the building being inconveniently crowded. The meeting next year is to be in London, the president for the year being Mr. F. A. Abel, C.B., F.R.S., of the Royal Arsenal, Woolwich.—*Warrington Guardian*, July 12, 1882.

BIRD SCARING EXTRAORDINARY.—According to the *Scientific American*, Dr. H. J. Glenn, whose wheat farm covers an area of 75,000 acres in Colusa County, California, is under the necessity of maintaining a troop of mounted riflemen, at a cost of 10,000 dollars (£2,000) a year, for the purpose of scaring the flocks of wild geese, which otherwise would destroy his crops. These riflemen, forty in number, mostly good shots and well mounted, patrol the farm by reliefs all day long, and on moonlight nights as well. They discern the flocks of geese, which at a distance of 300 or 400 yards, look like blankets spread over the corn, with the aid of their field-glasses, and drop a bullet into the midst, which causes them to rise, following up the shots until the birds mount to a great height, and leave the spot disgusted by the repeated disturbance. Birds that are killed are brought in and plucked, but the returns from this source are small; and the object is not to kill, but to keep the birds from settling on the growing corn. On an average, 8,000 rounds of ammunition are thus spent daily, representing, it is estimated, 20,000 geese kept on the wing. Sometimes dense fogs roll up, when the goose-herders are in danger of shooting each other. On these occasions the birds appear to know their advantage, and feed with the greatest avidity and boldness.

Notes of Observation.

PLUMBAGO CAPENSIS.

So seldom is the exquisitely beautiful *Plumbago capensis* seen at the public exhibitions, that the splendid specimen which has been exhibited this season by Messrs. Jackson and Son, of Kingston-on-Thames, well deserves some notice. It has long been considered very difficult to grow to a large size, but, as pointed out in these pages, it is less so than is supposed to be the case, as demonstrated by the examples usually staged at the exhibitions held in the East-end of London. At the shows of the Lea Bridge and Tower Hamlets societies large specimens in the most luxuriant condition and superbly flowered are invariably staged, but until this season the plumbago has not been staged in specimen form at either of the Royal societies; and Messrs. Jackson and Son are deserving of the heartiest praise for showing how well suited it is for exhibition purposes. It is not more effective in an exhibition group than numerous other subjects, but the flowers are of a colour of the most pleasing character, and the beautiful shade of azure-blue is not afforded by any other of the stove and greenhouse plants. Many plant growers fail to ensure success through allowing the foliage to become infested with red spider, to which it is perhaps rather subject. But there is no good reason why the plumbago should be destroyed by red spider, for by supplying it liberally with weak liquid manure when making its new growth, and plying the syringe vigorously upon the foliage, it can be kept perfectly clean. Mr. Oubridge, who grows it with great success, holds the opinion that many growers do not succeed in producing good specimens because of their being afraid to use the syringe and to supply it with anything stronger than clear water. In the management of the large specimen in his nursery he is not sparing in the use of liquid manure or in the employment of the syringe. Messrs. Jackson's specimen, it may be added, is about three feet in height and in diameter, and when at Richmond at the June show, and at the Exhibition of the Royal Botanic Society in the first week of July, it was densely flowered, and the leafage was abundant and of the richest green. G.

SPECIMEN ORCHIDS.

The two collections of *bonâ fide* specimen orchids exhibited by Mr. Spyers at Regent's Park on July 5 must have gratified many visitors who, like myself, have become tired of the so-called specimens formed by putting eight or ten little plants into a big pot. The specimens shown by Mr. Spyers were in splendid condition and very effective, but they were not over-large; in fact, not so large as one could have wished, considering that the chief object, as I understand the case, was to show the practicability of staging a thoroughly effective collection without resorting to the objectionable practice of making up. In my opinion, we are not improving in the cultivation of orchids. They are being imported annually by thousands, and many amateurs are engaging in their culture, but there appears to be a dearth of good specimens, and if an objection is made to the practice of making up it is met on all sides with the assertion that it is not possible to stage a collection that will produce a good effect without resorting to it. Those who have had from fifteen to twenty-five years' experience in orchid growing will not regard these assertions with much favour, for they will well know that it is not only practicable to stage a thoroughly effective collection of *bonâ fide* specimens, but that such have been exhibited over and over again. When I was actively engaged in orchid growing, from fifteen to twenty years ago, we had specimens consisting of a single plant of several of the cattleyas, *lælias*, *dendrobiums*, *oncidiums*, and *cypripediums* best suited for the summer exhibitions that were from two to three feet in diameter, and annually produced a magnificent display of flowers. At the present day a *Cattleya Mossiae* or a *Lælia purpurata* bearing two or three spikes of flowers is considered by many a good specimen. To my mind, a plant of this description is no more a specimen than is a zonal in a three-inch pot. I would go further, and say that there is no more merit in showing groups of orchids formed by packing a number of small plants into large pots than there would be in staging a collection of pelargoniums formed with small plants arranged in a similar manner. This making up of orchids should be put down with a strong hand, and as it is a very easy matter to determine how many plants there are in a pot, and the length of time they have been in it, judges who allow examples that have been manipulated are either wanting in moral courage or have much to learn. It is sometimes urged that one is obliged to do it because of its being done by others; but if we had a few judges who would drag plants that had been packed together out of the pots, and write "disqualified" across the cards, matters would soon be put right. O. P. C.

Replies to Queries.

Miss Fitzgerald will not find such a book as appears to be required, but the subjects named are amply treated in the "Amateur's Kitchen Garden," published by Messrs. Groombridge, price 6s.

S. Ford.—Your seedling begonias are very attractive and a few of them appear to be above the average in quality, but no proper judgment can be formed of such things from cut flowers. They must be judged as plants and by comparison with the named varieties.

Cyclamens.—Inexperienced.—It is the practice of all first-class cultivators to sow the seed of *Cyclamen persicum* at the end of July or early in August, and then grow on the plants without resting until the end of the second spring after making the sowing. Plants large enough to bloom in November may be obtained from seed sown in January, but the summer sowing is decidedly preferable.

Northumberland Subscriber.—We do not understand your letter, because the very words that are the most important appear to us to have no meaning. Are we to read "a piece of whin is so effectual," &c.? If such is the reading then we must express our doubt as to the fact, as we must also in respect of the castor-oil plant. Many things are "said" to be true that have no basis in fact whatever.

Calceolarias and Cinerarias.—S. J. W.—As you have failed in raising stocks of these showy subjects from seed, we should advise you to purchase seedlings rather than to make a second trial with seed. Small seedlings are obtainable at a very low rate, and may be grown on with very little trouble. When they are received put them in small sixties, with a light and rather rich mixture and place in a frame and keep rather close and shaded until they are nicely rooted. Then ventilate freely and shade during periods of bright sunshine only.

Kalosanthes.—Young Gardener.—The flowering shoots should be pruned rather hard back as soon as the flowers have lost their beauty. Keep the plants rather dry at the roots until they are beginning to break freely, and syringe them overhead occasionally. When the young shoots are from half an inch to one inch in length turn them out of the pots, reduce the ball of soil to about one-half, and put them in clean pots of the same size as those from which they were taken, and use a compost consisting of turfy loam, leaf-mould, and sharp sand. An efficient drainage is essential, for if the water remains stagnant about the roots much mischief will be done.

Annuals for Flowering in Spring.—G. S.—Of the annuals possessing peculiar value for flowering in spring special mention must be made of *Silene pendula*, *S. pendula compacta*, *S. pendula compacta alba*, *Saponaria calabrica*, *Erysimum Perowskianum*, *E. arkansanum*, *Nemophila insignis*, *N. maculata*, which may be raised from seed sown now. The seed should be sown thinly in drills, and the seedlings be thinned out if much crowded in the rows. At the end of September or early in October lift in clumps and plant in the beds and borders. The seed of wallflowers, aubrietias, and iberis, and several other popular spring bedders should be sown in May or June, for when sown thus late there is not time for the plants to become strong enough before the winter sets in to bloom satisfactorily in the spring following.

Grapes for Market.—A. V. C.—The most profitable grapes for sending to market early in the season are the Black Hamburgh, and the Buckland Sweetwater, and of the two the first mentioned is decidedly the best. The Duke of Buccleuch is a showy white grape and commands a good price in the market, but the same dependence cannot be placed upon it as upon the Buckland Sweetwater: for sending to market during the winter Gros Colmar, Alicante, Lady Downes, and the Muscat of Alexandria are the most to be desired. The most profitable is the Muscat of Alexandria when properly grown, but it requires a higher temperature and more skilful management than the other kinds mentioned. The Gros Colmar also must have more heat than is necessary for the Alicante and Lady Downes, but when well finished its handsome appearance is sure to bring a remunerative price.

Names of Plants.—J. M., Paisley.—It is impossible to name the orchids with minute accuracy from small portions of dry plants: we should need to see them in flower, or at all events in a growing state, to make them out fully. However, we can give you the generic names of all and the specific name of one: 1, an *Eria*; 2, a *Bolbophyllum*; 3, a *Sarcanthus*; 4, an *Eria*; 5, *Fernandezia robusta*; 6, a *Bolbophyllum*; 7, a *Dendrobium*. J. B. Benson—1, *Campanula trachelium*; 2, *C. Allioni*; 3, *C. trachelium*; 4, *Liatris heterophylla*. R. S.—The tubular flower is *Dipladenia boliviensis*; the other is *Clerodendron fragrans*. The begonia appears to be a fine thing, but needs to be compared with named varieties of the same class for determination of its relative merit. R. Benach.—*Eupatorium ageratoides*. H. J. W.—1, *Adiantum tenerum*; 2, *Gymnogramma Martensi*; 3, *Adiantum assimile*; 4, *Adiantum formosum*; 5, *Fernandesia exaltata*; 6, *Phlebodium sporodocarpum*, these two bearing the same number (5); the last named is the one with bold fronds and conspicuous sori. The others require more attention than we have time just now to bestow upon them. J. J.—Your roses came to hand shaken to pieces.

Zonal Pelargoniums for Winter Flowers.—R. F. K.—As we have stated on several occasions, a stock of plants must be grown specially for winter flowering, as it is quite impossible to obtain a satisfactory display of plants that have become more or less exhausted in the production of flowers during the summer or autumn. It is now quite time to make a beginning in the preparation of the plants, as there is none too much time for them to acquire the proper degree of strength by the end of the autumn. Strong plants in three-inch pots are the most suitable to commence with, and they should be shifted into six-inch pots and be placed on a bed of coal-ashes in an open position, or be placed in a frame and have the lights removed excepting in wet weather. A moderately rich compost and good drainage are essential to success. The following are a few of the varieties best suited for flowering during the winter season:—Mr. W. B. Miller, Commander-in-Chief, Beatrix, Atala, Burns, Correggio, H. M. Pollett, Lizzie Brooks, Kleon, Polyphemus, of the various shades of scarlet; La France, Zuleika, and Mrs. Davison, of the purple-tinted varieties; Alice Spenser and Remus, of those with painted flowers; Sophia Birkin, Salmon Kienzi, and Salmon Vesuvius, of those of a salmon colour; Mrs. Daniels, Lady Sheffield, Louisa, Madonna, and Mrs. Leavers, of those embracing the various shades of rose and pink; and Eureka and

White Vesuvius, of the pure white varieties. You should, if practicable, devote a small cucumber house or similar structure to them during the winter, and maintain a temperature of about 55 deg. and a rather dry atmosphere. It will be well to frequently examine the foliage, for the green caterpillars which locate themselves on the under-side, and occasionally do much mischief when repressive measures are not resorted to.

Herbaceous Plants for Exhibition.—T. N. C.—The following herbaceous plants are the most suitable for exhibition in specimen form. As you have not stated the dates of the exhibition at which you wish to compete, we have divided them into two groups, one comprising those blooming during the spring and early part of the summer, and the other the kinds which are at their best during the summer and early part of the autumn. The early-flowering kinds include *Aethionema saxatile*, *Alyssum saxatile*, *Anemone alpina*, *A. palmata*, *A. stellata fulgens*, *Asphodelus luteus*, *Astilbe japonica*, *Aubrietia Campbellæ*, *Brodiaea congesta*, *Caltha palustris* fl. pl., *Campanula glomerata*, *C. Hosti alba*, *C. media* fl. pl., *Cheiranthus Cheiri*, *Coronilla varia*, *Corydalis nobilis*, *Dielytra spectabilis*, *D. spectabilis alba*, *Dodecatheon Jeffreyanum*, *Geranium pratense* fl. pl., *Globularia alpina*, *Hemerocallis flava*, *Iberis gibraltarica*, *Iris Kämpferi* in variety, *Lilium davuricum*, *L. Thunbergianum*, *L. anatum*, *L. longiflorum*, *Lychnis Lagasce*, *Orobis vernus*, *Orchis foliosa*, *Phlox ovata*, *Primula Sieboldi*, *P. Sieboldi alba*, *P. Sieboldi lilacina*, *P. japonica*, *Pæonia herbacea* in variety, *Pyrethrums*, double and single, in variety, *Richardia albo-maculata*, *Smilacina bifolia*, *Sisyrinchium grandiflorum*, *Sparaxis pulcherrima*, *Spiræa palmata*, *Spigelia marilandica*, *Trollius europæus*, *T. japonicus* fl. pl., *Veronica gentianoides*, *Zephyranthes atamasco*. The late-flowering kinds comprise *Agapanthus umbellatus*, *A. umbellatus albus*, *Alstroemeria argentea vittata*, *Amaryllis belladonna*, *Anemone japonica*, *A. japonica alba*, *A. japonica hybrida*, *Aster amellus*, *A. coccineus*, *A. Madame Soynuce*, *Astilbe rivularis*, *Campanula pyramidalis*, *C. trachelium* fl. pl., *Coronilla coronata*, *Crinum Moorei*, *Cypripedium spectabile*, *Dianthus hybridus*, *Diplacus glutinosus*, *Eupatorium ageratoides*, *Funkia Sieboldiana*, *Gaillardia grandiflora*, *Hyacinthus candicans*, *Lilium Humboldtii*, *L. speciosum*, *L. tigrinum* fl. pl., *L. tigrinum Fortunei*, *Lobelia fulgens*, *Lychnis chalcidonica*, *L. chalcidonica* fl. pl., *Michauxia campanuloides*, *Oenothera Fraseri*, *Phlox decussata* in variety, *Rudbeckia Newmanii*, *Sedum spectabile*, *Spiræa filipendula* fl. pl., *S. venusta*, *Statice latifolia*, *Tradescantia virginica*, *Tigridia pavonia*, and *Veronica subsessile*.

Forcing Rhubarb.—Amateur.—The house which you intend to devote to the forcing of rhubarb will require but little if any alteration. It would perhaps be more convenient to have two pits in the house, and they could be formed by erecting on each side of the central walk a four and a half inch wall from three to four feet high. The walk, for the greater convenience of conveying the manure and roots in and out of the house, should be three feet in width, and supposing your measurements to be inside, a three-foot walk will give you a five-foot bed on each side, less the width of the wall. If you are not disposed to incur the expense of the walls, a few rough boards may be employed for keeping the fermenting materials in their proper place. For furnishing the top heat two four-inch pipes on each side of the house will be required, and the lowest of the two pipes should be six inches or so higher than the top of the walls by the side of the pathway, so that they will be quite clear of the surface of the bed when the roots are placed in them. The most useful sorts for forcing are Mitchell's Royal Albert, Johnston's St. Martin's, and Salt's Crimson Perfection, as they start quickly into growth and produce stalks of comparatively large size and excellent colour. The rhubarb can be started at the end of October or early in November, and the first step will be to fill the pits on each side of the structure with stable manure that has been turned over two or three times, or newly-gathered leaves, as may be the most readily obtainable. A mixture of leaves and manure in equal proportions will also answer very well. In two or three days after filling the pits cover the surface of the beds to a depth of three or four inches with rather fine soil, and then place the stools upon it; pack them as close together as possible, and fill the intervening spaces with fine soil, and give a good watering to wash the soil well down between them; water of a temperature of about 80 deg. being preferable. Subsequently the soil must be maintained in a nice moist state. Roots or stools three or four years old are the most suitable, as they produce stalks in larger numbers and of finer quality than those of smaller size. The temperature of the house should be maintained between 55 deg. and 60 deg., and the light partially excluded, as a more pleasing colour is obtained than where the stalks are fully exposed. With reference to procuring the stools, we can only advise you to place yourself in communication with some of the leading growers, asking them for quotations, or to advertise for offers. It is against our rule to recommend dealers.

Obituary.

ON the 3rd inst., DR. SAMUEL NEWINGTON, of Ticehurst, in his 69th year. As an experimental horticulturalist, and a man of taste and learning, the deceased gentleman will be long remembered, and not less so for his elegance of manner and suavity of disposition. He was a frequent contributor of valuable essays to the horticultural papers, and laboured with success in popularizing the culture of the grape vine and improving the customary method of lifting and planting trees.

ON the 15th inst., at Albyn Terrace, Aberdeen, DR. GEORGE DICKIE, F.R.S., Emeritus Professor of Botany.

ON the 15th inst., WINIFRED MARY, the beloved wife of Robert Parker, Exotic Nursery, Tooting, in her 59th year.

TRADE CATALOGUES.

MERRYWEATHER AND SONS, 63, LONG ACRE, LONDON, AND GREENWICH, S.E.—*Catalogue of Garden Engines, Garden Hose, Hand Pumps, Fire Engines, &c.*

T. W. ROBINSON, STOURBRIDGE, STAFFORDSHIRE.—*Catalogue of Hot-water Pipes, Boilers, Stable Fittings, &c.*

ANT. ROOZEN AND SON, OVERVEEN, NEAR HAARLEM.—*Dutch and Cape Bulbs, Aroids, Terrestrial Orchids, &c., &c.*

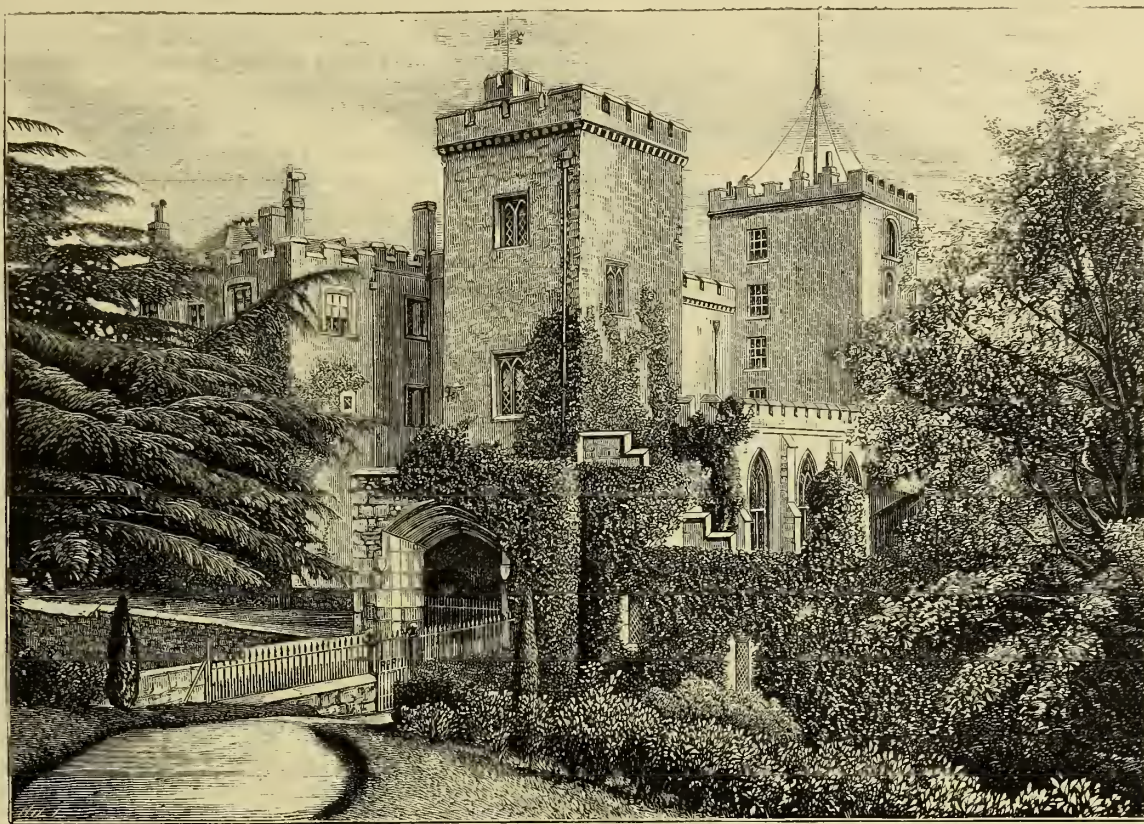
SEASONABLE NOTES ON DAHLIAS.

Up to the present moment the cultivator of dahlias will not have required any advice beyond that given in my previous communications on the preparation of the stock. But now the work in the dahlia garden must be again referred to, for certain matters of which no mention has yet been made will require attention. The dahlias are, indeed, fast approaching a very important stage, and will require constant and careful attention until the flowers are placed upon the exhibition stage, and it may be well to remind the inexperienced that much of the success will depend upon the way in which the work is carried out during the next four or five weeks.

To a certain extent the cultivator must shape his course by the weather and the progress made by the plants, for a rule-of-thumb practice will not place him in a very high position amongst the prize-winners. Owing to the low temperature that has prevailed up to the present time, the progress made has been less satisfactory than could be desired, more particularly on naturally cold soils. The plants assisted with frequent showers have grown fairly well, and the foliage is, generally speaking, clean; but the growth is not so firm as could be wished, and unless we have some improvement in the weather the blooms in many cases will not be very high in quality. The season has so far been most favourable to those who have warm and rather light soils, and if they play their cards well, those who have soils so light that in a hot and dry season they are unable to stage first-class

connected together with stout twine or strong string. There is no occasion for severe thinning, but it is invariably necessary to remove a few of the weakly shoots both on the main stem and secondary branches, and those removed should be cut clean off close to the stem to prevent their breaking again and choking the plants up with useless spray.

There has not been this season any tendency on the part of any of the dahlias to bloom prematurely, as is usually the case in hot and dry seasons. But from those intended for furnishing exhibition blooms at the end of August and in September it will be necessary to remove a few of the earlier buds, for the plants must not have their growth checked by the production of flowers that are not required. Early flowering in the case of those grown for the decoration of the flower garden and pleasure ground is an advantage rather than otherwise; but in many cases a little thinning of the flower buds or plants in the mixed border would be beneficial. The main object at the present moment for exhibitors should be the promotion of a healthy growth, and the removal of flowers in an advanced stage of development is one of the most essential conditions for attaining that end. But it must be understood that the season is now too far advanced for the removal of buds just making their appearance, excepting where thinning is required. When the plants are coming freely into bloom it will be necessary to remove all but the most promising flower bud from each of the lateral shoots to throw the vigour into the one remaining. Flowers that are in the slightest degree disfigured must be removed as soon as the defects become apparent, for they will be worthless for exhibition, and



POWDERHAM CASTLE, THE SEAT OF THE EARL OF DEVON. (See page 350.)

flowers will be able to make their mark this season at the exhibitions. Much of course depends upon the character of the weather experienced during the month of August.

The matters requiring first attention will be the thinning and support of the growth. In referring to the putting out of the plants in the beds, a strong stake was advised to be provided for each plant, and to be fixed in position before or immediately after the planting was done. If this advice was acted upon and the main stem rather loosely tied to it as it increased in height, the support of the secondary growth or side branches will alone require attention. Should, however, the stakes put to any of the plants be insufficient in height or strength they should at once be supplemented by others that will afford ample support until the end of the season. The stakes for the main stem should be nine or ten inches taller than the plant when it has attained its full height, and upon it should be placed the pots for trapping earwigs. The plants are now well furnished with side branches, and where they are at all crowded thinning must be resorted to with but little delay. From three to five side branches may be allowed to each plant, and in thinning the most weakly should be removed, or so far as is consistent with the plant being well balanced and the growth regularly distributed. They must be secured from injury by the wind by affixing a moderately stout stake to each immediately they appear to require support. The stakes should be inserted about fifteen inches from the main stem and in a slanting direction, to give each shoot all the space possible. The stakes should be driven far enough into the soil to make them secure, and to prevent their swaying to and fro during heavy winds. All the stakes should be

so long as they remain upon the plant they will help to divert from the perfect flowers the support of which they are much in need.

To ensure flowers of full size and high quality it will be necessary during the next month or five weeks to supply the plants rather liberally with water once or twice a week should the weather happen to be dry, but not otherwise. The character of the soil as well as the weather must be taken into consideration in supplying dahlias with water as they approach the flowering stage. The plants growing in light soils resting upon a porous subsoil will require liberal supplies when the weather is dry, whilst those growing in soils of a retentive character will require very little water unless the rainfall should happen to be very light. Liquid manure of a moderate degree of strength, supplied alternately with clear water, will be most beneficial, but it is not often that sufficient can be obtained for large beds of dahlias. The least troublesome course is to cover the surface with a layer of half-rotted manure to a depth of five or six inches, as the soil will be enriched with the goodness that is washed out of it by every shower of rain or can of water. Mulchings are objected to by some growers because of the shelter afforded to those troublesome pests the earwigs, but the advantages, particularly in hot weather, more than balance this drawback. Overhead watering is of considerable importance during July and the early part of August when the weather is dry; and a large can of water poured over a plant in the evening of a hot day will be of immense assistance in keeping the foliage free from thrips and red spider, and be otherwise promotive of a healthy growth. The plants may be sprinkled overhead with an

engine, but the work can be done more expeditiously with a watering pot to which a coarse rose has been affixed.

The trapping of earwigs should be commenced at once, for it is only by keeping these active little pests well under that injury to the flowers can be prevented as they are expanding. To show how important it is to keep the earwigs under, the fact may be mentioned that a very little injury will suffice to render the finest bloom quite unfit for exhibition. The most effectual way of trapping earwigs is to put sufficient dry hay or moss in five-inch pots to fill them about half full, and then turn them bottom upwards on the top of the stakes. The earwigs will ascend the stakes and take refuge for the day in the pots, when they can be readily caught and destroyed. The pots should be examined daily and the hay or moss be withdrawn, and the earwigs congregated in them be shaken into a vessel of water. If the application of water to the foliage in the manner advised above is not sufficient to keep down the red spider some approved insecticide must be brought into requisition, for it is impossible to obtain first-class blooms from plants with unhealthy foliage. I have found a solution of nicotine soap, prepared at the rate of three ounces to the gallon, most effectual for the destruction of red spider, and also for aphids, which sometimes prove rather troublesome. The solution can be readily applied with a syringe, and it has the great advantage of not leaving any sediment to disfigure the foliage. Tobacco powder applied when the foliage is in a damp state is also effectual as a destroyer of green fly, and there is no insecticide more readily applied. Dahlias, it must be distinctly understood, are not much subject to insect pests, but it has been considered desirable to point out the best means of dealing with such as may happen to make their appearance.

OLD DAHLIA FANCIER.

ROSES IN 1882.

ALTHOUGH we have not had at any of the shows flowers of such exceptional excellence as to cause any excitement amongst the rosarians, there has been an abundance of first-class roses, and the exhibition season, which was brought to a close with the meeting of the National Rose Society at Darlington on Wednesday, has proved in every way satisfactory. The general excellency of the shows has been most remarkable, and the fact is deserving of special notice, for in some quarters it was persistently stated, as the flowers were expanding, that the rose bloom of 1882 would be most inferior, and that indifferent blooms would predominate at the exhibitions.

In some cases the young shoots of the rose trees were seriously injured by the gale which did so much mischief to vegetation in April, and the growth was somewhat checked by the dry weather and the cold winds which prevailed for some time; but at no time has the appearance of the trees within my range of observation been such as to justify the predictions of some writers. From first to last, the flowers generally, aided by the showers which have been so disastrous in their effects upon the hay crop, have been of splendid quality, and the thin undersized flowers that in some seasons figure so prominently at the exhibitions were almost unrepresented at the leading shows.

The three metropolitan exhibitions were very successful. The Alexandra Palace show was not so large as was anticipated, in consequence of the rains of the two previous days preventing many growers exhibiting at all, and others from staging so largely as they intended. It was an excellent show notwithstanding, and the blooms staged in competition for the prizes were supplemented by between 5,000 and 6,000 from Waltham Cross. The Crystal Palace show was decidedly above the average in extent, and the flowers were good throughout. The exhibition of the National Rose Society in the gardens of the Royal Horticultural Society was without doubt the largest exhibition of its kind ever held, and the flowers, both from nurserymen and amateurs, were very uniform. Many visitors were not, I am well aware, impressed with the extent of the show, and I am not surprised; for the flowers were arranged in the arcades to the right and left of the conservatory, and any place more unsuitable for the exhibition of any classes of plants or flowers could hardly be found. To produce a pleasing or striking effect in the arcades is entirely impossible, and why the executive preferred them to a spacious tent, which could have been readily fixed in the gardens, I know not. The arcades possess one advantage, and that is, they allow of the boxes being so arranged that the flowers can be seen by the visitors with as much comfort as can be expected at a public exhibition. You have already given the names of the varieties in the principal stands, and those who have carefully read the reports will doubtless have noticed that the light roses, which require bright warm weather for their perfect development, were not so strongly represented as usual. There was a fair sprinkling of such varieties as Comtesse de Serey and Duchesse de Valombrosa, but I looked in vain for a good bloom of Madame Lacharme. The number of blooms staged of this variety was not large, and there was not one which could be fairly considered first rate. More sunlight would also have been desirable for many of the roses which closely approach scarlet in their colouring, and roses in the way of Duke of Edinburgh were decidedly wanting in brilliancy. Even the Duke of Teck, the brightest of all the scarlet roses, which excited so much attention when first exhibited three years since at the Alexandra Palace, was comparatively dull, as many of the flowers staged were of that ineffective purple shade of colour assumed by the Duke of Edinburgh when the sunlight is insufficient or the flowers past their best. The dark crimson roses, such as Prince Camille de Rohan and Reynolds Hole, which suffer much from exposure to brilliant sunshine, were remarkably good in most of the stands in which they had a place, and the number of times they were exhibited showed that the growers had no difficulty in obtaining good blooms. The

carmine, the rosy crimson, the red, and the rose-coloured flowers were all more or less good, and in no season have they been more uniform.

The selection of the blooms for the award of the medals offered for the best hybrid perpetual, the best tea-scented, and the best noisette in the show was attended with more than the usual difficulty, and gave the judges much trouble. I question the prudence of offering the medals, for, even with the greatest care, it is a mere chance whether the really finest roses receive the awards. That good roses will be selected as "the best" there is no fear, but in an exhibition of so large an extent and so uniformly good it is practically impossible to institute so close a comparison as is desirable, and when it comes to determining a nice point between two flowers so distinct in colour and character as La France and Alfred K. Williams the taste of the judges rather than the merits of the flowers will settle the matter. On this occasion the silver medal for the best bloom of a hybrid perpetual was awarded to a fine flower of Madame Gabriel Luizet, a very beautiful rose sent out by Liabaud in 1877. This bloom was shown by Mr. B. R. Cant, who has been the most successful of all the trade competitors this season, in his stand of seventy-two, and it represented the rose at its best; but there were at least a dozen other hybrid perpetuals in the exhibition equally good. I made special note of at least three blooms of that magnificent rose Alfred K. Williams, which were quite equal to the silver medal bloom, and, if I am not much mistaken, one was superior to it. Blooms of La France, Alfred Colomb, Annie Wood, and Marie Baumann may also be mentioned as running the Madame so close that they might have had the medal without giving any cause for complaint. The award for the best tea-scented bloom left no room for doubt, so superior was the bloom of Sonv. d'Elise Vardon, which received the award, to the other teas in the exhibition. This bloom also was in Mr. Cant's seventy-two, and was very large in size, and was as nearly perfect as we can hope to see this exquisitely beautiful variety. The bloom of Triomphe de Rennes, to which the medal for a noisette was awarded, is not worth discussing. It was doubtless "the best" noisette in the show, but it was so poor that in the interests of the society it would have been well to have withheld the award. There are so few good noisettes that it would be very much better to offer only two medals, as at the Bath Show, one for hybrid perpetuals and the other for teas and noisettes.

The new roses staged in the classes specially provided for them at the exhibition of the National Society at South Kensington were particularly good, and afforded an opportunity of forming a just estimate of their merits. Elsewhere they have not been staged in good condition, excepting where they occurred in the ordinary stands, or have been shown in the miscellaneous class. It will be remembered that the first prize for twelve roses not in commerce previous to 1879 was awarded to Messrs. Paul and Son, and it will perhaps be useful to some readers if I give the notes of the flowers made at the time. Rosieriste Jacobs, a large well-formed flower, of a deep crimson colour; Countess of Rosebery, a grand flower, large, cupped, and of a bright rosy carmine, one of the finest of recent introductions; Madame Ducher, rich red, large, and of good form; R. W. G. Baker, crimson, a good useful flower; Madame Isaac Perrier, carmine-rose, a pleasing flower of great promise; George Moreau, rich rose-pink, large, and well built; Souv. de Madame Alfred Vy, purplish crimson, rich in colour and of good quality; Catherine Soupert, flesh-pink, pleasing in colour, but not particularly high in quality; Ferdinand Chaffolte, a splendid variety of the most brilliant crimson colour, one of the finest roses of its colour sent out of late years; Julius Finger, blush-pink, a good second-class flower; George Baker, deep rose suffused purple, large and good; Edouard André, bright red, flowers of medium size and good shape. The second-prize stand, from Messrs. Curtis, Sandford, and Co., contained Duke of Teck, so out of character as to be hardly recognizable; Souv. de Mons. Drouche, deep carmine-pink, moderately good; Miss Jowitz, crimson, a fine flower of rather large size; Madame Alfred Dumesnil, deep rose, a nicely-formed flower of medium size; Mons. Alfred Leveau, deep red suffused purple, decidedly second-rate; Madame Julie Heidman, bright pink, in no way remarkable; Rosieriste Jacobs, very good; Lady Sheffield, bright pink, a superb rose, which bids fair to occupy a high position for many years hence; Masterpiece, a good rose, but the bloom shown failed to do it justice; Mons. Thouvenal, deep rose, flowers large and good; Marguerite Manoin, bright carmine-red, poor; Comtesse de Camondo, rich crimson, well shown also in several stands. In the stand from Messrs. Cranston and Co., who were third, were: Masterpiece, in good condition; Comte de Mortemart, bright pink, second rate; Crown Prince, deep crimson, a grand rose, combining large size with rich colouring and high finish; Madame Isaac Perrier, rather better than in Messrs. Paul's stand; Julius Finger, fairly good; George Moreau, good; Madame Montet, a medium-sized flower of a pleasing shade of pink, and with fine large petals; François Levét, delicate rose, flowers of medium size and said to be produced very freely; Comtesse Horace de Choiseul; Pride of Waltham, carmine-pink, large and fine, and Marguerite Manoin, of which the bloom was very good. Two or three varieties were shown in the class for new roses not in commerce, but with the exception of Queen of Queens, shown by Messrs. W. Paul and Son, they did not appear to possess any particular merit. Queen of Queens was not at its best, and the blooms staged would not for a moment compare with those exhibited at South Kensington in the spring, and at the Alexandra Palace on July 8. The flowers of this rose are of large size, globular in form, very full, and of a delicate pink colour, bright pink in the centre; the habit is vigorous, and the variety promises to take a high position. Mr. Bennett has shown three new roses this season, which, if I mistake not, will help to place him in a

foremost position amongst English raisers of roses. The finest of the three is perhaps Her Majesty, a magnificent hybrid perpetual of the Baroness of Rothschild type; the flowers are extra large, very full, globular, and beautifully finished, the colour a very pleasing shade of pink. A stand of twelve blooms was shown at the Crystal Palace on July 1, and at Regent's Park on the following Wednesday, and on both occasions the flowers attracted no small share of attention. Lady Alice Fitzwilliam is a hybrid tea, the flowers very large, with grand petal, and exceedingly beautiful in the bud, the colour delicate blush. Earl Pembroke is a fine hybrid tea of a rich crimson colour and delightfully fragrant; although not perhaps equal in importance to the other two, it is a valuable variety, and must not be overlooked. White Baroness, introduced by Messrs. Paul and Son, by whom it was exhibited in capital style at the evening fête of the Royal Botanic Society, is in the way of Mabel Morrison, but it is fuller and much whiter, and will probably prove very useful as a white rose. One of the very finest roses of the season is *Duchess of Connaught*, raised by Mr. Noble; the flowers are of large size, semi-globular in form, perfect in shape, the colour deep rich crimson, and the fragrance as delightful as that of the old cabbage rose. It has the additional merit of being so strong in growth and free in flowering as to be unsurpassed for bedding purposes; therefore it is as well deserving of the attention of the amateur who can only afford space for half a dozen roses as of the grower of hundreds.

VIATOR.

TROPÆOLUMS FOR WINTER FLOWERING.

By W. BRADBURY.

THE tropæolums suitable for the production of flowers during the winter and early spring months are so highly esteemed that, in referring to the details of preparing a stock for the ensuing winter, there is no occasion to dwell upon the claims they have upon cultivators.

The selection of suitable varieties is a matter of prime importance, and, as there is a considerable difference in the adaptability of the scendant tropæolums for supplying flowers during the winter season, it appears necessary to first point out those upon which the greatest dependence can be placed. One of the most valuable is Ball of Fire, which has long been in cultivation and has no superior. It has a good habit and produces in great profusion flowers of the most brilliant orange-scarlet. Bowdon Beauty is of rather stronger growth and equally free in blooming, and is well suited for cultivation in structures of large size. Clapham Park has also a strong growth, and produces flowers of large size and good form. Kentish Fire is free in growth without being coarse, and is free blooming and altogether desirable. The three last-mentioned have, like the Ball of Fire, flowers of a bright orange-scarlet colour. More than two varieties are not required, and according to my experience Ball of Fire and Bowdon Beauty should have the preference.

Tropæolums required for the production of winter flowers should be raised from cuttings struck at the end of July, as there is then plenty of time for the plants to become strong by the winter without their being too far advanced. To avoid any check to the growth and the risk of injury to the plants, the cuttings should be inserted singly in small sixties, and, if practicable, the pots be plunged in a hotbed. Fully a fortnight will be gained by inserting the cuttings singly as here advised, as compared with putting several cuttings in a large pot and potting them off when struck, as they can be shifted into larger pots without receiving any appreciable check. The tops of the shoots are the most suitable for propagating purposes, and if there is an old plant on the place there will be no difficulty in obtaining a sufficient supply of cuttings. Very little water will be required until the cuttings are struck, and the mixture of loam and leaf-mould and sand with which the pots are filled must be maintained in a moderately moist state only.

Two shifts will be required—the first from the small sixties into five-inch pots, and the second into others eight inches in diameter. With reference to this point, it must be stated that over-potting is decidedly objectionable, as the plants bloom more freely when rather confined at the roots, and they can be kept in a healthy condition during the winter months with much less difficulty. The pots must be clean and well drained, and a mixture consisting of fibrous loam five parts, powdery leaf-mould or manure two parts, and sharp silver sand one part, will be the most suitable. As soon as they have received their first shift, place in a sunny position in an ordinary greenhouse or pit, and there allow them to remain until the end of September or the early part of October. The growth must receive the support of neat stakes as soon as required and be carefully trained, for, owing to its softness, the plants are very subject to injury when not provided with suitable support at an early stage.

From the greenhouse they must be removed to a stove or other structure in which they will have the assistance of a temperature of about 60 deg. during the winter. A light position must be provided, and the shoots be trained near the glass; for unless tropæolums are fully exposed to the light the growth will be very soft, and the flowers be sparingly produced. Towards the end of the winter, or early in the spring, those showing signs of exhaustion may be assisted with rich top dressings, or with an occasional supply of liquid manure of a moderate degree of strength.

Neatly-grown standards have a pleasing appearance upon the dinner table, and a few may be grown for the sake of the variety they afford. Those required for the dinner table must be grown entirely in the five-inch pots, and soon after they are potted have a moderately stout stake put to them, which when fixed in the pot will stand fifteen inches above the surface. Up this train a single stem, and when it has nearly reached the top fix on the stake a ring of wire about seven

inches in diameter by means of two cross pieces. As soon as the shoot has grown sufficiently to reach across the ring of wire nip out the top, and in a surprisingly short space of time enough lateral shoots will be produced to cover the trellis. The main stem should be kept free from laterals, but the leaves ought to be carefully preserved. After the top of the trellis is well covered the young shoots should be allowed to trail over in a natural manner. When well flowered, standards have a very bright appearance upon the table, but from the susceptibility of the foliage to injury from cold winds and frosts it is necessary to afford them some protection when conveying them from the stove to the dining room and back again.

PRUNING CONSIDERED IN RELATION TO THE FRUIT CROP.

It appears to me that very few people are able to explain satisfactorily, or even rightly understand, the cause of failure of the fruit crop of the present year, nor am I going to make the attempt. I rather intend to take advantage of the opportunity afforded for saying a few words with reference to the pruning of fruit trees. Briefly stated, it may be said that whether fruit trees are pruned severely or not at all, the pruning makes no difference to the crop, and in proof of this we have only to look at the unpruned trees in the orchard and those systematically pruned in the garden, to see that the result is much the same. There is no fruit, except in some few cases, in the garden, and of this exception we should take particular notice.

I have not as yet this season had a very wide range of observation, but so far as it has extended I have found many more apples and pears in gardens upon trees of limited size that have been for years systematically pruned than upon those trees in orchards which have but little, if any, pruning. This fact should show us that we ought to be less hasty in condemning a system that stands us in good stead when others fail. I do not mean to say that we must attribute this result entirely to the fact that the trees have been severely pruned, because probably the shelter that a garden affords may claim its share in producing the crops. At the same time, we are bound to take note of the fact that the trees must be pruned to adapt them to the space which the kitchen or fruit garden affords, and this is an important argument in favour of pruning. I have not gone to the same length as the advocates of non-pruning, because I have gathered many a bushel of fruit in my time from severely-pruned trees, and it will not do for a gardener to ignore altogether a system or course of management that will help to fill the fruit room when others fail. I am well aware there are many arguments which can be advanced against systematic pruning, as there have been already. With many of the arguments I quite agree, but self-interest bids me to stop when I find a thorough agreement would assuredly result in an empty fruit room.

I may be expected to explain what system of pruning I consider objectionable in gardens. It is not a difficult matter to make myself understood when I say the only system of pruning I object to is the cultivation of the toy-like trees, which necessitates a constant nipping of the young growth during the summer months, and under the most favourable conditions does not produce a crop sufficient to pay for the ground they occupy.

From what I have seen of the pyramid and espalier forms of trees, and the crops they are bearing in some gardens even in this year of scarcity, I have no hesitation in saying we cannot do without them, and so long as we have them we must tolerate pruning in our gardens, however much we may object to it on principle. I am very glad to reach this part of my argument, because what I have written will perhaps convey an impression that my views are antagonistic to the published opinions of the advocates of moderate pruning. They are not so, and I would at once state that I agree with the principle of moderate pruning, but I cannot agree with those who would like to see the pruning knife abolished from our gardens altogether. It is very certain that if we are to obtain all we can from our gardens we must grow the trees of such forms as are suitable to the space. As the pyramidal and espalier forms are as fruitful as any others under adverse conditions, I do not see how they can be dispensed with. With these two forms and a proper selection of sorts there is the same chance of a crop of fruit according to the bearing space as from any other form of tree. The experience of the present year proves it to be so. It is many years since I saw such a splendid crop of apples as some large bush trees are bearing at the present time in the gardens of Clevedon Hall, and whether the trees are grown as bushes or pyramids systematic pruning is necessary to keep them within bounds. But they are not toy trees; many of the trees reach to a height of eight or ten feet, with a proportionate diameter. Here is a list of the apples growing at Clevedon Hall as bushes:—Hawthornden, Kentish Pippin, Scarlet Pearmain, Keswick Codlin, Golden Pearmain, Lord Suffield, Irish Peach, Orange Pearmain, and Yorkshire Greening. To these might be added Cellini, The Forge, Cox's Pomona, and Ribston Pippin. It is sufficient to my mind to prove that pruned fruit trees must not be altogether shut out of the garden. They are not capable of bearing so large a quantity as an unpruned orchard tree because of their smaller size, but as we find them in many gardens bearing even more fruit in proportion to the space occupied than the large standards, it may be safely said that they are important adjuncts to the garden.

J. C. C.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

POWDERHAM CASTLE,

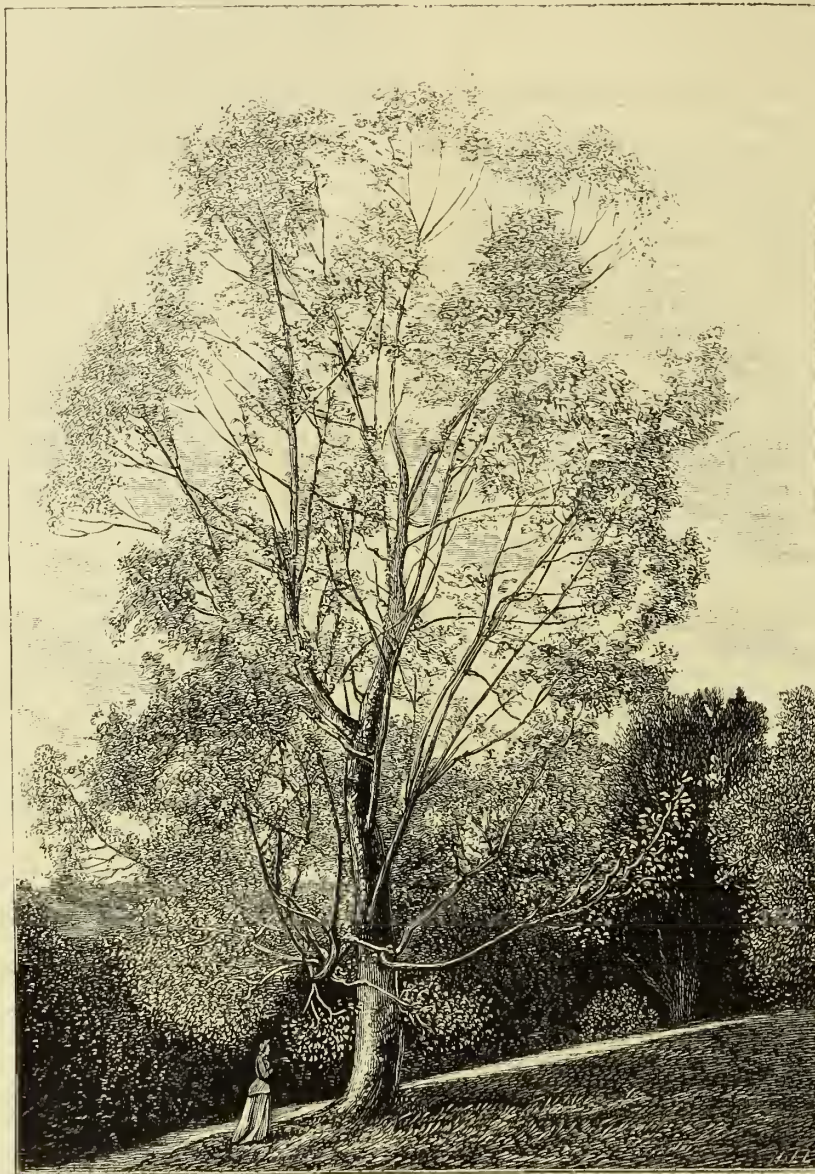
THE RESIDENCE OF THE EARL OF DEVON.

POWDERHAM CASTLE, the principal seat of the Earl of Devon, is situated about seven miles from the city of Exeter, and commands fine views of the estuary of the river Exe, which at this point is about ten miles wide. This fine castle has a very interesting history. Polwhele, the historian, states that "Powderham Castle was probably built before the Conquest to prevent the Danes from coming up the river Exe to Exeter, or else by William Deven, a noble Norman baron, who came to England with William the Conqueror and received Powderham from that king." In 1545 Leland wrote: "Powderham, late Sir William Courtney's Castle, standeth on the haven shore a little above Kinton. The castle is strong and hath a bulwark to face the haven, and that during the Rebellion it formed a royal garrison and stood a siege of some duration. It was captured and recaptured more than once by the contending parties." It is supposed that during the rebellions which occurred in bygone days the castle suffered much, and that little, if any, of the original building exists. Whether this is conjecture or not I cannot say, but its present appearance would lead any one to suppose that it had passed through many vicissitudes.

The eldest portions of the present castle appear to have been built about

a long time before I forget them: it will be within the mark to say that collectively the oak trees in Powderham Park are not equalled in the county. The soil and climate have had something to do with this, but judicious planting and careful after attention may have some part of the credit. Certainly, no one who understands trees need be told, on seeing them, that they have been carefully preserved and tended by an interested proprietor. Nor are the park and grounds likely to suffer in this respect for many years to come, for young and thriving trees are fast rising on every available spot of ground. There is a particularly pleasing bit of planting lying between the sea and the castle, lighted up as it is with stretches of green pasture. But we will leave the immediate vicinity of the castle, and proceed to the hill-top, on which the Belvedere Tower forms a conspicuous object, for the prospect is very inviting. This tower which invariably attracts the attention of travellers on the railway that runs near Powderham, occupies the highest ground in the park, and it commands extensive views over land and sea. On the opposite side of the coast is to be seen the pretty little town of Topsham, and away in the distance the long range of the Halden Hills.

I am afraid to say how many miles of woodland drives there may be at Powderham, but they must be very extensive, as we met with them at wide distances apart, and they afforded us many pleasing peeps of the distant country, and the unique landscape peculiar to Devonshire. The park contains a great diversity of arboreal vegetation, and all the trees appear to thrive with



EUCALYPTUS COCCIFERA, IN THE AMERICAN GARDEN, POWDERHAM CASTLE.

the beginning of the present century. At various times since additions and alterations have been made to and in the building, but care has been taken to retain its original character, especially by the present Earl, who has removed some of the modern windows and replaced them with others in the Early English style. The architecture is of the Early English, and all the additions during the last half-century are in keeping therewith. The eldest portion is the north-west tower. The castle became the property of the Courtenay family in the year 1377 by marriage, and has remained in the family ever since.

The park is extensive and consists of about 600 acres of land, with a charming undulating surface. Wishing to see as much of this fine property as my time would admit, I entered the grounds by one of the several private entrances, and had a delightful drive of about two miles through a charming grove of trees, which in time brought us to the gardens. On making the acquaintance of Mr. Powell, the courteous gardener, we commenced an exploration of the many charms of this fine place. In rambling over hill and dale we at one turn came in full view of a fine breadth of pasture land, at another were mounting a hill-top to view the distant country. It mattered not which way we went, there were noble trees to admire, and such trees that it will be

equal vigour. On the road leading to the castle is a fine avenue of the cedar of Lebanon, and we find this cedar freely distributed about the park and grounds and growing vigorously. The present Earl of Devon appears to take great pleasure in the keeping of the park and grounds; and he is evidently a great lover of trees, and well he may be so, for, favoured with a fine soil and climate, there is every encouragement to bestow time and judgment upon their selection, planting, and management. Knowing how little interest is often taken in trees, it is particularly pleasant to record the fact that there are amongst our nobility many who are alive to their great beauty and utility.

From the park we return to the dressed grounds, and have first a glimpse at the grotto garden, which takes its name from an example of grotto work on the south side of this part of the grounds. It is first necessary to say that the grotto garden is some quarter of a mile from the castle. Nevertheless it belongs properly to the dressed grounds, and is a most interesting spot, as it not only contains some choice trees and shrubs, but it is highly kept, and is encircled by broad gravel walks. To my mind, there is much that is both instructive and interesting in the enclosure. The two large specimen camellias, one on each side of the entrance to the grotto, are noteworthy, inasmuch as they show the capability of camellias to withstand the severity of two or

three hard winters. These two plants are the first that were introduced into England by the late Sir Joseph Banks. The position and climate have evidently suited them, for Mr. Powell told me that on one day he cut from the largest plant, which is a white variety, as many as 600 flowers. Hydrangeas also do here remarkably well, and about the spot are many fine specimens judiciously disposed. There are, for example, a grand specimen of *Abies Douglasi*, 80 feet high, and well furnished to the ground; *Picea cephalonica*, 60 feet high, and well furnished; a noble tulip tree, and the fine old eucalyptus. The latter is supposed to be the largest tree in this country of its kind. It is from fifty to sixty feet high, and in favourable seasons opens its flowers. It forms a distinct and ornamental feature as its foliage glistens in the distance. *Abies Morinda* is quite at home in this soil, and affords a pleasing change of character in its graceful branches. The background is formed with forest trees, and on the grass slopes are judiciously mingled the trees I have named and many others of the same character, and interspersed are some noble copper beeches, magnolias, azaleas, and rhododendrons. At the bottom of the sloping ground runs a small river, with its surface partially covered with water lilies, and away over the water is the valley of the Ken; but we must leave this charming spot and seek the higher ground behind the castle.

Here we find a splendid *Wellingtonia* towering up far above many others, more cedars of Lebanon, and other ornamental trees and shrubs. This plantation extends for some distance, and from the highest point here we have

splendid climbers, *Taxonia Van Volxemi* being very striking with its pendent flowers. At the cool end of the house there were in flower, at the time of my visit, some excellent tuberous-rooted begonias, and a charming specimen of *Pancratium fragrans*.

The flower garden surrounding the castle was well filled and the arrangement admirable. On the castle walls is a fine plant of *Magnolia grandiflora* seventy feet in height, and on other portions of the building ivy is encouraged to grow freely.

J. C. CLARKE.

VEGETABLE TRIALS AT CHISWICK.

THE Fruit and Vegetable Committee found plenty to occupy them in their official visit to the garden of the R. H. S. at Chiswick. The trials of this year comprise peas, potatoes, shallots, and lettuces. As it was too early for lifting potatoes, these were not examined, but the row of *Beauty of Hebron* attracted attention by the freshness of its leafage and the abundance of its white flowers. Peas were in the best possible condition for comparison, and the rows of *Telegraph* and *Telephone*, *Turner's Emerald*, *Carter's Stratagem*, *Culverwell's Giant Marrow*, and *Veitch's Gladiator* were very showy with their abundance of handsome pods. The relative qualities, as well as cropping capabilities, were considered. *Lye's Favourite* met with favour: this is a white marrow of the good old pattern, running to six feet and lasting long in



WELLINGTONIA GIGANTEA, IN THE SHRUBBERY GARDEN, POWDERHAM CASTLE.

near views of splendid trees that seem to bear the stamp of having passed at least a century and a half on the same spot.

Pines are grown in a lean-to stove, and as large fruits are not required the plants are fruited in ten-inch pots. Considering the number of plants in a small place, the diameter of the pots in which they are grown, and the size of those fruits which had arrived at maturity, I am prepared to assert that we may go a long way before finding results equally satisfactory.

The conservatory is on a rising terrace above the kitchen garden. The central part is a three-quarter span running east and west, and at each end it has a span-roof wing. The two wings, which run north and south, are separated from the main building by glass divisions, one being used as a warm compartment and the other as a cool house. The arrangement is a very good one, as it enables the gardener to set apart one division for the display of tender plants without exposing them to injurious currents of air, which must be the case when the tender and more hardy plants have a place in the same structure. In addition, visitors and others interested in the different classes of plants can see them in close proximity to each other. The central division is nicely furnished with camellias and other plants, and the back wall is densely clothed with choice creepers, including *Bougainvillea glabra*, *Habrothamnus elegans*, *Plumbago capensis*, *Stigmatophyllum ciliatum*, with foliage almost as striking as its bright yellow flowers. On the roof are some

bearing, the plants stout and healthy, the pods large and handsome, and the peas being of the tender class that finds favour with the lovers of the grand old peas that were so nearly perfect when the dwarf-growing marrows were invented. *Carter's Stratagem* is a dwarf green wrinkled marrow of remarkable fitness for market culture, producing a great crop which may soon be cleared off, and presenting a very handsome appearance in the basket and on the table. *Veitch's Gladiator* is a blue pea, the growth short and robust, particularly handsome, and well filled with large peas. This variety crops well, and it may be described as a gentleman's pea, though probably well adapted for market growers, as it gives a heavy gathering at any one time. *Bunyard's Fourhundredfold* is a tall blue pea, running six to seven feet, immensely productive, and the quality fairly good, but not first-rate. Where a heavy cropper is of some consequence it will be found serviceable.

Lettuces have made a good growth this year—in some cases too good, for the abundant rain has encouraged a certain degree of coarseness. There were no certificates given to lettuces, as there was nothing sufficiently distinct or striking in quality. But two varieties from Mr. Benary found favour, namely *Unctuous* and *Sugar*, which gratify the palate by their tender and buttery texture. In a plantation of shallots the gradations were thought too trifling to justify many names, and the so-called *Silverskin Shallot* was declared no shallot at all, but a species of *Allium* yet to be determined.

The following is the official report of the awards of the two committees :—

FRUIT AND VEGETABLE COMMITTEE, JULY 7.

J. E. Lane, Esq., in the chair. The collection of PEAS was examined, and first-class certificates awarded to the following :
Lye's Favourite (Lye).—A tall round white Marrow.
Gladiator (Veitch).—A dwarf round blue Marrow.
Turner's Emerald (Carter).—A dwarf white wrinkled Marrow.
Stratagem (Carter).—A dwarf green wrinkled Marrow.
Alfred the Great (Laxton).—A tall blue wrinkled Marrow.
 Culverwell's Telegraph, Carters' Telephone, Culverwell's Giant Marrow, and Four-hundredfold (Bunyard), were highly recommended, the two former having been previously certificated.

LETTUCES.—Green Unctuous (Benary), Paris Sugar (Benary), commended.

SHALLOTS.—Only two truly distinct varieties existed under the names of No. 1, Small White, Silver Grey, Large Brown, Russian; No. 2, Large Red, Small Red, Large Russian, New Russian, Mammoth; the exhibition Shallots of Stuart and Mein being a somewhat larger selection of No. 2; the Jersey Giant Red Shallots and the Jersey Silverskin Shallots of Pond proving to be some species of onion to be subsequently determined.

FLORAL COMMITTEE, JULY 7.

Mr. B. S. Williams in the chair. First-class certificates were awarded to the following :—

SINGLE ZONAL PELARGONIUMS.

Lumen (Pearson).—Plant of dwarf habit, the trusses very large, the individual flowers large, of fine rounded form, bright scarlet, with distinct white eye.

Eva (Pearson).—Plant of free growth; trusses large, borne well above the foliage; flowers of fine form, beautiful magenta-scarlet.

Miss Hamilton (Pearson).—Plant of remarkably dwarf habit, the trusses large; individual flowers large, of very fine form, beautiful blush-white. Distinct and pretty.

Klüber (Lemoine).—Very free habit; trusses of medium size, somewhat loose; the flowers of a beautiful magenta-shaded scarlet, with bright scarlet blotch on lower petals. Very pretty colour.

Atala (Pearson).—Plant of dwarf habit, very free-flowering; the trusses large; the individual pips large, of a fine rounded form, bright orange-scarlet.

Olive Curve (Pearson).—Plant of vigorous habit, free-flowering; the trusses very large; individual pips large, of very fine form, clear rosy pink with blotch of white on the under petals. Very fine variety for culture in pots.

DOUBLE ZONAL PELARGONIUMS.

M. Hardy (Lemoine).—Plant of dwarf habit, the trusses of medium size; flowers large, semi-double, delicate rose-lilac.

Got (Lemoine).—Plant of very vigorous habit, the trusses very large and full; individual flowers of medium size, semi-double, bright scarlet. Very showy.

Aglaia (Pearson).—Plant of very dwarf habit, very free-flowering; the trusses large, well displayed; individual pips large and double, purplish scarlet.

Candidissimum plenum (Pearson).—Plant of dwarf growth, very free-flowering; trusses of medium size; individual pips of large size, very double, of a pure white colour. The best white variety.

IVY-LEAVED PELARGONIUMS.

Comte Horace de Choiseul (Lemoine).—Plant of free trailing growth, very free-flowering, the trusses of medium size; individual flowers large and double, beautiful rosy pink with streaks of white along the petals. A very pretty variety.

Comtesse Horace de Choiseul (Lemoine).—Plant of trailing habit, free-flowering; the flowers very large, semi-double, beautiful rose centre shading to magenta towards the edge. Very distinct and showy.

DECORATIVE PELARGONIUMS.

Belle de Jour (Lemoine).—Plant of good compact habit, very free-flowering; flowers semi-double, pure white. Will be a good variety for market purposes.

Madame Harman (Lemoine).—Plant of fine sturdy growth, very free-flowering; the trusses large; individual flowers large, of fine form, pure white slightly streaked with purple towards the eye.

Glorinia Major Mason (Royal Horticultural Society).—A very fine erect-flowering variety; the flowers very large, with pure white throat, and clear purple margin shading to paler purple towards the edge.

Lantana Phosphoré (Lemoine).—Plant of very dwarf habit, remarkably free-flowering; the flowers clear golden yellow.

TUBEROUS BEGONIAS.

Mrs. Stevens (R. H. S.).—A beautiful free-flowering variety; flowers of fine substance and form, well displayed, beautiful flesh colour suffused with pink.

Thomas Moore (R. H. S.).—Plant of free growth, free-flowering; the flowers of medium size, of very fine rounded form, well displayed, pale rosy scarlet. A very distinct and showy variety.

NERIUMS.

Sœur Agnes (Huber et Cie).—Flowers single, large, pure white. Free-flowering and pretty.

Mons. Balaguer (Huber et Cie).—Flowers single, well expanded, beautiful delicate pink shaded towards the edge with rose. A very fine variety.

Madonna grandiflorum (Huber et Cie).—A very free-flowering variety; flowers with double corolla, creamy white. Very distinct.

MIGNONETTES.

Reseda odorata pyramidalis grandiflora (Vilmorin et Cie).—Plant of fine dwarf stubby growth, very branching; heads of flowers very large, the flowers red. A fine variety for pot culture.

Reseda Golden Queen (Benary, Carter, Veitch, Henderson).—Dwarf habit; flower spikes large, of a fine golden yellow colour. This also is a fine variety for cultivation in pots.

SUMMER EPIDEMICS.—Medical officers of health, as hot weather approaches, should remind the public that if they desire to be free from such infectious diseases as Scarlet Fever, Smallpox, and Measles, they should wash only with WRIGHT'S COAL TAR SOAP. Purchase only the genuine (Wright's), which is branded (as the medical profession prescribe), "Sapo Carbonis Detergens."—[ADVT.]

The House, Garden, and Home Farm.

THE MAVIS.

SWEET Mavis! at this cool delicious hour
 Of gleaming, when a pensive quietness
 Hushes the odorous air,—with what a power
 Of impulse unsubdued dost thou express
 Thyself a spirit! While the silver dew
 Holy as manna ever the meadow falls,
 Thy song's impassioned clarity, trembling through
 This omnipresent stillness, disenthral
 The soul to adoration. First I heard
 A low thick lubric gurgle, soft as love,
 Yet sad as memory, through the silence poured
 Like starlight. But the mood intenser grows
 Precipitate rapture quickens, move and move
 Lucidly linked together, till the close.

DAVID GRAY.

THE HOUSE.

THIS is a capital time for furnishing fern cases, as when the plants are in position before July is out they become well established before winter. In filling the cases it is important that they should not be heaped up too high with soil. When this is done and the surface is somewhat dry, the water given runs off, leaving the soil as dry as before, and spoils the carpet instead of benefiting the ferns. It should be the rule to keep the soil one to two inches below the level of the edge of the case all round, however it may be heaped up in the centre. It is impossible to lay down rules as to the fashion of dressing a case, but this point is one of practical importance, for unless the water penetrates the soil and feeds all the ferns sufficiently failure must result sooner or later. As to heaping up the earth with rocks, and all that sort of thing, we have done much of it, and perhaps with pretty good taste, but we can make as effective a display, and a picture altogether delightful, by keeping the soil to a dead level and a little below the level of the woodwork, and arranging the planting suitably. Another important point is to select for cases ferns that will be likely to survive the winter and make a lasting growth creditable to all concerned. We have long since given up the use of heated cases as occasioning more trouble than they are worth, and therefore we are careful about planting ferns that are of tender constitution. All that thrive in a greenhouse temperature are likely to endure the winter in a fern case, and the next question is, which amongst the many that are in cultivation are best adapted for the purpose. Now, at this point a very interesting matter for observation is forced upon our attention. When a fern case is fairly placed as regards receiving a due proportion of daylight, it will be noticed that some of the ferns will hold their positions properly and present a stately appearance, but others will lean forward to the light in an inelegant manner, and due care should be taken to select those which maintain their proper position.

THE GARDEN.

APHELEXIS and PIMELEAS that are at all thin and leggy and out of bloom to be cut back freely and put in a shady place. Sprinkle their tops frequently, and keep the roots rather dry till they break, and then repot. In repotting use the compost rough and lumpy for all except young plants.

CAULIFLOWERS can be put out now on ground cleared of peans and beans. Dig deep, and mix the manure with the soil, so that it is evenly distributed throughout the mass.

CELERY.—The early crops to be earthed up as soon as the plants have attained a good size. If the ground is dry give a heavy soaking of water the day before intending to mould them, and be careful that the soil is nearly dry, or at most only moderately moist, when the moulding is done.

CONSERVATORY will now need a revision, and a general change of occupants. Lilioms and zonal pelargoniums will now come in, and make a fine show with first-class annuals and fuchsias. Specimen trees and climbers to be stopped and trained in, to assist ripening of the wood.

MELONS need a brisk bottom heat to ripen the fruit, and to be kept rather dry. Those swelling fruit to be encouraged with a lining and a moderate amount of atmospheric moisture.

ONIONS ripening to be taken up and laid in the sun to dry. If the weather is wet spread them in a shed, or on some dry mats in spare frames.

ORCHIDS.—The general collection may be kept in perfect health now without fire heat by shutting up early and sprinkling the floor of the house to cause a humid atmosphere. Do not shade overmuch: generally from ten till three will be quite sufficient from this time till shading is dispensed with altogether. Small specimens of Stanhopeas should be now shifted into large baskets, in which they can push their flowers downwards. The best material to fill the baskets with is chopped moss, and the tough felt-like fibre of good peat, with all the soil removed. The baskets should be shallow. After shifting, keep them well supplied with atmospheric moisture, but only moderately moist at the root. Specimens that do not require a shift are to be encouraged to grow as soon as they have done flowering, in order to assist the completion of their pseudo-bulbs, and then they must be reduced to a state of rest by gradually withholding water, or to have but little until they again begin to grow.

PEACHES ripening off to be kept as cool as possible; hot sunshine and a close air will spoil the flavour and cause the fruit to fall. Trees from which the whole crop has been gathered to be liberally watered and syringed, to keep the foliage fresh till it has done its work.

PINES to be encouraged with a good heat and plenty of moisture. Those swelling fruit to have the help of a humid atmosphere by watering the paths and the surface of the tan, &c., amongst the plants till the fruit begins to change colour; then keep the atmosphere rather dry.

SAVING SEED.—Many choice border plants are now ripening their seeds, and whatever is required must be secured in time. Generally it is safest to gather the seed before it is dead ripe, as in many cases the pods open, and the seed is scattered and lost.

STRAWBERRIES to be potted as soon as rooted, as they make roots faster in pots than in the open ground; and should we have a chilly autumn a few of the best of the plants can be kept under glass to ripen their crowns. Lay a few more of the best runners in pots, out away all that are weak or not wanted, and supply water liberally to runners and old stools.

VINES.—Late grapes will require artificial heat to ripen them properly, as the sun heat is below the average of the season. If the ripening is long about the berries will have thick tough skins, and will not keep well. Keep houses dry in which grapes are hanging.

WINTER GREENS to be put out at every opportunity, and with as little damage as possible to the leaves.

THE HOME FARM.

To keep the weeds under and maintain the surface soil in a loose state horse and hand hoes must be busily employed amongst the advancing root crops as long as is practicable without injury to the leaves. It cannot be too well known by cultivators that where the ground is somewhat loose, as it may be kept by the hoe and other operations, it absorbs a considerable amount of dew at night; and while this goes on the plants are condensing dew on the leaves, and when the condensation reaches a certain point the moisture trickles down the stems, which in many instances are distinctly channelled to convey it to the root; and thus plants distil water from the atmosphere for their use, and their healthy growth during dry bright weather is in some degree accounted for. The horse hoe has acquired fame as a fertilizer, and, you may depend upon it: one secret of its advantage is that it encourages the soil to absorb moisture from the air, and with that moisture some amount of nitrogen and other fertilizing agencies, while the process of absorption facilitates the disintegration of the compounds of lime, silica, phosphorus, &c., which constitute a large proportion of the food of plants.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

SUMMER-SOWN ONIONS.

ONIONS obtained from seed sown in July or August are so valuable for use in the early part of the summer of the year following that in the smallest garden affording accommodation for vegetables a bed of moderate size should be sown, and a reminder just now will perhaps be of service to the inexperienced. The best varieties to sow for this crop are the Tripoli, White Lisbon, and Giant Madeira. The best time to sow the seed is from the second week in July to the second week in August. Select if practicable a position for the bed that is sheltered from the north and east winds. The ground should be made moderately rich with short manure and dug over to a good depth. It is best to sow the seed rather thickly, as then there will be some onions to pull in the early spring for salads if they are wanted. The drills should be one foot apart and about half an inch deep. If a few large bulbs are wanted, the crop must be thinned out so that the plants are twelve inches apart in the rows, and the thinning must be done early in the month of March. If a large supply is required the thinnings can be transplanted.

PARSLEY FOR SPRING.

A sowing of parsley should invariably be made at the end of July or the beginning of August, because when only one sowing is made, and that in the spring of the year, there is a dearth of fine parsley in the months of June and July. The spring-sown always runs to seed early in the summer, but that sown late in July does not as a rule do so; therefore it is in good condition for use when the other is running to seed. There is another advantage in having two sowings which must be mentioned. As soon as the first-sown begins to run to seed it may be destroyed, which is better than allowing it to remain to exhaust the soil, as the late-sown will not only take its place, but it will be of much better quality.

CABBAGES FOR SPRING.

For an early supply of cabbages there is no better kind than Carters' Early Heartwell, and for the main crop Daniels' Defiance is unsurpassed. The seed should be sown, according to the locality, from July 20 to August 20. In the colder districts of England the first-named date may not be too early, but probably for the southern and western counties the second week in August will be early enough. The seed must be sown in well-prepared soil, and if the ground is dry let it be well watered previous to sowing the seed, which should be covered with some finely-sifted soil. Should the weather be hot and dry, shade the bed with branches of evergreens or other shrubs or trees, as the shading will keep the soil more uniformly moist than repeated waterings. But as soon as the young plants appear the shading must be removed. It is an advantage to transplant cabbage plants as soon as they are large enough, as by so doing stouter plants are obtained. Select the largest, and prick them out on another bed, putting them six inches apart each way. Water when necessary to encourage them to grow, and in about three weeks it will be found that the plants have gained considerably more strength than they would have done had they been allowed to remain crowded in the seed bed. The quarter intended for spring cabbages should be well prepared. A quarter should be selected that has recently been cleared of peas or potatoes, or, indeed, any ground that has not been occupied with cabbages or cauliflowers will do. It must be dug or trenched up deeply as the case may require, and it should be well dressed with manure from the farmyard or stable. From the last week in September or the early part of October is the best time to put out the plants where they are to remain. Carter's Early Heartwell should be fifteen inches apart each way, and larger-growing kinds from eighteen inches to two feet apart.

RAPE FOR SPRING GREENS.

In cold exposed situations it will be found that rape is a capital substitute for some of the better known garden greens, as it is more hardy, and does not run to seed so soon as the cottagers' kale and the Scotch kale. The cottagers who live in the same neighbourhood as the writer make it a rule to plant a fair-sized piece of ground with

rape to produce greens in the spring, when all other green vegetables are scarce. They sow the seed about the middle of July, and transplant in October, and it is surprising how large is the supply they obtain from a small space, as rape produces a much longer succession of sprouts than any of the kales. The plants should be one foot apart when they are planted out, and the land should be in fairly good heart to encourage a vigorous growth.

YOUNG CARROTS FOR AUTUMN AND WINTER.

To maintain a supply of young carrots a sowing should be made in the open ground about the middle of July, and another in the middle of the month following. The August sowing may occupy more space than the first-named, as the season being more advanced they will not grow so fast, and therefore they will be in better condition for keeping up the supply for a longer time: indeed they may be left in the ground, and supplies be drawn from them during the early part of winter, if they can have temporary protection from early frosts. To secure young carrots in a still better condition as long as the season admits, they may be had small, sweet, and well flavoured, if a brick pit can be devoted to them. In this case the seed should be sown at the end of August, and carefully attended to. The lights need not be put on during the day, except when it rains, until the end of September, but after that time they must remain on at night, and during the day air be admitted by tilting each light at the back with a thick wedge of wood. With a little care in management, a supply of young carrots may be had in mild seasons up to the middle of December. In preparing the pit for them the bed of soil should reach to within nine inches of the glass, and at night the glass ought to be covered with mats when there is any sign of frost.

CUTTING OUT RASPBERRY CANES.

As soon as the fruit is gathered from the raspberries all the old canes should be cut off close to the ground and taken away, and if there are more young suckers than are wanted to furnish a crop of fruit next year they also should be thinned out. The object of cutting away the old shoots and the surplus suckers is to afford those remaining sufficient room for their full development. As a result of this thinning out an increase in the crop next year may be reasonably looked for.

GLOXINIAS AT READING.

AN opinion is held by some that gloxinias should be a twelvemonth old from seed in order to furnish a good head of flower. When acting as a judge at a suburban flower show not long since, myself and brother judge had to award prizes to some nicely grown and flowered plants of gloxinias carrying six or seven fine blooms each; and my colleague contended that the plants were at least a twelvemonth old. We found afterwards they had been raised from seed sown in January last.

When I was at Reading a few days ago, I saw in Messrs. Sutton and Sons' florists' flower seed grounds a number of finely-grown plants of gloxinias that were six months from seed, and they—that is to say, the largest of them—were growing in 32-sized pots, and carried from eighteen to twenty-four blooms each. They were grandly grown, as all the florists' flowers in these famous seed grounds are; and they had been well looked after, which is a great matter in relation to the well-being of the plants. But what Messrs. Sutton and Sons can do can surely be done to some extent by others.

There is this to be said, that in the case of the gloxinia, as well as in other seeds, some will germinate more rapidly than others, and as soon as these are fit to handle they are at once pricked off into pots or pans and packed in with all haste. Not only do these make rapid growth and give the first batch of flowering plants, but the act of taking them out makes room for others to develop in the seed pan. Why, some of the plants in 32-pots at Reading were two feet across from leaf to leaf, and better specimens for exhibition purposes could scarcely be imagined. The later seedlings are gradually flowering, and will continue to do so up to August, and so it may be safely stated that if a pinch of gloxinia seed be sown in January it will yield plants that will flower from four to six months of the year. There are differences in strength of constitution, and those plants that are most robust are generally the first to bloom. So large were some of the Reading flowers that they measured four inches in diameter, and some flowers had as many as seven lobes—an unusual number. It must be said in justice to Messrs. Sutton and Sons that, in all their improvements of popular flowers, they are very particular in the matter of strength of constitution, and in looking over the collection of seedling gloxinias at Reading it was very difficult to select what varieties could be picked out for being named where all were so good. In fact, Messrs. Sutton and Sons do not attempt to name their best flowers, and they act wisely in refraining from doing so. It is only in very special cases that gloxinias should be named, and only when the flowers have a decided and marked individuality of character, and are particularly fine in development. With gloxinias we are rapidly going the way of cinerarias and calceolarias; in their case, owing to the fine character of seedlings, it is now no longer necessary to name.

I was very much struck with the character of some crosses, the products of two white gloxinias, fertilized with each other's pollen. The delicate spotting that was more or less found in the tubes of each variety was brought up on to the lobes and distributed there in a very unique way. Some of the white-flowered seedlings were very pure in colour and of very fine form. One house was mainly filled with gloxinias in 60-pots, and let it be recorded as an illustration of the floral capacities of the gloxinia, not a few of the plants carried from six to twelve very fine blooms.

SEMPER AUGUSTUS.

PHYLLOXERA is reported to have made its appearance in several German vineyards, where hitherto it has been unknown; and in some instances, where it has been subdued, it has been succeeded by mildew. It is not unlikely that the present rainy summer, though unfavourable to many important crops, may contribute in a material degree to the destruction of phylloxera in those sandy soils where it appears to be directly related to an impoverished condition of the vines.

Exhibitions and Meetings.

EVESHAM FLOWER SHOW, JULY 12.

GIVEN bright enjoyable weather, there are few holidays in the midland counties more attractive or better attended than Evesham Regatta Flower Show. Held in conjunction with athletic and aquatic sports, in a locale altogether suitable and unique, this annual fête continues to maintain a high position among the summer "outings" of the denizens of the "black country" and midland districts. This condition of things is due in part to the ability of the executive, who form the chief portion of the tradesmen and residents, and whose efforts are ably seconded and supported by the very liberal contributions of the leading residents in the neighbourhood.

The arrangements are, for the most part, as complete as human forethought and skill can devise; and, as such, this annual exhibition has more than ordinary charms for competitors from a distance. Few towns can boast of a more eligible spot in which to locate a horticultural display: the outlook and surroundings are altogether pleasing and picturesque. A velvety lawn; thriving shrubs and conifers; well-arranged walks; a splendid avenue of young limes in full flower and perfume, affording shelter from rain and shade from the heat; ample tabling and staging; first-class music; courteous and obliging officials, and high quality productions, are in themselves always appreciated and attractive. Add to these a fine stretch of water (on this occasion overflowing its usual wide course); magnificent views of hills and woods to the left; the noble bridge spanning the Avon, with the houses in the old town and woodlands beyond, on the right; in front, the bosom of the majestic river at full flood, with the frail skiff or outrigger fleet past in the aquatic contest; the shrill whistle of the heavily-freighted river steamers passing on their way to and from the waterfalls at Fladbury; the dark mass of sightseers on the opposite shore in Fleece meadow, watching with eagerness the competition of athletes; and, to crown all, the magnificent group of buildings, and we have a scene of unsurpassed beauty and interest. Our duties on this occasions confined us to the tents, in which a very large collection of plants, blooms, fruits, &c., were on view. In making a few notes on the best things, we remark that the "open to all England" prizes for plants are not of sufficient value to induce outsiders to undertake a long journey in order to compete; hence the prizetakers in this department hail from Evesham or immediate neighbourhood, while, on the other hand, the prizes for blooms, for the most part, are awarded to strangers.

PLANTS.—In this division the specimens were generally of three-quarter size, healthy and meritorious. Specially good were the "extra productions" staged by Mr. Martin, gardener to the Mayor of Evesham (A. Epsley, Esq.), whose large group comprised ferns, coleus, geraniums, fuchsias, balsams, achimenes, thunbergias, and a noble specimen of *Humea elegans*; a special prize was awarded. Another fine group came from Rev. W. C. De Bentley Corry (gardener, Mr. Draper), in which ferns, dracenas, petunias, geraniums, and coleus predominated. A fine assortment of exotic ferns from W. W. Brown, Esq. (gardener, Mr. Woolley) were awarded a "special prize"; and a general assortment from Mr. J. Grove, The Cemetery, Evesham, were tastefully grouped. The several collections formed a very pleasing relief to the blaze of colour produced by the cut blooms. In the competing classes a few nice

PALMS AND FERNS, in groups of six, came from Mrs. G. Hunt (gardener, Mr. C. Grove); W. W. Brown, Esq., and A. Epsley, Esq., being highly commended.

COLEUS were large plants, somewhat wanting in colour, the cards going to Rev. G. Coventry (gardener, Mr. A. James), and G. H. Garrard, Esq. (gardener, Mr. Cooper).

BEGONIAS were plentiful, neat table specimens in colours ranging from pale lemon to richest orange-scarlet; Mrs. G. Hunt first; W. W. Brown, Esq., second, and Rev. W. C. De Bentley Corry highly commended.

FUCHSIAS, though not numerous, were well presented in old varieties; A. Epsley Esq., first with densely-bloomed examples of *Rose of Castile*, *Avalanche*, *Arabella Improved*, and *Sir Colin Campbell*; the second card going to Mr. J. Grove, The Cemetery, for *Wave of Life*, *Alba coccinea*, *Rose of Castile*, and *Champion of the World*.

GLOXINIAS, though small specimens, were nevertheless good, the first prize falling to Rev. G. Coventry for prettily-marked erect-flowering varieties; G. H. Garrard, Esq., second; Rev. W. C. De Bentley Corry being highly commended.

ORNAMENTAL FOLIAGE PLANTS were limited to two groups, the first card being awarded to W. W. Brown, Esq.; G. H. Garrard, Esq., taking second honours.

BALSAMS were staged as an "extra," W. W. Brown, Esq., securing a first for half a dozen large dwarf-grown examples, lacking variety of colour only.

The second section of the show was devoted to **CUT FLOWERS**, the chief display being made by the

ROSES.—In a line occupying some two hundred feet of staging were arranged the boxes containing blooms of general high quality, the schedule providing some twelve classes, ten of which were "open to all comers." Specially noticeable were the thirty-sixes. Here the post of honour was assigned to

MESSRS. CRANSTON AND CO.'S BOX OF THIRTY-SIX SINGLE TRUSSES.—The blooms were large, and well finished, the pick being Charles Lefebvre, Madame Gabriel Luizet, Reynolds Hole, La France, Alfred Colomb, Mdle. E. Verdier, Paul Neron, Charles Darwin, Baroness Rothschild, Marie Baumann, Souv. d'Elise Vardon, Baroness Rothschild, Comtesse de Serenye, Mdle. Marguerite Manoin, Jean Ducher, Louis Van Houtte, Jules Jurgensen, A. K. Williams, Mrs. Jowitt, Innocente Pirola, Souv. d'un Ami, Countess of Rosebery, Madame Lacharme, Pierre Notting, Devienne Lamy, Pierre Carot, Maréchal Niel, and Magna Charta; Mr. W. Corp. Cowley Manse, Oxford, second, with A. K. Williams, Baroness Rothschild, Hippolyte Jamain, Gloire de Dijon, Star of Waltham, La France, Marguerite de St.-Amand, Duchess of Bedford, Sénateur Vaisse, Princess Beatrice, La Duchesse de Morny, Mons. E. Y. Teas, Devoniansis, Dr. Andry, Homère, Charles Lefebvre, Capt. Christy, Madame V. Verdier, Mdle. E. Verdier, Beauty of Waltham, Etienne, Levét, Louis Van Houtte, Madame H. Jamain, Countess of Rosebery, Belle Lyonnaise, Jean Liabaud, Madame Lacharme, Maréchal Niel, and Pierre Carot. Mr. John Mattock, New Headington, Oxford, third.

For twenty-four single trusses Messrs. Cranston and Co. were again placed first with a box containing varieties similar to the above-named; Mr. W. Corp second, and Mr. J. Betteridge, Chipping Norton, Oxon, third. In Class III. the "card" went to

MESSRS. CRANSTON AND CO.'S BOX OF TWELVE TRIPLETS, which contained Mario Baumann, La France, A. K. Williams, Mme. G. Luizet, John Stuart Mill, Comtesse de Serenye, Pierre Notting, E. Hausberg, Louis Van Houtte, Souv. d'un Ami, Mrs. Jowitt, and Baroness Rothschild; Mr. W. Corp second with Beauty of Waltham, Devoniansis, Annie Wood, Mdle. Marie Finger, Marie Baumann, A. K. Williams, Comtesse de Serenye, Lord Macaulay, Baroness Rothschild, Camille Bernardin, and Captain Christy; Mr. John Mattock third. For a collection of teas (irrespective of number or variety) several nice boxes were staged, the premier award being made in favour of

MR. A. EVANS'S BOX OF TEAS AND NOISETTES.—These were staged in bunches of six and eight buds in the following varieties:—Perle des Jardins, pale yellow; Bougère, Mme. Berard, salmon-buff; Souv. d'un Ami, salmon and rose; Belle Lyonnaise, canary-yellow; Marie Van Houtte, pale primrose-yellow, tipped crimson; Catherine Mermet, flesh-coloured rose, large; Souv. de Paul Neyron, pale rose and buff; Mme. Lambard, bright red, large; Mme. Bravy, cream-shaded blush; and Homère, blush. Mr. John Mattock second with Souv. de Paul Neyron, Mme. Lambard, Mme. Bravy, Homère, Marie Van Houtte, Catherine Mermet, Perles des Jardins, Bougère, Mme. Berard, and Souv. d'un Ami. Mr. Corp third with a much larger collection than the two preceding, the buds smaller, though extremely attractive; his varieties were—Comte Riza de Parc, lustrous rose, shading to pink; Marie Van Houtte, Comtesse de Nadaillac, coppery orange, shaded salmon; Mdle. Marie Arnaud, canary-yellow; Homère, Souv. de Paul Neyron, Catherine Mermet, Niphotos, white; Ma Capucine, bronze-yellow; Amazone, La Sporte, Mme. Lambard, Souv. d'Elise Vardon, cream-white, shaded salmon; Mme. Bravy, Smith's Yellow, Anna Olivier, flesh, shading to buff; Céline Forestier, deep canary-yellow; Triomphe de Rennes, canary; Maréchal Niel, Jean Ducher, salmon-yellow; David Pradel, rose-shaded lavender; Safrano, apricot; Belle Maconnaise, and Devoniansis, creamy white. Messrs. Cranston and Co., Hereford, put up a nice collection in individual blooms in the following varieties:—Belle Lyonnaise, Catherine Mermet, Perle de Lyon, deep yellow; Souv. d'Elise Vardon, Mme. Willermoz, creamy white, large; Jules Finger, bright red, La Sulphide, cream-tinted carmine, fawn centre; Perle des Jardins, Niphotos, Marie Van Houtte, Adam, flesh, shaded salmon and fawn; Rubens, white, tinted rose; Mme. Falcot, orange-yellow; Mme. Bravy, Mme. Caroline Kuster, orange-yellow; Jean Ducher, and Maréchal Niel.

For "amateurs only" several classes were provided, special prizes being given by Messrs. Cranston and Co. for the best arranged box, not less than twelve varieties. The first prize was awarded to Mr. A. Evans, Marston, Oxon, for good blooms of Hippolyte Flandre, Mme. V. Verdier, Charles Lefebvre, Mme. H. Jamain, Magna Charta, Alfred Colomb, Baroness Rothschild, Cheshunt Hybrid, La France, Sir Garnet Wolesey, Sultan of Zanzibar, Mdle. Marie Finger, Devienne Lamy, Capt. Christy, Marie Baumann, Auguste Rigotard, Mme. Gabriel Luizet, Camille Bernardin, Comtesse d'Oxford, Louis Van Houtte, Belle Lyonnaise, Nardy Frères, Mons. Boncenne, and Felix Genero; altogether a good exhibit. The second place was assigned to Miss Watson-Taylor, Manor House, Headington, Oxford, for Marie Baumann, Mdle. Thérèse Levét, Pierre Notting, Capt. Christy, Louis Van Houtte, Mme. Lacharme, Duchesse de Valombrosa, Duchesse de Caylus, Mdle. Marie Rady, Baroness Rothschild, Claude Levét, Auguste Rigotard, Sultan of Zanzibar, Marquise de Castellane, Duke of Connaught, La France, Horace Pernet, Niphotos, Alfred Colomb, Triomphe de Rennes, Beauty of Waltham, Xavier Olibo, and Mme. Gabriel Luizet; Mr. Julius Sladden, Badsey, Evesham, third. For twelve varieties, single trusses, Mr. A. Evans, was again to the fore; Mr. E. Thorne, Oxford, second, and Miss Watson-Taylor, third; a good class, Mr. Evans's best blooms were Alfred Colomb, Mme. Gabriel Luizet, La France, A. K. Williams, Mons. Bonstetten, Baroness Rothschild, and Capt. Christy. For twenty-four single trusses Mr. A. Evans set up a grand lot of blooms, the varieties similar to preceding classes, with the addition of Dupuy Jamain, Felix Genero, Paul Neron, Mons. Pernet, Prince Arthur, Reynolds Hole, and, Mons. Bonnaire; Miss Watson-Taylor second, whose additional varieties were Emilie Hausberg, Comtesse d'Oxford, Madame Ducher, Le Havre, Pitord, François Michelon, A. K. Williams, Niphotos, Madame Vidot, Duke of Wellington, and Souv. de la Malmaison. For six trusses Mr. E. Thorne, Oxford, led with large well-finished blooms of Marie Baumann, Capt. Christy, La France, Général Jacqueminot, Niphotos, and Mme. V. Verdier. Mr. F. Freeman, Park-street, Oxford, a good second, and H. C. Wilkins, Esq., Chipping Norton, Oxon, third.

For the best bloom of any hybrid perpetual in the show the card went to Mr. A. Evans for a splendid La France, he also securing the prize for the best bloom, not an hybrid perpetual, with a deep-coloured Marie Van Houtte. The other prizes in this division were confined to the locality. For twelve blooms a cup, value £3 3s., given by F. D. Dixon-Hartland, Esq., M.P., again fell to Mr. Julius Sladden for a nice box, containing Mdle. E. Verdier, Baroness Rothschild, Mdle. Marie Rady, La France, Dr. Andry, Gloire de Dijon, Madame Bravy, Camille Bernardin, Madame Sophie Fropot, Catherine Mermet, Madame Marie Verdier, and Souvenir de Spa. The Rev. F. S. Taylor, Littleton, was awarded special prizes in this and the next class for six, owing to the presence of duplicate blooms and imperfect names excluding him from the scheduled prizes; otherwise he had fine collections. In the class for six Mr. Sladden held his own with good flowers of Camille Bernardin, Souv. d'un Ami, Mdle. Marie Rady, Catherine Mermet, La France, and Duchesse de Morny. The number of roses staged was 540 in the general classes, and about 500 tea buds.

ZONALE PELARGONIUMS, single trusses, were well presented, Mr. E. Thorne leading with Helen, Dr. Taite, Maréchal Vaillant, The Shah, Mrs. Turner, and John Gibbons; Mr. Joseph Bates, Blenheim Nursery, Oxford, second with John Gibbons, Sir H. Stanhope, Mrs. Turner, and three seedlings of great merit in salmon-suffused shades; Mr. J. Mattock third with Sir H. Stanhope, Lady Emily Wellington, Duchess of Edinburgh, William Davidson, and John Gibbons; six exhibits.

PANSIES were splendidly presented by Mr. J. Betteridge, Chipping Norton, in forty-eight varieties; Mr. J. G. Kitching, Tewkesbury, was awarded second for a collection of twenty-four named kinds, which were fair for the season.

VERBENAS in triplet trusses were small, but of good colour, the only defect being staged on too short a stalk: Rev F. S. Taylor first and Mr. J. G. Kitching second.

GERMAN STOCKS were staged in quantity, the spikes stout, but scarcely in sufficient variety: Rev. F. S. Taylor and G. H. Garrard, Esq., divided the honours.

HARDY ANNUALS in bunches were very interesting and bright, Mr. John Prico, Headington, Oxford, securing the card, and Mrs. Knapp, Bengeworth, second.

HERBACEOUS PERENNIALS were grandly done, Mr. J. Betteridge being to the fore with a fine collection; Mr. John Cooper, the Brewery, Chipping Norton, second. As an addition, Mr. Betteridge staged a magnificent showy collection in bunches, for which he was awarded a special prize.

TABLE DECORATIONS, HAND BOUQUETS, AND DESSERT SETS were splendidly arranged. Specially good were the two tables (8 ft. by 4 ft.), the first prize going to Miss Garrard, Evesham, for an elegant arrangement including thirty glass pieces; the centre piece, a trumpet vase filled with caladium leaves, fern fronds, sprays of begonia, fuchsias, blue salvia, and feathery grasses; sides of trumpet filled with *Clomatis Jackmanni*, *Clerodendron Balfourii*, *Stephanotis floribunda*, double aquilegias, and delicate fern fronds; at equal distance four vases filled with sweet peas and *Adiantum cuneatum*; the two ends were adorned by massive dishes on stands filled with Queen pine, Black Hamburg grapes, apricots, melon, cherries, and President strawberries. These, in turn, had each four glasses filled with *Hoya carnososa* and fern fronds; while eight tubular vases each contained a bud of a tea rose and a spray of fern; at each corner of the table were placed shallow coloured basins filled with grey spar surrounded by sprays of forget-me-not; the whole traced by running lines of *Selaginella denticulata*. The second prize was awarded to Miss H. E. Haynes, The Bridge, Evesham. For three pieces there were four excellent exhibits: Miss Garrard first, Mrs. E. D. Lowe second, and Miss F. G. Dingley third. For one piece Mr. Joseph Bates, Oxford, first; Mr. James Cypher, Cheltenham, second, and Mr. John Price, Headington, Oxon, third. For the best vase the card went to Miss E. D. Lowe; while for vase of wild flowers (five exhibits), Miss E. Morris first, Miss Martin second, and Miss M. Freeman third. For six buttonhole bouquets there were six exhibits: Miss Garrard first, Miss C. L. Holland, Crothorne, second, and Miss Sladden, Badsey, third. Hand bouquet (open): Mr. J. Cypher first, Mr. W. Jackson, Kidderminster, second, and Mrs. H. E. Haynes, Evesham, third. For subscribers: Mrs. H. E. Haynes, first; Miss Walsh, Abbey Manor, second. For bouquets of garden flowers there were nine competitors, Mr. J. Cypher, Cheltenham, taking the card.

FRUIT filled over one hundred dishes. Of these there were some three dozen dishes of gooseberries; the varieties were all large and fairly ripe. Jolly Angler, Rifleman, Leader, Trumpeter, Lancashire Lass, Whitesmith, Crown Bob, Warrington, and Golden Drop were winning dishes. Dishes of currants were exhibited in pairs, Black Naples and Red Grape predominating. A fine dish of Stone Pippin apples was staged by Mr. H. Byrd, Hampton, and received a commendation, as did a collection of six kinds of gooseberries from Mr. Gosnett, Pershore; similar awards going to the Rev. M. Amplett and the Rev. F. S. Taylor for white currants. In the competing classes the fruits staged were very fine, including Black Hamburg, Duke of Buccleugh, Buckland Sweetwater, and Muscat of Alexandria grapes; Noblesse, Royal George, Abec, and Grosse Mignonne peaches; Downton and Pitmaston Orange nectarines; Unique and President strawberries; Conqueror, Blenheim Orange, Read's Scarlet-Flesh, and Golden Perfection melons, and Morello and Amber Heart cherries, all beautifully coloured and of fine size.

VEGETABLES comprised about three collections, in which very handsome Walcheren cauliflowers and International Kidney potatoes were noticeable. In the cottagers' department a general assortment of window plants were staged, while the bouquets of garden flowers, models of gardens, and wild flowers and grasses bespoke great praise for the exhibitors.

The day was most enjoyable, the attendance large, the music lively, and the arrangements worked smoothly. Great credit is due to the officials, especially to Mr. W. G. Smith, the hon. secretary, for kind attentions to

Oxford. WILLIAM GREENAWAY.

NATIONAL ROSE SOCIETY.—EXHIBITION AT DARLINGTON, JULY 19.

This year the National Rose Society has so far extended its operations as to hold three exhibitions; the first at Bath on June 23, the second at South Kensington on July 4, and the third at Darlington on Wednesday last, and it is most gratifying to state that they have all been attended with a full measure of success. The Bath show was so extensive and good as to unquestionably surpass the finest of the exhibitions previously held in the provinces under the auspices of the society; the metropolitan exhibition was, without doubt, the most important show of roses that has yet been held, and the northern gathering on Wednesday, if less extensive than either of the others, was in every way worthy of the society, and did not fail to obtain the due appreciation of the residents in Darlington and the neighbouring towns of Durham and Yorkshire. The show, it may be observed, was anticipated with more than the usual degree of interest, and so favourably was the matter regarded from the first that when the suggestion was made to hold an exhibition in the town a guarantee fund amply sufficient for the purpose was quickly formed, and the preliminary details soon settled, notwithstanding the fact that the trade of Darlington has not been in a flourishing state for some years past, in consequence chiefly of an important proportion of the iron industry having been transferred to the younger and more favourably situated town of Middlesbrough. Not only was a guarantee fund soon formed, but a very large proportion of the prize money was contributed by the local gentlemen who organized the exhibition, chief among them being E. R. Whitwell, Esq., who, as our readers are aware, exhibited with so much success at South Kensington and the Alexandra Palace in the early part of the month. To further promote the success of the gathering, and afford an opportunity to all classes for seeing the flowers, the principal places of business in the town were closed at three o'clock. In accordance also with the custom which prevails in the north on the occasion of flower shows and agricultural exhibitions, cheap excursion trains were run from the towns in the surrounding districts.

In the matter of the site for holding the exhibition the organizers were particularly fortunate. The beautiful grounds of Southend, the residence of the Misses Pease, were placed at their disposal, and, abounding as Darlington does in good gardens, no more suitable position could well have been found. Situated within a very few minutes of the market place, the gardens and pleasure grounds are very extensive, and they are rich in ornamental trees, exceedingly attractive, and so admirably kept that Mr. Black is well deserving of the highest praise. For the accommodation of the roses, and the miscellaneous plants provided for their relief from the gardens of the neighbourhood,

a tent one hundred and thirty feet in length and forty feet in width was erected within a convenient distance of the principal entrance to the gardens of Southend. The arrangements were exceptionally good, and the plants, which were all in their places the previous evening, were grouped with so much taste and judgment that the exhibition may be safely regarded as one of the most attractive of its kind that has yet been held. Down the centre was erected a stage consisting of two broad platforms and two narrow steps, the platforms for the boxes of roses, and the steps for the table plants employed in forming a relief to them. The two narrow steps were far enough apart to allow of a line of large palms and cycads being placed between them, and at the ends of the stage were groups of plants with ornamental foliage and ferns. Stages were also fixed along the sides of the tent, and these were of a suitable width for holding a line of boxes with a row of ornamental plants of a size usually employed for the decoration of the dinner table. The specimens arranged along the centre were of large size, and so placed that the pots and tubs were below the stage, and they produced a very striking effect. Chief amongst the large specimens were the magnificent examples of *Seaforthia elegans*, *Astrocaryum mexicanum*, and *Sabal umbraculifera*, from Mr. Black, and of *Kentia Belmoreana*, *Thrinax elegantissima*, *Pritchardia filamentosa*, and *Cocos Weddelliana*, from Mr. Noble, gardener to Theodore Fry, Esq., M.P., Woodburn, Darlington. In the very attractive group at the end of the central stage facing the entrance, shown by Mr. McIntyre, gardener to Mrs. Gurney Pease, Woodside, Darlington, occurred fine specimens of *Thrinax elegans*, *Cycas revoluta*, and *Dasyllirion acrotrichum*; and at the opposite end Mr. Noble had a capital group in which the plant last mentioned occupied a prominent position. At the further end of the tent, and facing Mr. Noble's group, Mr. E. B. Spence, nurseryman, Darlington, had a fine collection of palms and other fine-foliage plants. Mr. Ward, gardener to H. F. Pease, Esq., Brinkburn, Darlington, contributed a beautiful collection of British ferns; and several large and excellent specimens were exhibited by Mr. Harrow, a very successful amateur cultivator. The table plants, of which there were about three hundred, were contributed by Mr. Short, gardener to A. Pease, Esq., M.P., Hummersknot, Darlington, Mr. Noble, Mr. McIntyre, and Mr. Black.

The schedule contained sixteen classes, of which five were set apart for nurserymen, seven confined to amateurs, and the remaining four were open to both trade and private growers. As at the Bath and London shows, the classes were so arranged that each exhibitor could show in a limited number only. The largest class in the trade division was for forty-eight single trusses, and of the classes open to amateurs the largest was for thirty-six. As at the previous exhibitions of this season, the finest flowers were those staged by the nurserymen; although the amateurs exhibited remarkably well.

THE NURSERYMEN'S DIVISION.—The leading nurserymen who competed were, Mr. B. R. Cant, Colchester; Messrs. Paul and Son, Cheshunt; Messrs. Cranston and Co., Hereford, and Mr. George Prince, Oxford. There were five competitors in the class for forty-eight, and the premier award was made in favour of Mr. B. R. Cant, Colchester, whose blooms were of good size, exceedingly well finished, and splendidly coloured; Messrs. Paul and Son were second with a splendid stand of evenly-matched flowers, and Messrs. Cranston and Co. were third with blooms of a highly meritorious character.

MR. CANT'S FIRST-PRIZE FORTY-EIGHT SINGLE TRUSSES comprised Mrs. Harry Turner, a trifle thin; Mdlle. Marie Finger, Duke of Edinburgh, a grand bloom; Dr. Andry, Mrs. Baker, Gloire de Vitry, John Hopper, Fisher Holmes, Comtesse de Serenye, Marie Baumann, La Duchesse de Morny, Duchess of Bedford, Comtesse de Paris, May Quennell, Mme. Sophia Fropot, Alfred K. Williams, Souv. d'Elise Vardon, François Louvat, of specially fine colour; Elie Morel, Horace Vernet, Countess of Rosebery, Mme. C. Wood, Mme. Gabriel Luizet, Duke of Wellington, Dupuy Jamain, Général Jacqueminot, Louis Van Houtte, Sultan of Zanibar, rather crumpled in the petal; Marie Baumann, Captain Christy, Victor Verdier, Prince Arthur, Souv. de Coulonner, Alfred Colomb, Triomphe de Rennes, Baroness Rothschild, Mme. Hippolyte Jamain, Harrison Wier, Duke of Teck, poorly coloured; Charles Lefebvre, Mdlle. Eugénie Verdier, Mme. George Paul, Comtesse d'Oxford, Annie Wood, La France, Mme. Victor Verdier, Etienne Levet, and Marguerite de St.-Amand.

MESSRS. PAUL AND SON'S SECOND-PRIZE FORTY-EIGHT SINGLE TRUSSES consisted of Alfred K. Williams, Marie Rady, Beauty of Waltham, K. N. G. Baker, Mdlle. Eugénie Verdier, Mons. E. Y. Teas, Baroness Rothschild, Ferdinand de Lesseps, Countess of Rosebery, Marie Baumann, Pride of Waltham, Sénateur Vaisse, Comtesse de Serenye, Abel Carrière, Elizabeth Vigneron, Paul Jamain, very fine; Marquis de Gibot, Mme. Verdier, Magna Charta, Camille Bernardin, Comtesse d'Oxford, Prince Arthur, Mdlle. Marie Finger, Reynolds Hole, Mme. Ducher, very fine; Antoine Ducher, Marguerite Brassac, Marie Verdier, Exposition de Brie, Catherine Mermet, Duke of Edinburgh, Niphotos, Duke of Connaught, Princess Beatrice, Alfred Colomb, La Duchesse de Morny, Duchess of Bedford, Duchesse de Valombrosa, Charles Darwin, Captain Christy, John Stuart Mill, Souv. d'Elise Vardon, Comte Raimbaud, George Moreau, Duke of Teck, the finest bloom of this rose shown during the current season; Mme. Isaac Perrier, Horace Vernet, and Comtesse H. de Choiseul.

The competition was very spirited in the class for thirty-six single trusses, and at the head of the competitors were Messrs. Davison and Co., White Cross Nursery, Hereford, who had in their first-prize box blooms of good size and quality; Mr. House, Eastgate Nursery, Peterborough, second with capital flowers; Messrs. Harkness and Son, Exelby Nursery, Bedale, and Mr. T. Horsman, Ilkley, equal third; and Mr. Frettingham, Beeston Nursery, Nottingham, was awarded an extra prize.

MESSRS. DAVISON AND CO.'S FIRST-PRIZE THIRTY-SIX SINGLE TRUSSES consisted of Marie Louise Pernet, Mdlle. Alice Dareaud, Horace Vernet, Elie Morel, Ferdinand de Lesseps, Gloire de Dijon, Alfred Colomb, Marquise de Castellane, Jean Sury, very fine; La France, Abel Carrière, La Duchesse de Morny, Le Havre, Mdlle. T. Levet, Général Jacqueminot, Mme. Victor Verdier, Xavier Olibo, Belle Lyonnaise, in capital condition and colour; Mdlle. Eugénie Verdier, Mme. C. Crapet, Duke of Connaught, Mme. C. Wood, Peach Blossom, Mrs. Laxton, Lord Macaulay, Marie Baumann, Baroness Rothschild, Marguerite de St.-Amand, Louis Van Houtte, Sénateur Vaisse, Star of Waltham, Mons. E. Y. Teas, Duchesse de Valombrosa, Etienne Levet, Mdlle. Marie Cointet, and Mrs. Jowitt; the last mentioned a new rose possessing much merit.

MR. HOUSE'S SECOND-PRIZE THIRTY-SIX SINGLE TRUSSES were Dr. Andry, Victor Verdier, Sénateur Vaisse, Princess Beatrice, Comte Frederick de Thurn Hohenstern, a poor rose which deserves to be abolished for its cumbersome name; Emilie Hausberg, Barthélemy Jonbert, Marie Rady, Miss

Ingram, Dupuy Jamain, Madame Ducher, Edouard Morren, Ferdinand de Lesseps, Boule de Neige, Mdle. Luzaune Rodocharchi, Etienne Levet, Beauty of Waltham, Mrs. House, a poor rose of a pale pink colour; Exposition de Brie, Prince Camille de Rohan, La France, Alfred Colomb, Alfred K. Williams, Madame Lacharme, Marquise de Castellane, Louis Van Houtte, Baroness Rothschild, J. S. Mill, Madame Lambert, Marie Baumann, Star of Waltham, Duke of Wellington, Mdle. Marie Verdier, Charles Darwin, and Mabel Morrison, very poor.

The stands staged in the classes for twenty-four and eighteen varieties respectively, three trusses of each, made a splendid display of colour. The first prize for twenty-four was awarded to Mr. G. Prince, Market Place, Oxford, for a grand lot of blooms; Mr. B. R. Cant a good second, and Messrs. Crauston third; Messrs. Mack and Son, Catterick Bridge, Yorkshire, also staged well in this class. For eighteen varieties the prizetakers were Messrs. Davison and Co., Mr. Frettingham, and Messrs. Harkness and Co. in the order of their names.

MR. G. PRINCE'S FIRST-PRIZE TWENTY-FOUR, THREE TRUSSES, included Charles Lefebvre, Elie Morel, Souv. d'un Ami, Beauty of Waltham, Duc de Rohan, La France, Annie Wood, Souv. de Madame Pernet, Louis Van Houtte, La Duchesse de Morny, Alfred Colomb, Baroness Rothschild, Mdle. Marie Verdier, Horace Vernet, Duke of Wellington, La France, Mdle. Marie Finger, and Alfred K. Williams.

MR. CANT'S SECOND PRIZE TWENTY-FOUR, THREE TRUSSES, comprised Duke of Wellington, Madame C. Wood, Mdle. Marie Finger, Countess of Rosebery, Dupuy Jamain, Marie Baumann, Général Jacqueminot, Mons. Noman, Horace Vernet, Madame Eugène Verdier, Comtesse d'Oxford, Fisher Holmes, La France, Maurice Bernardin, Baroness Rothschild, and Duke of Edinburgh.

MESSRS. DAVISON AND CO.'S FIRST-PRIZE EIGHTEEN, THREE TRUSSES.—Lord Macaulay, Horace Vernet, La France, Mdle. Marie Cointet, Mons. E. Y. Teas, Etienne Levet, Gloire de Dijon, Peach Blossom, Fisher Holmes, Madame Victor Verdier, Marquise de Castellane, Louis Van Houtte, Mdle. Eugénie Verdier, Marie Baumann, Ferdinand de Lesseps, Baroness Rothschild, Elie Morel, and Le Havre.

Tea-scented and noisettes were well represented in the trade class for twelve, and equal first prizes were awarded to Mr. G. Prince and Mr. B. R. Cant, and Messrs. Paul and Son were third.

MR. PRINCE'S FIRST-PRIZE TWELVE TEAS OR NOISETTES.—Souv. de Paul Neyron, Adam, Catherine Mermet, Comtesse de Nadaillac, Madame Lambert, Souv. d'Elise Vardon, Souv. d'un Ami, Anna Olivier, Marie Van Houtte, Rubens, Niphetos, and Souv. de Madame Pernet.

MR. CANT'S FIRST-PRIZE TWELVE TEAS OR NOISETTES.—Madame Caroline Kuster, Souv. de Paul Neyron, Souv. d'Elise Vardon, Gloire de Dijon, Niphetos, Anna Olivier, Catherine Mermet, Madame Hippolyte Jamain, Madame Welche, Président, Marie Van Houtte, and Madame Bravy.

AMATEURS' DIVISION.—The majority of the classes set apart for amateurs were exceedingly well filled, and they contained a large number of very fine flowers. In the leading class for thirty-six E. R. Whitwell, Esq., Barton Hall, Darlington, was first with flowers evenly matched and of splendid quality; Mr. T. B. Hall, Rock Ferry, Leicester, a close second; and Mr. W. J. Grant, Ledbury, third.

MR. WHITWELL'S FIRST-PRIZE THIRTY-SIX consisted of Duchesse de Caylus, Marie Baumann, La France, J. S. Mill, Annie Wood, Abel Carrière, Mme. Hippolyte Jamain, Marguerite de Brassac, Prince Arthur, Sultan of Zaazibar, Baroness Rothschild, The Shah, small, but bright in colour; Marquise de Castellane, Général Jacqueminot, Boule d'Or, Marie Rady, Queen of Waltham, Duke of Wellington, May Quennell, Etienne Levet, Mons. E. Y. Teas, Mdle. Eugénie Verdier, Dupuy Jamain, Abel Grand, Sénateur Vaisse, Mme. Victor Verdier, Alfred Colomb, Captain Christy, Charles Darwin, Prince Camille de Rohan, Duc de Rohan, Maurice Bernardin, Mdle. Marie Finger, Louis Van Houtte, Dr. Andry, and François Michelin.

The class for twenty-four was not well filled, but Mr. John Burrell, Heighington, who was first, staged flowers of grand quality.

MR. BURRELL'S FIRST-PRIZE TWENTY-FOUR were John Stuart Mill, Louis Van Houtte, Mdle. Eugénie Verdier, François Michelin, Alfred Colomb, Emilie Hausberg, Marguerite Brassac, Cheshunt Hybrid, Fisher Holmes, Sophie Coquerelle, Marie Baumann, Mme. Caroline Kuster, Beauty of Waltham, Edouard Morren, Marie Rady, La France, Exposition de Brie, Baroness Rothschild, Dr. Andry, Mme. Hippolyte Jamain, Alfred K. Williams, Marguerite de St.-Amand, Mme. Victor Verdier, and Duchesse de Valombrosa.

The classes for eighteen, of which there were two, were exceedingly well filled, and the several stands were very closely matched in merit. Exhibitors were allowed to compete in one only of the two classes, and the prizetakers in the class in Division C were E. R. Whitwell, Esq., Mr. Grant, and Mr. T. B. Hall, and in that in division D, Mr. Burrell and Mr. Vyman.

MR. WHITWELL'S FIRST-PRIZE EIGHTEEN consisted of splendid blooms of La France, J. S. Mill, Annie Laxton, Marie Rady, Prince Camille de Rohan, Charles Lefebvre, Mdle. Marie Finger, Emilie Hausberg, Marie Baumann, Captain Christy, Etienne Levet, Abel Carrière, Mme. Hippolyte Jamain, Mrs. Baker, Baroness Rothschild, Alfred Colomb, Duc de Rohan, and Mons. E. Y. Teas.

In the classes for twelve and six the prizes were awarded to Mr. Laws, Newcastle-on-Tyne; Mr. E. Mawley, Croydon, Mr. Finlay, and Mr. Michel.

There was a good competition for the prizes for nine teas or noisettes, and the first prize was awarded to Mr. Mawley for fine blooms of Jean Ducher, Madame Bravy, Anna Olivier, Marie Van Houtte, Souv. d'un Ami, Innocente Pirola, President, Comtesse de Nadaillac, and Mons. Furtado; Mr. Hall second; Mr. Grant and Mr. Cuthell, Dorking, equal third; and Mr. Hawtry, Slough, was awarded an extra.

OPEN DIVISION.—In competition for the prizes for twelve trusses of any dark hybrid perpetual Messrs. Paul and Son were first with a grand stand of Alfred K. Williams, Mr. Prince and Mr. Cant were second and third with Alfred Colomb. For twelve trusses of any light hybrid perpetual Mr. Cant was first with superb blooms of La Duchesse de Morny, Messrs. Cranston and Son second with Captain Christy, and Messrs. Mack and Son third with Elie Morel. In the class for twelve trusses of any tea or noisette Mr. Cant occupied the first place with grand blooms of Souv. d'Elise Vardon; Mr. Prince the second with Madame Lambert, and Messrs. Paul and Son the third with Niphetos.

The weather was in every way favourable, and the society may be congratulated on having fine weather at each of its exhibitions of the current season.

NATIONAL FLORAL EXHIBITION AT ROTHESAY.

An exhibition of roses, pansies, pinks, &c., was held in the New Public Halls, on the 14th and 15th inst., and the blooms shown were of excellent merit, all the prizes being keenly contested by leading growers of above flowers. Undenoted are particulars of the principal prizes.

ROSES.—Best twenty-four blooms, gold medal to H. Dickson, Belmont Nursery, Belfast, who had grand blooms of the following: Duchess of Bedford, La France, Mme. C. Wood, Jules Finger, Countess of Rosebery, Pride of Waltham, Mme. Verdier, Duke of Edinburgh, Lady Sheffield, A. K. Williams, Alfred Colomb, Horace Vernet, Augusta Buchner, Marguerite de St.-Amand, Rosieriste Jacobs, Brightness of Cheshunt, Baroness Rothschild, Mrs. H. Turner, Captain Christy, Mons. E. Y. Teas, Mrs. Jowitt, Duke of Teck, Mme. M. Verdier, and Comtesse de Camonoda. Second, Thomas Smith, Stranraer; conspicuous blooms were, La France, Captain Christy, Marquis of Salisbury, Marquise de Castellane, Harrison Weir, A. Colomb, Baroness Rothschild, C. Lefebvre, Duchess of Bedford, Mme. Montet, Mme. J. Periere, and Camille Bernardin.

Best twelve blooms, silver medal to Wm. Parlange, Row, including fine flowers of La France, Maréchal Niel, Général Jacqueminot, Baroness Rothschild, Jean Liabaud, Sénateur Vaisse, Horace Vernet, Mdle. E. Verdier; second, Mr. McIntyre, Jun., Blaimore; third, J. Millar, Cardross.

PANSIES.—Best twenty-four show and twenty-four fancy blooms, gold medal to Wm. Paul and Son, Crossflat Nurseries, Paisley, with magnificent flowers of—Shows: Peter Lyle (seedling), A. Watt, J. P. Barbour, W. L. Thomson, dark self; Mrs. Galloway, white self; R. Pollock, Dr. Livingstone, Wm. Robin, Bailie Cochran, D. Dalglish, A. Cameron, Robt. Williamson, yellow grounds; Mrs. Muir, Jeannie Grieve, Miss Meikle, Miss Baird, Jeannie Johnstone, white ground, and seven unnamed seedlings. Fancies: James Lillie, Mrs. Scott Plummer, Mrs. Birkmyre, W. McIntosh, J. A. Martin, Thalia, A. Stephen, Jessie Budd, Sir P. K. Murray, Adonis, E. Caird, L. V. Heathcote, Catherine Agnes, Mrs. Russell, Robt. Cowan, Mrs. W. O. M. Cornick, Mrs. J. Watt, Mrs. Robinson, and six unnamed seedlings. Second, J. Sutherland, Victoria Nursery, Lenzie, whose lot contained good blooms of—Shows, Rev. J. Morrison, Mrs. Cadzow, M. Pollock, W. Robin, Mauve Queen, R. Burns, Mrs. Arthur, Jessie Foote, Golden Circle, Mrs. Dobbie; Fancies, Catherine Agnes, Mrs. Jamieson, Livadia, Mrs. J. Stewart, Countess of Home, R. Goodwin, Duchess of Edinburgh, W. Cuthbertson, Mrs. Findlay, Earl Beaconsfield, Mrs. Taylor, L. V. Heathcote. Third, W. Dickson, Ladyburn Nursery, Paisley, who had a very nice collection.

Best twelve show and twelve fancy blooms, silver medal to Wm. Storrer, Lenzie, with fine flowers of A. Watt, Marquis of Lorne, J. P. Barbour, the Rev. J. Morrison, W. Robin, Lizzie Balloch, Dr. G. Robertson, Mrs. Cadzow, Mrs. Dobbie, W. Crockett, Mrs. Arthur, Mrs. Ritchie, shows; James Grieve, Mrs. Forrester, Mrs. Barrie, Angus McLeod, Luck's All, Mrs. E. H. Wood, Wm. Storrer, Bob Montgomery, Mrs. Ogilvie, Mrs. Main, Catherine Agnes, and W. Dickson, fancies. Second, R. Millar, Paisley; third, A. Irvine, Tighnabruich.

PINKS.—Best twelve blooms, silver medal to Wm. Paul and Son, Paisley, with large well-grown flowers of Wm. Paul, Modesty, Egeria, Adela, Wm. Watson, Wm. Bruce, Vanessa, Oimara, Dr. Masters, Mary Auberton, Lady Golightly, and Ada Louise; second, W. Dickson, Paisley; third, John Love, Rothesay.

The principal prizetakers in other classes are J. McKenzie and R. Stewart, Lenzie; John Stewart, Campsie; C. H. Johnstone, Barrhead; Thomas McCrorie, Kilbarhan; D. Wallace, J. Kidd, and D. Grant, Rothesay; J. Douglas and J. Wilson, Largo; J. Constable, Paisley; G. L. Hunter, Row.

Mr. Dickson, Belfast, and Mr. Smith, Stranraer, exhibited several stands of superb roses; Dobbie and Co., Rothesay, a collection of show and fancy pansies, phloxes, &c.

MIXED FLOWER BORDERS.—Why should London suburban flower gardens be nine or ten months of the year without flowers? The answer to this question will be found in the use of the "mixed border," with which, for beauty and real interest, no bed or border of bedding plants can compare. No doubt beds and borders of bedding plants, when tastefully arranged, look very well, and are quite gay, of course, while they last. But there is such a sameness about them—the same to-day as yesterday—that one gets tired of the sight, and, short as their season of glory is, feels generally more relieved than otherwise when it comes to a close. It is not so, however, with a "mixed border," for with a good collection of herbaceous and other plants and bulbs properly arranged, it may be truly said of it that it is "ever changing, ever new," and indeed is, to a real horticulturist and lover of flowers and plants, "a thing of beauty and a joy for ever" all the year round, from January 1 to December 31. The finest examples of "mixed borders" on a large scale that we have seen are two parallel ones at Adon Mount, Lordship Lane, Dulwich, the residence of Mr. James Henderson, the proprietor of this paper. They are about 400 feet long, with a gradual easy incline from end to end, which very much enhances its picturesqueness, especially when seen from either end. They form a ten-feet wide bank on each side of a beautiful and finely-kept green sward, and have a background of evergreens, rhododendrons, and other flowering shrubs, followed by choice trees and tall-growing shrubs of endless variety. At present the borders are in one blaze of bloom of violas, pansies, calceolarias, geraniums, pinks, sweet williams, carnations, potentillas, gailardias, double pyrethrums, pentstemons, antirrhinums, roses (very fine), irises, mimulus, campanulas, phloxes, delphiniums, marigolds, stocks, lilies, peonies, gladioli, poppies, spireas, and many more herbaceous and other plants, all intermingled with hardy and half-hardy annuals and biennials. Not the least conspicuous among them, in the background, are hundreds of the new spotted gloxinia-flowered foxgloves, with their grand spikes two to three feet long. Sloping edgings of sedum acre (stonecrop) about a foot wide, in one mass of bloom, like strips of gold, extending from end to end, complete the general charming effect. Altogether it is a sight well worth going a long journey to see; and any of our readers or their friends who may desire to visit the place may rest assured of being made welcome by Mr. Henderson. They will there have an opportunity of seeing what is really meant by a "mixed border," and in its perfection. The visitor may expect to meet with other pleasant surprises in various forms in the beautiful grounds, and we may add that the view from the house or garden of the surrounding country to the south, the west, and to the east, with a bird's-eye survey of the whole metropolis, is of itself a sight not equalled, we believe, by any about London.—*South London Press.*

PLANT LABELS.

NOTES ON THE COMPETITION FOR THE SOCIETY OF ARTS' MEDAL AND THE MONEY PRIZE OF G. F. WILSON, ESQ., F.R.S.

THERE is a certain degree of satisfaction in the fact that this competition is brought to a close by a formal award, and this irrespective of the relative merits of the labels submitted. It did for some time appear but too likely that the end of the story would be as vague as that of the Royal Agricultural Society's competition of essays on the potato disease. But that calamity is averted, with the result that public attention will be directed to a particular kind of label, and it is not unlikely that improvement will follow of the plan that for the present is pronounced the best. It is not our intention now to discourse on this subject in any general way. We have indeed some observations to offer, but it will be polite certainly, and politic probably, to defer any critical disquisition until the report on the subject that the Society of Arts intend to make public has obtained some amount of consideration.

MR. ALMENT'S LABEL.

The prize is awarded to Mr. E. J. Alment, of 124, Romford Road, Stratford, near London, for a form of label which will probably meet with general approbation in well-kept private gardens, but is perhaps not so well adapted for public gardens. It is shown in figures 1 and 2. It consists of wood for the inscription and galvanized wire supports. There are no joints, nails, or rivets. The wires are driven into the wood, and then bent over to any position required. The wood is rendered impervious to rain by a preparation, the nature of which is not stated, and the inscription is written with a specially-prepared black pencil. A variation consists in making the wood black and writing upon it with a prepared white pencil. And a third variation consists in plating the wood with zinc, which is simply bent over the edges of the wood, and so made to clasp it, and then writing on the zinc with prepared platinum ink. There is much ingenuity in these labels, but they will always require careful handling, and in order to produce them certain preparations are required that are not everywhere obtainable.

MR. LANG'S LABEL.

This being specially commended, is entitled to special mention. It is shown in figure 5. It consists of a wood tablet attached to a wire by dipping in paint before insertion. The wire terminates in a ring, to prevent its being turned by an accidental touch. The wood tablet is coloured with chrome-yellow, and written upon with black-lead or indelible pencil. This, like the last, appears better fitted for a well-kept private garden than for the public garden or nursery ground.

MR. MACDONALD'S LABEL.

This is commended, and we think deservedly, although it is somewhat of a fancy article. It is shown in figures 3 and 4. A wooden tablet is attached to an iron support, which is bent so as to form a spring, which holds it firmly, yet allows of its being easily withdrawn. The inscription is made with indelible pencil.

MR. FRASER'S LABEL.

We quite approve of the commendation of this label, although it is the best known and most used of all in well-kept gardens, for which it is better adapted than for public gardens or nurseries. It is the old-fashioned and ever-useful strip of zinc, written upon with bichloride of platinum. It would be well if amateurs who desire to keep their plants legibly labelled would practise the preparation of these labels.

The first lot of samples was handed over to the keeping of the Royal Horticultural Society. We have looked over them, and prepared diagrams

of a few, and these we have lettered to distinguish them from the foregoing. We will offer a few notes upon them in the order of the letters.

When inspecting them, we made note of the names of the exhibitors when they were evident, but in cases where they still remained under seal we made note of the mottoes only, for, having no official duties in relation to them, we could not with propriety learn more than was openly offered in the samples and the descriptions of them by the competitors.

Fig. A, from "Veritas Vincit," consists of a flat glass tube, fitted to a standard by means of wires, or hung from the hole which for that purpose is pierced at one end of the tube. The inscription is written or printed on paper, and this is inserted in the tube. In a general way, glass is objectionable because of its fragility, but it must not be condemned now and for ever, because we have heard of "toughened" glass, and the day may come when we shall believe in it.

Fig. B, "I am Ready." A metal standard and frame of zinc with clips, which bend back to allow removal or renewal of label, which is covered with glass held firmly by the clips.

Fig. C, from Mr. James Bashford, Garden Cottage, High Lawn, Bowdon, Cheshire; motto, "Durable." This is a capital label, and one already much in use. Strips of sheet lead of any size or shape are stamped with types and suspended with wires or nailed to walls. Some of the samples shown have been in use twenty years and are as good as new. The cost of labels measuring one inch by two inches, the lead being sufficiently stout, is stated to be 1s. per dozen, or 8s. per hundred.

Fig. D, the "Lunefield Label," from Mr. E. Burton, gardener, of Lunefield, Kirkby-Lonsdale. A metal frame, holding written or printed label covered with glass, over which is fixed a weather cap. Some are made of wood.

Fig. E, from Mr. Hodgson, 104, Swamp, Queensbury, Bradford. A standard and frame of zinc, the inscription written on the zinc and covered with a glass slide. The protection afforded is said to be so complete that common ink may be employed for writing the inscription, as not only does it remain unimpaired, but as the zinc face becomes oxidized the writing becomes the more conspicuous.

Fig. F is an example of a very simple and effectual way of employing cheap glass phials in this business. The paper label is slipped into the phial and a cork is inserted, and a standard of wire is attached to the cork by simply giving it one twist round. We cannot recommend such a thing, because of its exceeding fragility, and yet we could not pass it by because of its ingenuity. In many gardens and plant houses such a simple contrivance would be as safe as steel, brass, or stone; but, for all that, it is a "perishable" article.

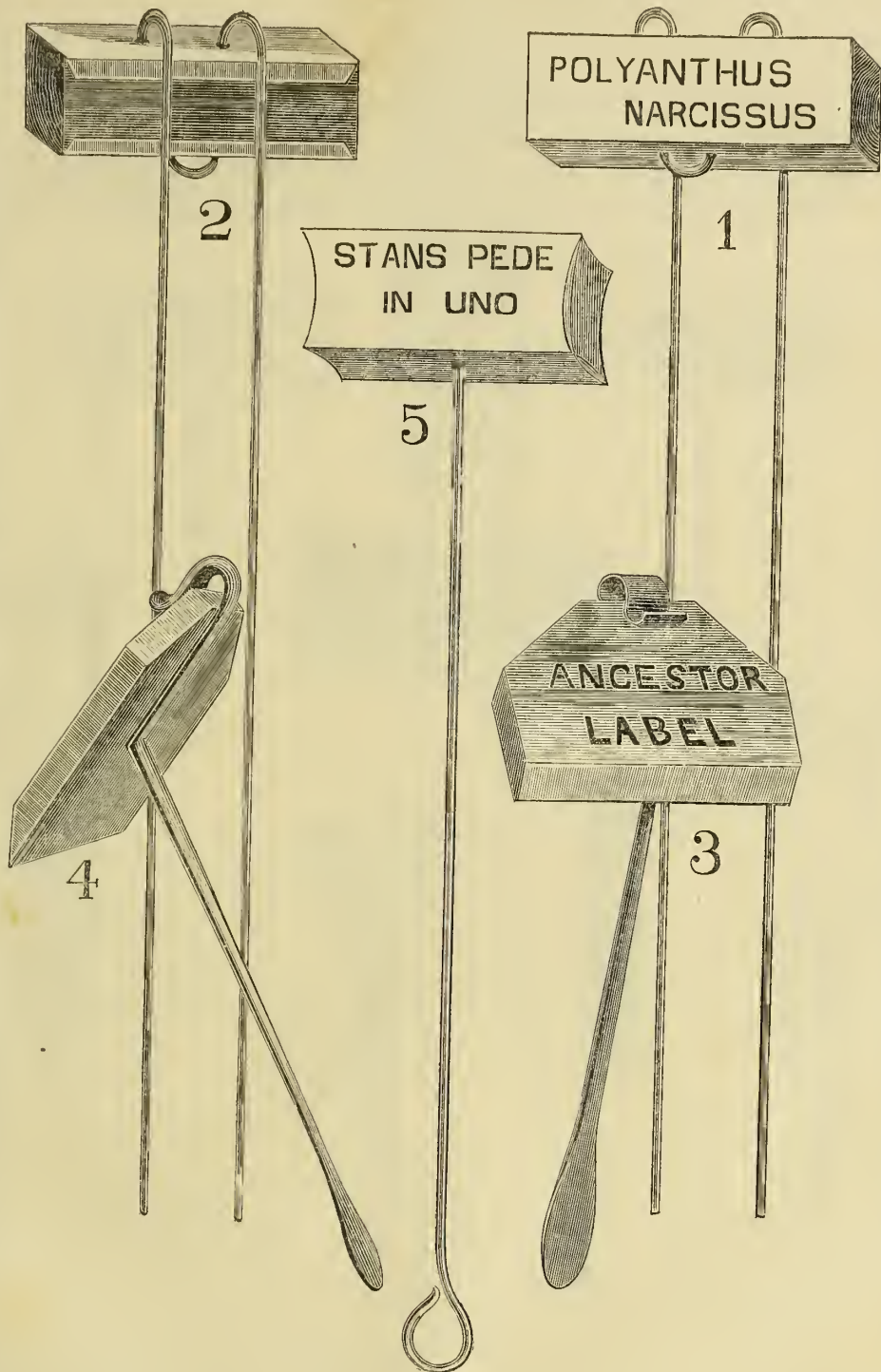
Fig. G, from Rev. H. Ewbank, is a neat affair. It consists of cast iron all in one piece, including weather cap. This cap forms a groove above, and there is a corresponding very shallow groove below.

A paper label being fitted, a slip of glass is passed in under the weather cap, and the result is a very good plant label.

THE COPAL LABEL.

The main feature of the copal label is the employment of copal varnish to give the surface the texture of glass, and to render the inscription, if otherwise properly prepared, practically imperishable. The labels exhibited consist of printed paper slips fixed by means of the varnish on a surface of painted iron, and finally washed with the varnish. When paper is employed it should be sized before fixing it on the standards, and varnish of the very best quality should be employed.

This mode of labelling is of universal application, and may be varied as to detail indefinitely, provided the governing principle is kept in view. Necessarily, non-absorbent materials are to be preferred, and hence in the



preparation of these samples iron has been selected because impervious to moisture, and at once cheap and durable. But wood answers admirably if well seasoned and thoroughly dry, for the varnish excludes moisture and presents a surface so smooth that atmospheric impurities can scarcely, even in a series of years, and in a town locality, obtain any serious lodgment. Moreover, the glassy surface can be renewed at a quite trivial expense, and while intact may be washed with soap and water without the least fear of injury.

The exhibitor, Mr. Shirley Hibberd, reports that he has tried many forms of labels, and has found none so cheap or so lasting as those carefully finished with copal.

Literature.

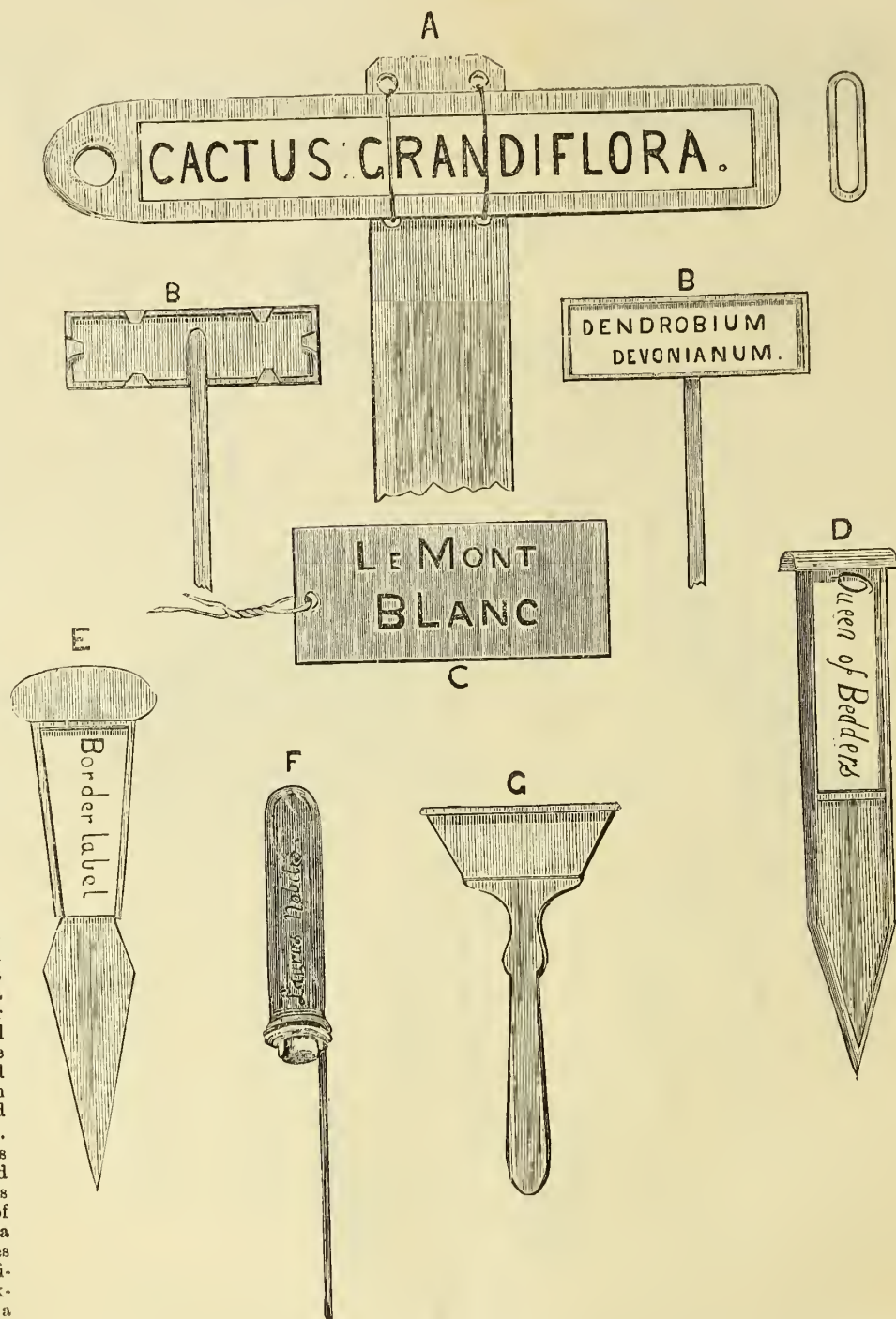
The Orchid Album. By ROBERT WARNER, B. S. WILLIAMS, and THOMAS MOORE. Vol. I. (Victoria Nurseries, Upper Holloway.)—When three great guns concentrate their fire on an orchid house, one may speculate on a rise in the value of glass, and perhaps also of the orchids. An augmented demand for these mysterious and fascinating vegetables must be a direct result of such labours as the three friends named above have incurred in the production of the "Orchid Album." It is a handsome quarto, consisting of about equal quantities of text and pictures, and it is in album style all through, the high falutin of the technical orchidophilist being avoided, and a careful medium course being adopted to combine science with entertainment. The orchids figured in colour are described briefly, and references to figures and descriptions in works of authority are given. In every case the cultivation is treated in detail, so that the peculiar requirements of the several species are set out with unmistakable plainness and decision. The result is that, wherever we turn to look after an orchid that is likely to be worth growing, we find its portrait, life-size, in glowing colour, and a capital summary of all that need be said about it for the satisfaction of the connoisseur and the cultivator who can be satisfied with sufficient to give zest to enjoyment and safety to practice. In such a work, although the literary part should be well done, as in this case it is, the pictures constitute the main feature. The figures here are from the accomplished pencil of Mr. John Nugent Fitch, a fact that brings a fourth gun into the field for a grand uproar in the general salute. In this first volume forty-seven species and varieties are figured with admirable accuracy and delightful artistic taste. Where the subject requires it, a double plate is devoted to the representation; thus the Williams variety of *Lælia purpurata* covers a sheet measuring 19 inches by 12½ inches. Many difficulties will occur in working out the plan of such a work, and here they have had to be encountered and mastered, and the result is as complete a success as we can ever hope for in a work published at the low price charged for this beautiful orchid album.

The Forester; a Practical Treatise on the Planting, Rearing, and General Management of Forest Trees. By JAMES BROWN, LL.D. Fifth edition. (William Blackwood and Sons.)—The present fifth edition of Brown's "Forester" differs from former editions in being of considerably greater bulk and in great part re-written. Dr. Brown has had the assistance of his son, Mr. George E. Brown, who is forester at Cumloden, and has accumulated experiences of a kind suitable to supplement those of his accomplished father. Other aids have been sought in view of rendering this work scientifically accurate as well as comprehensive. The coniferous trees have been revised by the light of Gordon's "Pinetum"; the chapters devoted to the enemies of forests have been collated with Miss Ormerod's "Manual of Injurious Insects," and the direct aid of Dr. D. Brandis, Inspector-General of Forests in India, has been secured to ensure fullness and accuracy in the treatment of forests and forestry in India. Although somewhat diffuse in style, and re-

quiring 900 pages for expounding and illustrating the principles and practice of forestry, Dr. Brown's work is nevertheless compact, business-like, direct in its purpose, and agreeable, lucid, and candid in expression from the first page to the last. It is of necessity largely occupied with the aspects and prospects of forestry in Great Britain, and does for the most part regard the subject from the commercial point of view. Nevertheless, forestry at large, as one of the universal arts, and as everywhere practised, or needing to be practised, is herein liberally treated. There is not a question that can arise in respect of preparing land, selecting trees, planting, pruning, or propagating, but is here the subject of enlightened treatment, and the copious index guides us quickly to whatever we are searching for in all the domains of forestry. It is evident that some recent proposals on the subject of pruning have obtained the serious attention of the author, and we rejoice to see that the blundering system of pruning that has held so long in the woodland, as well as in the fruit garden, obtains no favour, the author boldly recognizing the necessity of working *with* instead of *against* nature in all our endeavours to obtain remunerative results from the planting of trees and the general management of all arboreal vegetation. At page 559 the author describes the disastrous consequences of the reckless pruning that finds favour with many foresters and orchardists, and he quotes the wise words of Dr. Lindley, who said, "Prune not at all, should be the maxim of the forester. Plant thickly, thin constantly, stop carefully, and leave the rest to nature. But, unfortunately, it does not happen that he who plants well always thins constantly; it is still more rare that stopping is thought of; and so a maxim, one of the soundest in the whole system of forestry, cannot be observed. Hence pruning may be regarded as a necessary evil, to which the wise must submit because of the ignorant; the careful, to cure the evils inflicted by the careless."

AUSTRALIAN BIG TREES.—The Minneapolis *Lumberman* has an article on the gigantic trees of Australia, of which the following is an extract: "The trackless forests in the west of Tasmania contain huge timber, and bushmen report that they have met with specimens of eucalyptus measuring 200 feet from the ground to the first branch, and fully 350 feet in all. Until 1873 there was standing on the eastern slope of Mount Wellington, within four miles of Hobart Town, a eucalyptus measured at 86 feet in girth and more than 300 feet in height, and its ruined boll still forms a grim chamber in which many a merry party have enjoyed a picnic. The famous tree of the Huon forest measures 70 feet in girth six feet from the ground, and is stated to be 240 feet high, but in the deep gorges of this grand forest the writer has seen higher trees than this, though not of quite equal circumference. But Victoria now claims the glory of holding the biggest of all the living 'big trees' in the world, so far as height is concerned. In the Dandenong district at Fernshaw has recently been discovered a specimen of *Eucalyptus amygdalina*, or almond-leaf gum, which has been accurately measured as reaching the enormous height of 380 feet before throwing out a single branch, and 430 feet to the top, and having a girth of 60 feet at some distance above the ground. Some idea of what a height of 430 feet represents may be gained from the fact that this gum tree, if growing by the side of the Houses of Parliament at Westminster, would overtop the clock tower by exactly 100 feet."

THE SOCIETY OF ARTS PLANT LABEL COMPETITION has come to a close at last. The prize offered by Mr. G. F. Wilson, F.R.S., is awarded to Mr. E. J. Alment, 124, Romford Street, Stratford. The committee have commended three other labels, namely, those sent in by Mr. George Lang, gardener at Newton Abbott; Mr. J. Macdonald, Angeston Gardens, Dursley, and Mr. P. Neill Fraser, Rockville, Murrayfield, Edinburgh.



D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sets.	after Noon.	Rises.	Sets.	London Bridge.	Liverpool Dock.	Morn.	After.			
1882	M	8th Sunday after Trinity.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.	Buphtaloum grandiflorum, H. ... Yellow.	1882
30	M	[30 O Full Moon, 2h. 2m. after.	4 23	6 11	7 49	7 24	4 14	1 15	1 49	10 40	11 5	63.3	Campanula carpatia, H. Blue.	211
31	M	AUGUST.	4 24	6 8	7 47	7 54	5 37	2 5	2 55	11 30	11 50	63.3		212
1	Tu	Lammas Day.	4 25	6 5	7 46	8 19	7 1	2 50	3 10	—	0 15	63.2	Dipladenia unguis, S. Rose pink.	213
2	W	Battle of Sedan, 1870.	4 26	6 1	7 44	8 44	8 25	3 35	3 55	0 35	1 0	63.2	Dendrobium form. grandif. S. White & Yellow	214
3	Th	Bank of England founded, 1732.	4 28	5 56	7 42	9 10	9 45	4 20	4 40	1 20	1 45	63.2	Erica Candolleana, G. Rose red.	215
4	F	Length of Night, 8h. 49m.	4 30	5 51	7 41	9 37	11 7	5 5	5 25	2 5	2 30	63.2	Lapageria alba, G. White.	216
5	S	Lord Howe died, 1799.	4 31	5 45	7 40	10 9	After.	5 50	6 10	2 50	3 15	63.1	Statice profusa, G. Blue.	217

The Gardeners' Magazine.

SATURDAY, JULY 29, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

WEDNESDAY, AUGUST 2.—ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—Second Summer Exhibition.

WEDNESDAY, AUGUST 2.—WESTON-SUPER-MARE HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, AUGUST 3, TO TUESDAY, AUGUST 8 (EXCEPT THE 6TH).—BRITISH BEE KEEPERS' ASSOCIATION.—Exhibition in the Gardens of the R.H.S., South Kensington.

SATURDAY, AUGUST 5.—ALEXANDRA PALACE.—National Gooseberry Exhibition.

SATURDAY, AUGUST 5, AND MONDAY, AUGUST 7.—LIVERPOOL HORTICULTURAL ASSOCIATION.—Summer Exhibition.

SATURDAY, AUGUST 5, AND MONDAY, AUGUST 7.—SOUTHAMPTON HORTICULTURAL SOCIETY.—Summer Exhibition.

THE EXHIBITION OF HORTICULTURAL IMPLEMENTS AND APPLIANCES AT THE AGRICULTURAL HALL is the first of its kind, but whether it will be the last remains to be seen. It is sufficient for the present to note that the available spaces have been so completely swallowed up that the managers have been unable to add a few touches of elegance that were included in their original plan, to give an æsthetic bloom to a bed of utilities. There is only one prevailing persuasion for the exhibitors, and it is that in the Agricultural Hall they may chance to meet with an appreciative public, for an appreciative public will make a trade, no matter whether the goods at command are mowing machines or flat irons. And this persuasion suffices for the present, whatever it may do in the future. Hitherto it has been necessary to coax exhibitors, to offer them prizes, and to supplement their endeavours by means of flower shows, music, fireworks, and the like. At the Agricultural Hall none of these agencies are needed, and it is just possible that the success of the endeavour is attributable, in part at least, to the fact that no prizes are offered, and that consequently there is no judging by experts officially appointed. We have no complaint to make of the experts, for in truth we have the misfortune to be of their number, and it has been our unhappy lot to judge many exhibitions of horticultural implements and appliances. We have done the best in our power of course, as (also of course) have our colleagues; but, whatever our colleagues may have thought, we, at least, have been in every instance troubled by a consciousness of the partiality of our proceedings.

"The partiality of our proceedings." Yes; we mean exactly what we say. In intention as in act, respectable judges are always impartial; and on the question of personal purity we have nothing to say. *Honi soit*, &c. But the scheme of an implement show in which prizes are to be awarded compels partiality in this way—the judges are free to distribute prizes at discretion, but when the prizes are gone a certain number—perhaps a considerable number—of good things are left out in the cold. That is where the partiality appears; not in what is elected, but in what is rejected: for as certain

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as "Rejected Addresses" are amongst the wittiest words the world has seen, so amongst rejected articles, in the way of boilers, mowers, clippers, pruners, and the like, there may be, and often are, things deserving of a better fate in a competitive exhibition than to be passed by as of no account whatever. Let us have a competition in dishes of fish, and we will appoint five judges, and will place on the table a dish of salmon and a dish of turbot. We all know what will happen. Three will vote for the salmon and two for the turbot, and the salmon will carry off the prize. The award carries with it a kind of implied censure on the turbot, and yet the five judges would, if appealed to, be unanimous in deciding that the turbot is a fine fish, and its abolition would be a calamity of immeasurable magnitude. Let us alter the case. We will offer one medal for the best boiler, and we will again have five judges, and will place before them a first-class upright tubular and a first-class saddle. Once more we know which way the vote will go. There will be three votes for the tubular and two for the saddle, and it would be about the same if the competition were between a haunch of venison and a saddle of mutton. In a severe contest wherein points are counted, upright tubular boilers are likely to carry all before them; nevertheless, the world at large has much faith in saddle-shaped boilers as economical and long-lasting, and therefore in this department the award of a prize does not settle all possible questions.

To the casual reader it may appear that we object to prizes *in toto*. It is with gladness we haste to confess that we hold to the teachings of history and the experience of the world in respect of the propriety—we will say the necessity—of rewarding merit in any way that may appear most suitable to the kind of merit that claims attention. In some cases there is nothing so proper as money, and in some cases money would be a despicable offering. The question, therefore, at this juncture is not as to prizes in general, but as to prizes in particular for implements and appliances available in the practice of horticulture. If we invite a competition in one particular class of plants in one particular size of pot, and state the number of plants to be shown, we may call in the experts and award prizes without fear of doing injustice to anybody. But when a prize is offered for the best boiler, or best mowing machine, or best plant house, there is a difficulty in awarding the prize, and all who are passed by suffer injustice in some degree by the mere fact of their exclusion. Those who are startled by the declaration will come round to our view when they have considered the matter, for they will see that however experienced and acute the judges may be, they cannot possibly gauge with accuracy the breadth and depth of every invention. After all, the knowledge of the ablest man is a limited quantity, and he cannot bring to bear all at once in concentrated form what little knowledge he possesses when he takes in hand a mechanical invention which only slightly differs from fifty other inventions designed for the same purpose, and likely to equal or surpass the one he is inclined to favour.

But this question has two sides, and if none of our friends agree with us we must be content to wait and hope for final appreciation. It is now evident that the offer of prizes is not absolutely necessary for the establishment of an exhibition of horticultural implements. The immense area of the Agricultural Hall is occupied with the largest exhibition of the kind ever seen, and the public are the sole judges of the relative merits of the several articles. And perhaps the public are the best judges, for a competition on unequal terms opens the door for all sorts of prejudices, and so long as it is needful to select judges from amongst fallible men we suspect they would rather be out of such a game than in it.

THE LIABILITY OF SEEDSMEN in respect of seeds supplied by them is not often brought to the test of a judicial decision. Of complaints there are many; at certain times and seasons the air is thick with them, more especially, as might be expected, when Nature has warred against the seeds in the first instance, and the grower of the plants in the second. The reason we so rarely meet with a case in a law court is that all parties to a possible suit are impressed with the difficulty of fixing responsibility for loss, as also of persuading a jury to take a proper view of the facts which are to be the basis for their decision. For example, two plants may be submitted—one absolutely worthless, the other of considerable value—and neither

judge nor jury may be able to perceive any great difference between them. However, when a case occurs we must make note of it, and we now direct attention to one of an instructive nature, reference to which has been unavoidably delayed in consequence of the pressure upon our space of reports of exhibitions.

Mr. Reeves, of Acton, a well-known market florist, has grown for several years a variety of mignonette named *Pyramidalis grandiflora*, the seed of which he has obtained from Messrs. Vilmorin, Andrieux, and Co., of Paris. In April, 1877, he ordered five pounds of this seed, which, being sown and cultivated in the usual way, produced plants that filled the space of 136 lights, containing one hundred pots under each light. It needs not to be explained that the production of the 13,600 pots entailed considerable charges for rent, labour, and so forth, but it is proper to state that, according to the evidence, the usual skill and care were bestowed upon them, and, so far as appears, Mr. Reeves had done justice to the seed supplied by Messrs. Vilmorin. The plants were a bad lot: they lacked the characters pertaining to the true *Pyramidalis grandiflora*, and they could not be sold at a reasonable profit. Mr. Reeves said he could grow them at 4s. per dozen (three in a pot) and sell them at 6s. per dozen, and the resultant profit was sufficient for a sound trade. But these he could not sell. They were worthless, and he not only refused to pay for the seed, but made a claim on Messrs. Vilmorin on account of the loss he had sustained.

Thereupon a correspondence ensued, which, as may be expected was not of a satisfactory nature. Mr. Reeves went to Paris and saw the representatives of Messrs. Vilmorin. On their part it was urged that the purchase was subject to French law, and that a claim for compensation could not be sustained. Mr. Reeves, being averse to law proceedings, proposed that the case should be submitted to three persons in the trade to be decided by arbitration, but this was declined. Messrs. Vilmorin subsequently sued Mr. Reeves for the amount due for the seed, and Mr. Reeves made a counter claim for £300 on account of the loss he had sustained in growing an inferior article. The case was heard in the Guildhall, before Mr. Justice Day and a common jury, and was considered with care and at considerable length.

An interesting question arose as to the possible deterioration of the seed through the tendency of the variety to "revert" to the original wild form. Mr. Reeves said, "It is not within my experience that seed of this kind reverts to the original form after a certain number of years." Mr. J. Posth, on behalf of Messrs. Vilmorin, said that time does tell upon the quality of seeds by reason of the tendency of varieties to run back to their specific characters, and this had doubtless happened with the mignonette seed in question, and for this, therefore, the firm were not liable. Moreover, according to French law, they were not liable, and as regards the seed sold to Mr. Reeves all proper care had been taken in its production, as regards selecting, roguing, and whatever else was needful to maintain its character.

The Judge said there was not much difficulty as regards the facts, and the only question of importance was the counter claim of the defendant against the plaintiffs in respect of his loss of market. The plant raised was not such as either party would have expected from the seed. It was possible it had by some mistake been taken from the wrong drawer; and in any case there appeared to be wanting, on the part of the plaintiffs, some explanation. The question of the possible degeneracy of seeds after a certain number of years they could not entertain; it was a subject of dispute, both as to the general and the particular case. Was the seed supplied the kind that had been ordered, and was the grower of the plants alone to blame for the result? When a man bargains for a particular thing, he has a right to have that particular thing, subject to the ordinary incidents of the commodity itself. If a man orders of a merchant wheat and is supplied with oats, the bargain is broken and he may have a claim for damages, and in like manner, if a certain kind of mignonette is bargained for and another sort supplied, the purchaser has a claim against the vendor in respect of any injury he may sustain.

The jury came to a conclusion very shortly after hearing the Judge's charge, giving a verdict for the defendant, whose damages they assessed at £75. It is not for us to guess at their reasons for reducing Mr. Reeves's claim to one-fourth of the amount stated. But it is important to note that the claim was recognized and that the case will probably be of some value for future reference. Within the past few years we have heard of several instances in which mignonette seed has disappointed market growers, but we do not know that it is more difficult to produce a good sample of any of the varieties of this plant than of many others that are grown from seed. One thing is certain, that those who grow largely for the market are peculiarly circumstanced in regard to the qualities of their seeds, and will always need the best possible guarantees of the integrity of samples.

THE HORTICULTURAL EXHIBITION IN THE AGRICULTURAL HALL will terminate on Saturday next, August 5.

THE MEETING OF THE BRITISH ASSOCIATION at Southampton will commence on Wednesday, August 23.

SHAFESBURY PARK (CLAPHAM) Flower Show will be held in the Board schools on Saturday, August 19.

THE BRITISH ASSOCIATION will hold its next annual meeting at Southampton, commencing Wednesday, August 23.

THE EAST LONDON FLORICULTURAL SOCIETY will hold its summer exhibition on Monday, August 14, and two following days.

SURREY FLORICULTURAL SOCIETY will hold its annual exhibition at Brixton on Wednesday next.

DEVIZES FLOWER SHOW will be held in Roundaway Park on August 7.

GREEN PEAS.—On the 14th inst. 650 tons of peas were brought to London by the Great Eastern Railway Company.

ALEXANDRA PALACE GOOSEBERRY SHOW will be held on Saturday next, August 5, and the exhibition of Gladioli and Table Decorations on Saturday August 12.

MR. THOMAS, sometime gardener at Drayton Manor, Tamworth, has taken charge of the gardens of Impney Hall, Droitwich, the residence of J. Corbett, Esq., M.P.

YORK FLOWER SHOW AND GALA in June last was a great financial as well as a decided horticultural success. From the balance-sheet just issued we learn that the sum of £1,406 14s. 8d. was taken at the gates, and that a sum of £376 17s. 5d. was derived from other sources.

AN ETHNOLOGICAL MUSEUM is now, the *London Medical Record* says, thoroughly organized at the Trocadéro in Paris. It possesses 44,000 ethnological specimens, of which 14,000 are classed. The classification is being made under the superintendence of Drs. Hamy and Gaudren, and will soon be completed.

THE MEETING OF THE ROYAL ARCHÆOLOGICAL INSTITUTE at Carlisle will commence on Tuesday next, August 1, and be continued to Tuesday, August 8. The excursions will include Lazonby, Brougham Castle, Lowther Castle, Lanercost, Hexham, Northumberland Lakes, and Melrose Abbey. Carlisle Cathedral will, of course, obtain special attention.

THE HARVEST IN SCOTLAND.—Notwithstanding the heavy rainfall this month, an abundant harvest is expected in all parts of Scotland. The corn crops require only a few weeks to reach maturity, and it is believed that all cereals will be above the average of recent years, whilst the straw is longer and stronger than usual. No potato disease has yet been reported, and the turnip crop promises to be superior to that of last year.

THE AMERICAN APPLE CROP is reported by Messrs. J. W. Draper and Co., of Covent Garden, to be very heavy this season. The firm also reports that in England the crop is comparatively a failure; in France a poor half-crop is calculated upon; in Germany one-third crop only; in Holland only half a crop, and in Belgium not half a crop. Thus the prospects were never more favourable for shipment from America to England than they are this year.

EPING FOREST ARBITRATION.—Sir A. Hobhouse, the arbitrator, on Monday held his final sitting in this long public litigation, at 6, Old Palace Yard. One or two claims were put in, but the arbitrator declined to alter the map, explaining that the draft had been finally settled. Sir T. Nelson, the City Solicitor, gave a brief history of the agitation for freeing the forest, and showed that the total cost to the Corporation had been £256,275.

GERMAN BOTANICAL SOCIETY.—It is proposed, *Nature* says, to establish a "German Botanical Society" for the whole of the "Vaterland," founded on, and an extension of, the already existing "Botanical Society for the Province of Brandenburg." A conference for the purpose of founding the new society is summoned to meet at Eisenbach on September 16, the conveners including many of the most distinguished botanists from all parts of Germany.

"ENCYCLOPÆDIA BRITANNICA."—The fourteenth volume, just published, carries the work from "Kashmir" to "Longinus." In this portion of the alphabet there are not many subjects of horticultural or botanical interest. The following, however, appear of sufficient importance to be noted:—Larch, by C. Pierpoint Johnson; Lemon, by E. M. Holmes; Lichens, by Rev. J. M. Crombie; Liebig, by Prof. A. Crum Brown; Linnæus, by B. D. Jackson; Liverworts, by Dr. B. Carrington.

THE NOVELTIES brought before the Floral Committee on Tuesday last comprised a few very interesting subjects. Messrs. Veitch and Sons presented *Lilium gloriosoides*, in the way of *L. speciosum*, the segments clear paper-white, heavily blotched with vermilion-red. The rare *Lilium Leichtlini* was shown, and belied all published figures of it by its more delicate beauty. Messrs. Veitch also presented *Begonia gogocensis*, with grey-green or olive-tinted peltate leaves and light panicles of smallish white flowers. Mr. Bennett, of Shepperton, put up a handsome plant of *Clianthus Dampieri*, which must not be spoken of as a novelty; but as it was shown in all its natural freshness of colour without training it had a new interest, and was altogether welcome. The Carnation Society's exhibition was the best of its kind hitherto held. Such, at least, was the general opinion. It was with regret we found a stand of show dahlias placed in the midst of some carnations. They appeared out of place and out of season—as grievous a discord as drinking beer with fish.

EPPING FOREST.

THE Arbitrator under the Epping Forest Acts, Sir Arthur Hobhouse, Q.C., K.S.I., signed his final award on Monday, July 24. The award itself is a document of no great length, the work of the arbitration being chiefly embodied in a series of orders made from time to time. But the award refers to a map which is of the greatest importance, inasmuch as it will be, in the future, the title-deed of the public to the noble open space which has been dedicated to them. In it the waste lands of Epping Forest, as ascertained by the careful investigations of recent years, are distinguished by three colours—green representing the lands thrown open and placed under the care of the Corporation, red those which are quieted in title and made absolutely private property, and yellow those which, though quieted in title, are subject to some condition having for its object the public benefit—*e.g.*, that no building shall be erected or, as in the case of the Messrs. Paul's Nurseries—that the public shall have access to the land under suitable regulations. An inspection of the map (one copy of which will henceforth be kept at Guildhall) will show that, notwithstanding the lenient spirit in which owners of encroachments have been treated, the public has lost little by the concessions which have been made.

The sitting was attended by Sir Thomas Nelson, the City Solicitor, on behalf of the Corporation of London, who, in applying to the Arbitrator to sign his final award, made an interesting statement of the results of the arbitration. The Arbitrator has sat just four years and has made over 700 orders. Of the total acreage of the forest ascertained by the Commissioners in 1877—over 6,000 acres—5,531 acres have been purchased by the Corporation and are dedicated to the public, while about 532 acres remain enclosed, partly, as we have said, under conditions preventing building and thus tending to enhance the value of the forest as an open space.

The aggregate purchase money paid for the 5,531 acres, now public property, is £189,012. In addition £21,892 have been spent in extinguishing rights for lopping trees, with a view to prevent the disfigurement of the forest, and the hereditary Lord Warden of the forest has received £300 as compensation for the extinguishment of his not very profitable or laborious office. A sum of £8,000 has been paid by the Corporation to secure the addition to the forest of the woods, ponds, and heronry of old Wanstead Park. Some £2,000 has been spent in printing the notes of proceedings during the arbitration, and, perhaps the most interesting item of all, £33,489 was disbursed by the Corporation in fighting the suit which established the illegality of the enclosures in the forest and in protecting the public interests before the Epping Forest Commission which sat from 1871 to 1877. The grand total of expense thus reached is £256,275. Although this seems a large sum it will be found to represent a cost of less than £50 an acre. Contrasting this figure with the sums paid for some of the other metropolitan commons, we find that while on the one hand Wimbledon Common was preserved for just half the amount, Hampstead Heath cost considerably over £200 an acre, and we believe that in every case where the Metropolitan Board has purchased the soil of any common the expense per acre has far exceeded what is, after all, the very modest sum expended by the Corporation in the case of Epping Forest. Often as the Corporation is reproached with extravagance, no such charge can fairly be made against it in the case of Epping Forest; and London may be congratulated not only upon the possession of a playground of unparalleled beauty and extent, but upon the rare skill and economy with which the purchase has been effected.

—Time.

PLANT LABELS.

REPORT OF THE PLANT LABELS COMMITTEE OF THE SOCIETY OF ARTS.

As was the case last year, a considerable number of labels were exhibited in competition for the medal and prize, some marked by considerable ingenuity, others again showing ignorance of what labels are exposed to in open borders, rockwork, &c.

The Committee considered the label of E. J. Alment, 194, Romford Road, Stratford, E., to be meritorious, and to have decided novelty in its construction; they were therefore able to award the prize to it.

They commended the label bearing the motto "Stans pede in Uno," George Lang, gardener to J. H. Archer Hind, Esq., Coombe Fishacre House, Newton Abbott, as having some originality, as being useful for some purposes, and not expensive.

They commended "The Angeston Label," J. Macdonald, Angeston Gardens, Dursley, Gloucestershire, as having merit, and suggest the stem being made longer, and the label upright.

They considered the label marked "F," P. Neill Fraser, Rockville, Murrayfield, Edinburgh, the best metal label for rockwork and general purposes, where large labels are not required; it has not, however, sufficient novelty to justify the prize being awarded to it.

The Committee's last year's report concludes with these words: "Wood is probably the cheapest and best material for cheap labels. It is at present liable to the objections that the part in the ground rots, and the writing becomes illegible. If by some process, such as perfect kyanizing or treatment with paraffin, these objections could be removed, an excellent cheap label would be the result. Such labels, however, would have to be tested in actual use against unprepared labels before any award upon them could be made." Experiments have been made in this direction with encouraging results; wooden labels placed in a cool orchid house, which when unprepared became sufficiently mouldy to make the writing illegible, when prepared by being steeped for twelve hours in hot paraffin (the white solid paraffin), having remained unchanged after exposure for a considerable time. It seems, therefore, probable if this process be carried on further, and wooden labels be thoroughly saturated, that we may obtain what is still a desideratum, especially for amateur gardeners, a rough-and-ready label to be used when potting a number of plants, with short time to do it in; a label which will last and continue legible for at least five years.

Mr. G. F. Wilson, F.R.S., has renewed his offer of a prize, which offer the Council have accepted, for next year. Particulars will be issued later on.

SUPPLIES OF SMALL FRUITS.—As indicating the abundance of small fruits, it may be mentioned that on the 8th inst. and seven following days upwards of 90,000 packages, or an average of 200 tons per day, were brought by the South-Eastern Railway Company into the Bricklayers' Arms Station.

LONDON PARKS AND PLAYGROUNDS.

WITH Charles Lamb's excessive love of town there doubtless mingled a sentimental attachment to the parks and gardens and public squares. To a man of his tastes and habits these might well represent as much of the country as he desired to see. Many parts of London are surprisingly rural in appearance, considering how far one has to travel from Charing Cross to get into the country proper. There is still a large elm tree in Cheapside, and the Strand gains something in appearance by the antique-looking shrubs which surround St. Clement's Dances.

At a rough estimate, every thousand Londoners have an acre of public park in which to disport themselves, and this, without reckoning the parks which, being in the outer circle, are only accessible through a journey by rail. As compared with that of some of the large towns in the provinces, this allowance of recreation grounds is on the most liberal scale. Glasgow, with a population of close upon half a million, has only four parks, and the whole of these comprise no more than 374 acres. Leeds is not even so fortunate as Glasgow, having only 165 acres of park to 310,000 of population. Manchester is in a still worse position, its park accommodation being about a third of an acre to each thousand of its inhabitants. The whole of the public parks in these three great centres of population comprise an area much less than is included in the parks of the West-end. For the preservation of many valuable open spaces the Londoner of the future will be considerably indebted to the Metropolitan Board of Works. That much-abused body is making continual additions to the parks under its control. It now has the management of 1,698 acres widely scattered throughout the metropolis and the suburbs. Twenty-one acres of this public playground were acquired last year, and the Board now proposes to take over three more small parks in the parish of Camberwell. These 1,698 acres more than equal the combined area of the Royal parks in the West-end, of Regent's Park, of Victoria Park, and of Battersea. Altogether, reckoning the gardens of the Thames Embankment as one, they represent twenty-five parks and open spaces, some as large as Hampstead Heath or Clapham Common, and others containing only four or five acres, or in two cases even less.

It would be impossible to over-estimate the value of some of the open spaces in the East End of London. The east has always seemed in a much worse position than the west in regard to its parks. Now, however, the balance has been redressed. To Victoria Park and Bethnal Green Gardens must be added the magnificent expanse of Epping Forest. There are, moreover, in the East of London several open spaces which are practically unknown to all but the inhabitants of that crowded neighbourhood. Most of these, like London Fields, comprising twenty-seven acres, are unenclosed playgrounds, and in that condition they are doubtless far more valuable than if they had been given over to the skill of the landscape gardener. What is most needed in a thickly-populated district is a place where the children can romp undisturbed. The East End of London has eight such places in the Hackney commons, and it is satisfactory to find that the Metropolitan Board of Works, instead of making them into mere gardens, as is so frequently done with similar spaces elsewhere, inclines rather to put up gymnasiums, and to make provision for all kinds of healthy exercise. It is a great point in favour of the London parks in general that they are actual recreation grounds. There is always a temptation, especially in parks comprising only a few acres, to resort to artifice in order to convey the idea of space.

It is a trite saying that in London there is no municipal spirit. The metropolis is much too large to allow the majority of its inhabitants to feel deeply concerned in any portion of it but that in which they themselves live. In the matter of parks and open spaces, for example, there has never been any really public movement in favour of their extension or preservation. The Londoner endeavours to live as near as possible to a park of some kind, but the resident at Camberwell in no wise interests himself in the fate of Hackney Downs. It is not a little remarkable, under the circumstances, that so many open spaces have been preserved for the public use and enjoyment. The parks of the West-end contain 749 acres, distributed as follows:—Hyde Park, 360 acres; Kensington Gardens, 274 acres; St. James's Park, 60 acres, and Green Park, 55 acres. In the north-west there is Regent's Park, containing 400 acres; in the east, Bethnal Green Gardens and Victoria Park, containing 270 acres; in the south and south-west there are Greenwich Park and Battersea Park, containing 185 acres, and Kennington Park, with 11 acres. The Metropolitan Board of Works has control over parks, gardens, and commons amounting to 1,698 acres. Exclusive of Greenwich Park and Bethnal Green Gardens, these give a total of 3,310 acres. To these add Greenwich Park, Bethnal Green Gardens, Camberwell Green, Nunhead Green, Paddington Green, Primrose Hill, Peckham Rye, Islington Green, &c., and there will be, actually within the metropolis and the immediate suburbs, about 4,000 acres, which, to a resident population of 4,000,000, would be one acre per thousand. In the outer circle there are Epping Forest, Bushey Park, Hampton Court Park, and Kew Gardens, which together far more than equal in extent the combined area of the metropolitan parks, gardens, and commons.—*Pall Mall Gazette*.

A RAINFALL RECORDER.—An ingenious apparatus for recording the total duration of rainfall in the course of a day, or a still longer time, has observes *Engineering*, been devised by M. Schmeltz, formerly professor at the Lycée de Lille. It consists of a box having a rain funnel in its top, by which the rain can enter and drop upon a band of travelling paper which passes below within the box. This paper is the usual Morse strip treated in a solution of sulphate of iron and dried carefully, then brushed with tannic acid or powdered cyano-ferride of potassium mixed with resin. A roll of it is placed within the box, and is unwound on to another roller outside the box. The latter is driven by a chain from the hour-hand of a common clock, so that it rotates once in an hour. In this time, therefore, the paper has been pulled along beneath the rain funnel a length equal to the circumference of the roller. The falling drops dye the paper and indicate where the rain began and left off. Correction is made for the increasing diameter of the winding roller as the paper is wound upon it. The instrument is said to work well, and to indicate fine showers, which are lost upon the ordinary pluviometer.

STRAWBERRY GROWING IN NEW JERSEY.

Read at a meeting of the American Pomological Society by P. T. QUINN.

THERE is a wide diversity of opinion as well as practice among strawberry growers as to the methods that produce the most profitable results. This is very natural, from the fact, as is well known to practical men, that soil and climate have such a marked effect on varieties. Everybody who is familiar with strawberry growing, either for pleasure or profit, knows that it often happens that certain well-known kinds that thrive and yield large crops in one locality utterly fail in another, under the very best system of culture. This is not only true of varieties, but also applies to the system practised in growing strawberries. These essential facts are only reached by practical experience in garden and field cultivation. Therefore, it is safe to say that methods of growing berries that may be a great success in certain parts of New Jersey may not be applicable or produce similar results in another part of the State, and I have known them to fail in different sections of the same county.

While these strange results are constantly showing themselves to the close observer, there are some points that are definitely settled in the minds of practical growers. The first of these, and one of the most important, is, that in order to grow large crops the ground must be rich and mellow before planting. There need be no fear of over-feeding when the manure is thoroughly rotted, or of heavy doses of special fertilizers. The growth of vines and yield of fruit will always compensate for this outlay when judiciously expended. The next important matter is to plant varieties true to name, and such as have been tested and are worthy of cultivation. Following these in turn comes that of clean culture, which if practised always gives satisfaction, both in the appearance of the beds as well as the increase in the size and yield of fruit from a given space.

To prepare the ground on my own farm, my practice has been to plant early potatoes in the spring, and to manure the ground heavily. These potatoes are ready for market by the middle of July, when they are dug and sold. The ground is then ploughed, harrowed, and marked out for strawberries. The rows are opened with a one-horse plough two feet and a half apart, and about four inches deep. The young strawberry plants are taken up with great care, and set out twelve inches apart, in rows. I always endeavour to get the bulk, if not all of our planting done on or before the 10th of August. With ordinary good weather, by the close of the season these plants increase in size and number, so as to make continuous rows, six, eight, and sometimes twelve inches wide by the end of November. The spaces between the rows are kept clean and loose during the growing season by a small horse-cultivator and one hand-hoeing, to cut out any weeds which may come up in the rows. The intention is to have the beds entirely free from weeds before the end of the season.

About the middle of December the plants are mulched, either by salt hay or a compost made of garbage, fish, and street sweepings, all of which are thoroughly decomposed, and the mass is of a light, spongy character. The plants are left in this way until the middle of April, or if the spring is backward a week or ten days later. Where the salt hay has been used, it is raked off with wooden rakes and put in small heaps in convenient places, to be used later in the season to keep the fruit clean and the ground moist. In the parts of the field where the compost mentioned is used in the fall, none of this is taken off, but simply tossed about with wooden rakes, to get it evenly distributed among the growing plants. I never permit any deep disturbance of the surface between the rows in the spring of the bearing year. I have tested that method to my heart's content, and always found that by so doing the crop of fruit was noticeably injured. From the 1st to the 10th of May, in case there are any signs of growth of small weeds, the working people go through the beds with hand-hoes and cut these weeds off a trifle under the surface, not deep enough, however, to disturb the strawberry roots, which are always found near the surface. In moist and damp weather it often becomes necessary to go over the beds and fields twice before the end of May, or before putting on the summer mulch. When this latter is put on too early in the spring, the weeds grow up through it and make the bed unsightly, and give some trouble in picking the berries. At my farm I always have an abundance of salt hay to use for this purpose. This is never put on until the plants get well through blossoming and while the beds are clean. It is then spread carefully by hand along the lines of the rows under the leaves and fruit stems, and thickly enough to prevent any dirt or fine sand from getting on the berries. Under this system the plants grow very thriftily, and bear abundantly of full-sized berries. When the fruit is gathered we allow the rows to run together, making the beds just five feet wide, with paths between these wide beds, say fifteen to eighteen inches. The plants grow so vigorously that there is very little trouble or expense in keeping them clean. In December of the second year these beds get a heavy dressing of the compost, spread evenly, and in the following spring treated in the same way as the first year. The plants in the centre of the beds are quite as prolific as those near the outer edges. They are kept and treated in the way described for two years, that is, picked three years and then ploughed under, and the ground cropped one year before being planted again with strawberries.

Like nearly every other strawberry grower, I have experimented with all the leading varieties, and at present have settled down with the Charles Downing, which with me is the most profitable market variety yet tested, and succeeds admirably with the system described. Last year, under very adverse circumstances, with a protracted drought more severe than any ever witnessed here, early in the season, with less than ten acres, the total yield of berries marketed was 856 bushels.

Of course we resorted to watering in a crude way, by means contrived hurriedly, but which I found to work with great satisfaction, and thoroughly convinced me that, sooner or later, those who will succeed best with strawberries, either on a large or small scale, will have to resort to irrigation. It is the only way to ensure maximum crops each and every year. We applied the water with an ordinary street-sprinkling cart, applying 800 gallons of water to beds 400 feet long and five feet wide, twice each week during the picking season. There was a trifle over two acres of the strawberry ground which it was impossible to get at with the watering cart, and on this spot the crop was nearly a failure. The first pickings on the beds where no water was applied were fair to middling, but the last pickings amounted to nothing. The excessively dry weather burned up the foliage, and the berries gathered were small and unsightly. My experience with watering was so satisfactory that in the course of another year I will have my plans matured so that I can apply water to the bearing beds at any time during the fruiting season. There is no doubt in my mind that those who desire to realize the largest results from strawberry growing will have to resort to irrigation. There have been some statements which found their way in print, saying that strawberries grown in this way are too

soft for market. This is contrary to my experience last year. The Charles Downing (not a very firm berry at best) grown on my farm last summer, watered heavily twice a week, were shipped to the interior of New York State, and they arrived in prime order, and we had no complaints from Newark or New York, where the bulk of the crop was sold. In fact, with the closest scrutiny we could discover no difference in the firmness or texture of the fruit grown with or without artificial watering.

While strawberry growers may hold different opinions about the systems of culture and varieties which succeed best in their respective localities in the same county or state, the plans practised for gathering the berries are very similar among all the larger growers in Northern New Jersey. The bulk of the pickers are boys, ranging in ages from twelve to eighteen years. In some instances women and girls are employed, but these only where there is a scarcity of boys. The former make the best pickers, and are more easily managed, but the dragging of their dresses over the vines as they move along seems to so injure them that the later part of the crop is seriously shortened from this cause.

The first ripe strawberries in this section of New Jersey are usually gathered the first week in June. From the southern part of the State ripe berries make their appearance in market ten or twelve days earlier. When the fruit is ready to be gathered, each picker is furnished with what, for want of a better name, is termed a "handy," which is a piece of half-inch board twelve inches square, large enough to hold four quart baskets. Around the outer edge of this board there is a piece of flat barrel hoop nailed, the upper edge of which is about half an inch higher than the surface of the board, so as to keep the baskets from sliding off. For a handle there is another piece of hoop, bent over from end to end and nailed fast. On my own farm each picker carries with him a flag fastened to a small-pointed stick, so that when his four baskets are full and he takes them to where the fruit is packed in the crates, this flag is stuck in the ground to mark the spot where he left off picking. On the wide beds (five feet) there is a boy placed on each side, opposite to one another, and over each twenty-five pickers there is a foreman, whose duty it is to see that each boy picks clean, does not bruise the berries, nor injure the vines, which, unless closely watched, they will surely do, and also that the berries are sorted at the time of picking into two sizes, large and small. The medium and large berries are put together in one basket, and the small ones in another basket.

When the picker has four quarts filled his flag is made use of, and he carries his fruit to the tent or temporary shed, where there is another person in charge, who takes the fruit and places it in the crates where it belongs. An active boy, who works faithfully ten hours a day can pick from ninety to one hundred and thirty quarts of strawberries. The slow and poorer class of pickers range from sixty to seventy quarts a day in the best of the season, and from forty to fifty quarts towards the close. The berries are all gathered with the stems on, and of course they carry and hold their shape longer than if the stems were taken off in the field. There is no separate account kept with each or any of the pickers.

They receive, as a rule, a cent and a half a quart in the beginning and height of the season, and two cents a quart later when the berries are scarce. Each time when a boy takes four quarts of fruit to the shed where the crates are he receives from the person in charge a ticket of heavy pasteboard marked "four quarts." As he adds to his number of quarts, these four-quart tickets are exchanged for one representing fifty or one hundred. These tickets, of course, are held by the pickers until pay-day, which comes once a week, and then these tickets, which show the number of quarts picked by each boy, are counted and redeemed. This method is simple, and obviates the trouble or necessity of keeping a separate record of the amount picked by each boy. At the same time it snows at the close of the week if the number of tickets tally with the shipments for the same time. At the rate named, smart, active pickers will average from 6.00 dols. to 10.00 dols. a week through the whole season, three times as much as they can earn in a shop for the same number of hours' work per day. The pickers begin work at 7 o'clock in the morning and work until 6 o'clock in the afternoon.

When strawberries are grown in a large way, the boys work Sunday afternoon in order to keep the berries from spoiling. On my own farm the bulk of the crop is packed in thirty-two quart crates, which are delivered with our own waggons to commission merchants in Newark and New York. Our crates are usually returned before the close of the fourth day from the time they are shipped. In order to be on the safe side, we always have on hand at the start a full supply of crates and baskets for seven days' picking.

The plan that I have followed for a number of years past, of summer planting, I have practically given up, and in the future all of my field planting will be done in the spring of the year instead of midsummer.

FRENCH FRUITS AND VEGETABLES AT SOUTH KENSINGTON.—Late in the afternoon of Tuesday, after the meeting had dispersed, a very interesting consignment was received from M. Girardin-Collas, horticulteur, Argenteuil, comprising two baskets of very fine fruits of the *Figues Blanches* d'Argenteuil, which seems to be the same as what is known in this country as White Marseilles, also bearing shoots of the same variety; and *Violetto* Dauphin, clustered with large and fine fruits. A basket of *Apricots Pleint-Vent* d'Argenteuil, very large and fine, with a deep rosy-red hue, almost unknown in this country, remarkably beautiful. A basket of roots of the *Cerfeuil Bulbeux* (tubercous chervil), about the size of Early Horn Carrots, finer than we ever remember to have seen it; and several examples of the one-year-old asparagus plants, particularly strong asparagus culture being a great speciality of M. Girardin-Collas.

UTILIZATION OF ANTS AS INSECT DESTROYERS IN CHINA.—Dr. C. J. Macgowan has sent me from Han Chow, Province of Hainan, China, a little paper on the "Utilization of Ants as Insect Destroyers in China." It seems that in many parts of the province of Canton the orange trees are injured by certain worms, and to rid themselves from these pests the inhabitants import ants from the neighbouring hills. The hill-people throughout the summer and winter find the nests of two species of ants, red and yellow, suspended from the branches of various trees. The "orange ant-breeders" are provided with pig or goat bladders, baited inside with lard. The orifices of these they apply to the entrance of the bag-like nests, when the ants enter the bladders, and, as Macgowan expresses it, "become a marketable commodity at the orangeries." The trees are colonized by placing the ants on their upper branches, and bamboo rods are stretched between the different trees, so as to give the ants easy access to the whole orchard. This remedy has been in constant use at least since 1640, and probably dates from a much earlier period.—MR. C. V. RILEY, in *Nature*.

THE UNIVERSAL GARDEN.

WHEN I find the horticultural critics discussing at needless length the smallest matters pertaining to taste and personal predilection, and neglecting wholly the broad general principles on which true gardening is founded, I yield to the conviction that our horticultural literature might be considerably contracted to the world's advantage. It is simply vexatious to see the columns of periodical papers filled with paragraphs relating to the minute characters and relative values of plants that have scarcely any proper place in the horticultural world, however in the world of nature their places may be assigned them. It appears to be a growing fashion now for a certain set—who are certainly not the most robust of thinkers or most appreciative of observers—to advocate puerile spécialités in gardening, as though in eating there should be a sect devoted to whitebait, in drinking a league for compelling the consumption of toast-and-water, and in respect of costume a veritable fig-leaf club. Where will this sort of thing end? Perhaps for some it will end in the madhouse; for other some in the whirlpool of conceited misanthropy, and for a very select few, Nowhere. If the several schools were defined in aim and earnest in intention we might provoke conflict and have perhaps some amusement, perhaps even some fun, for our pains. But they appear to be all weak-kneed and to be living on words, and those not the wisest or the sweetest.

In contrast with the many small men we have a few large men who appear to be much happier, and these large men are found to be always favourable to the universal garden. They are not tied to notions, and they can see merit in things that lie beyond their reach as well as in those they hold and cherish. In the gardens of these broader-minded ones you see tender plants of many kinds, and the aim, if it might have collective expression, is to obtain ample illustration of the vegetable kingdom rather than to develop the minute distinctions that are discoverable in a few contracted classes of plants. In the universal garden everything that is thought worth growing is grown as well as may be. If wallflowers find favour, pelargoniums are favoured also, and if there are good pippins in one place there are perhaps good bananas in another. In one of the universal gardens I have lately visited there are all the fruits and flowers that belong of right to the hardy man, and a grand range of houses in which palms, ferns, orchids, succulents, and the showiest of exhibition flowers are cherished, and the result is a splendid epitome of the vegetation of the world. If such a taste as the owner of this garden cultivates were dependent on the length of a man's purse I could not praise him, for one cannot become rich by wishing or by taking any particular view of any subject whatever. But I praise the universal man for his generosity in respect of plants. He can see beauty in a cactus as well as in a rose or a cypripedium, and he can sympathize with any specialist who does justice to his own peculiar fancy. We cannot all be universalists when the proof depends on the expenditure of money, but many of us probably might with advantage live in a larger atmosphere than we have made for our spirits to move in. Very much of the horticultural criticism of the present day is of a pettifogging nature, consisting of vain iterations, useless distinctions, and fulsome praise of paltry things. But any doctrine will serve for the foundation of a school, for the people who know not which way to go will gravitate towards it. A small light will suffice, just as the meanest flicker of a rushlight will attract all the moths in the neighbourhood. The wise man will undoubtedly cut his coat according to his cloth, but he will not condemn another man's costlier garment. So a man with any breadth will never assume or teach that his own particular taste should supersede all others. But, after all, there must be room for triflers in the gardening world as in those other worlds that men make for themselves for indulging the vanity of human wishes. But the triflers are often like the flies on a hot day: they have a right to live and to buzz, no doubt, but the fuss they make and the annoyance they cause are out of all proportion to the very small services they render to humanity. It is said that flies cause the air to move by the vibration of their wings, but it does not greatly trouble mankind to extinguish them by any summary process.

GROWLER.

ART IN JAPAN.

By C. PROUNDES. Read at a meeting of the Society of Arts.

ART in Japan was in the past something very different from what it is generally supposed to have been, and it would be a great mistake to judge of it by the art productions with which we have been literally deluged in recent times.

It is a desire to explain what Japanese art has really been in its own home that prompts me now to place before the Society of Arts some notes of my experiences, gained during a residence of more than a dozen years in the country, and those comprised within the most eventful period of its modern national history. But few of those who have written and spoken about Japan have obtained any insight into the habits of the people, by residing amongst them, speaking their language, sharing their experiences, or adopting their customs; and I may say, indeed, that it was the consciousness that there was much as yet hidden from my predecessors in this field of inquiry which would prove valuable and interesting that stimulated me in the study of the inner life and modes of thought of this most interesting people.

We are, as yet, only on the threshold of any clear knowledge of the art motives and education of the artist of Old Japan. The early visitors to the Far East, before and after the visits of the Polos, gave us but little, if any, information on the subject; nor did the Portuguese, Spaniards, or later still, the Dutch, do much to enlighten us, although the latter held, for more than two centuries, the monopoly of social and commercial intercourse.

Kämpfer and Siebold deserve honourable mention for the vast amount

of material collected; but even Siebold was not permitted to see much of the people, living as he did in a provincial town, surrounded by officials and townfolk well trained in preserving an impenetrable silence when an inquisitive foreigner sought information.

Our first minister plenipotentiary, Sir Rutherford Alcock, most undoubtedly led the van in giving us the means of acquiring a more intelligent knowledge of the beautiful art works of Japan, his collection at the Exhibition of 1862 being the first that had been seen in England. It is true that large quantities of lacquer, bronze, and ceramic art work had reached Europe and America, but most of it had been made for the foreign market.

Mr. John Leighton, F.S.A., when he read his paper before the Royal Institution in May, 1863, made the next step towards awakening a more general interest in this subject.

In nearly all of the material since contributed to our knowledge there is the defect to which I have already alluded, viz., an absence of personal intimate knowledge of the inner life and modes of thought so important for any adequate appreciation of the art of a people. There are constantly recurring misconceptions, elaborate theories founded on false premises, and innumerable errors of omission, as well as of commission, which sufficiently indicate the absence of authentic information as to matters of detail. Jarvis' book, interesting though it undoubtedly is, pointedly illustrates the truth of this remark. Besides various incidental faults of style and loose arrangement, its value is seriously impaired by not a few inaccuracies, as well as misapprehensions as to the meanings of the designs, &c.

Not only is it necessary that an observer, aspiring to describe adequately the arts of Japan, should have a thorough knowledge of the language of the educated classes, as well as an intimate personal acquaintance with their manners and customs; he needs also a familiarity with the popular literature, the poetry, and the classics of the people. The exclusiveness, the jealousy, and the restraint habitual in the presence of foreigners has to be overcome, and the inquirer has carefully to conceal the slightest sign of prying curiosity or intention to utilize such knowledge as he may acquire.

Having myself first bridged over the wide chasm that of necessity intervenes between an intruding alien and the intelligent native—having lived amongst them, spoken their idiom, and, indeed, been accustomed to think, and even to dream in their poetic language—I may express what I have to say much as one of themselves. It has, indeed, long been my desire to strew broadcast the information I have gathered in this most interesting field, hoping that even such contributions as I may be able to make may prove an incentive to others to follow me in a pursuit that is so promising for students of Oriental lore.

A keen appreciation of the beautiful art objects which they contained induced me to frequent the native bazaars. It was in those places—which were, for the most part, visited by the native gentlemen, and therefore not having any connexion with the foreign trade—that I most delighted to spend my leisure hours.

When the feudal system in Japan collapsed, in 1868, thousands of families became suddenly impoverished. They were then obliged to dispose of their heirlooms and art treasures for bread or, when not so hard pressed, being driven from their official residences, they could not carry back to their future homes, in the remote provinces, their bulky *impedimenta*. Immense quantities of lacquer, bronze, and ceramic wares were then thrown upon the market. So low did the value of such objects fall that foreigners would not even pay the price for them that the gold with which they were decorated was worth. The native dealers were consequently driven to the last resource; the beautiful gold work was rubbed off with charcoal, and sold to the makers of the cheap metricious ware of modern times to be used anew.

Desiring to rescue some of the beautiful bridal sets of the formerly great noble families, and hoping to save from destruction some of the choicest lacquer ware, I so far succeeded that I made a market for Japanese curiosities. I tried to raise the tone of the dealers, by assembling them together at the house of a man, one of the largest traders in art productions. I endeavoured to induce them to combine together to save the old art of Japan from utter destruction. In this effort I, fortunately, did not altogether fail. I saw then that ere long these beautiful objects would rapidly become most scarce in the land of their production, and their value enhanced. It was not, indeed, my fault that my success in this task was not much larger than it proved.

The history of art in Japan can only be very briefly spoken of. Indigenous to the place it most undoubtedly is. It is too distinct altogether from that of other Orientals to have been otherwise. On the original stock there may have been engrafted from time to time some foreign ideas; but long ages, and the profuse originality and independence of the native artistic mind, free of all trammels of any art canon, has produced a distinct stamp of nationality, in which foreign ideas do not seem to have hitherto maintained any permanent hold.

The potter's art can unquestionably be traced back to ages more remote than six centuries before the Christian era. It is recorded in Japanese annals that in the century B.C. clay figures were substituted for human immolation on the occasion of the death of great personages.* Chinese classical literature and the Chinese written character came into general use at this period. In the second century A.D. silk weaving was taught by natives brought from the adjoining continent, and pottery manufacture and other arts had made great progress.

About A.D. 436 Ishigara and other painters arrived in Japan from

* Formerly "Jun shi" (to accompany the dead) was practised, singularly like Sutte and other heathen rites of pre-historic times. When the chieftain died, his wife and most faithful retainers prepared to follow him. Later on, about the beginning of our era, Haji no tsukune made figures of clay as a substitute for those who would immolate themselves. Although the rite was prohibited, it was still, at times, practised in defiance of the law. In the days of Confucius (who was born B.C. 519) images were buried with the dead, and the "great master" predicted that eventually men would be again sacrificed, and men of ability become scarce. His prophecy was verified. When Haji initiated a check on this terrible custom great improvement took place. Native annotators on the classics note this. About A.D. 3, "Suinin Ten-O" bestowed the "Haji Sei" on Nomi no Tsukune, who is credited with bringing about the abolition of the custom of burying the living with the dead. The derivation of the word is "Ha," the Chinese character for clay, "ji" or "shi," first of the two characters "shisho," teacher—teacher of clay images.

Coroa; a century later one Donchio made paper. About the same time a pagoda was erected of bricks. Another century elapsed before tiles came into use. These were evidently designed after the old method of roofing with sections of bamboo stems split in two, and arranged with the concave and convex surfaces placed upwards alternately. Shingles of split wood and thatch were, and still are, in common use. About A.D. 668 fans were first made; then, as now, of 25 slips of wood, "*Hinoki*" (*Chamaecyparis obtusa* or *Retinospora obtusa*). It is said that a bat's wing suggested the idea of paper fans of the ancient form.

In 701 a bureau was formed for the control of the artistic decoration of the Imperial residences, and eminent artists filled the official positions in it.

In 724 a Buddhist priest, named Gioki, introduced the potter's wheel; he is also credited with having projected the erection of bridges, and also with the construction of the enormous figures of "*Dai Butz*" (or Great Budh), of bronze, which was the first constructed and used in Japan.

The first coinage, a small copper coin, was called "*Wa Do*" (Japanese copper); and this was, after a time, superseded by a gold, silver, and copper coinage.

It is noted that efforts to print books were made in 770; "*Dara-ni*," a Pali prayer, being the first issued. A native Indian introduced cotton about the same period.*

In the ninth century, a modification of the Chinese character came into use, and was tabulated by a Buddhist priest†.

About 1223 Kato and others came to China to glean information about pottery and other arts.

There are numerous records about this time of visits of foreigners, and of natives having travelled afar, to the advantage of arts and of civilization in Old Japan.

In 1243 the Budh priests had extensively circulated books—chiefly religious, printed from slabs of cherry-wood and stone—in the Chinese character.

In 1308 the Chinese style of art was fashionable in Japan for a time.

In or about 1443 the Ashikaga Shogun Yoshimasa introduced ceremonious assemblies, and the drinking of powdered tea; these meetings tended to the elevation of artistic thought amongst the higher classes.

In 1588 *cloisonné* enamel ware was manufactured in Owari. My impression is that the origin of this ware was an effort to imitate the ancient votive offerings of articles inlaid with uncut rough jewels. The most ancient *cloisonné* ware has not a smooth surface, and the old name, which may be translated, "*The Seven Jewels*," or, "*The Seven Precious Things*,"† is another link in the evidence in favour of my theory. Whether poverty or dishonesty, or both, prompted this I cannot say.

Between 1573 and 1591 the Tosa style prevailed again. This Yamato or Tosa style was originally noted for clearness of outline, minuteness of detail, and delicate treatment. It gradually lost much of its vigour, but gained in beauty (that is, from a native point of view), the fineness of the strokes of the brush increasing. This gave place, for a time, to the Chinese styles of the "*So*" and "*Gen*," a sketchy outline, in a few hasty strokes, being its characteristic. "*Uki-yo-ye*" popular pictures) were often in the Tosa style.

Foreigners were present in Japan from the first quarter of the sixteenth to the middle of the seventeenth century, but do not seem to have exercised much influence on the art of the people, however largely their orders for certain articles may have affected the productions for exportation. About 1627 the use of tobacco became general, and the metal workers of sword mountings had a new field opened to their industry in the fabrication of tobacco pipes and of tobacco pouches.

It was not until 1682 that two swords seem to have been worn by the ruling class. Sword mountings formed a most important object for art work in Old Japan. Recently, large quantities have been broken up for the sake of the precious metal, the cheaper sort being converted into pipe mountings, and even into the metal-work ornaments for furniture. It has often occurred to me that some of these gems of artistic metal-work might have been made up into beautiful jewellery for ladies in England.

The "*Katana*" (sword) has always been considered the badge of gentle condition in Japan, and has ever been associated in the mind of foreigners with the "*yakunin*" (official) or the "*samurai*" (daimio's armed retainer).

The rules of observances connected with the wearing of the long and short sword, or the single sword, were most minute, but have fallen into disuse.

The ordinary length of the "*katana*" blade was 2 ft. 0.89 in.; the small sword, or "*wakizashi*," worn with it, 1 ft. 0.8 in.

* In the year 813 Kobodaishi, the compiler of the present Japanese syllabary I, Ro, Ha, taught the tenets he had learned in his travels abroad. He was conversant with much of the Pali, Sanscrit, and Chinese literature, especially in Buddhist classics. The Deyanagari alphabet of 47 characters bears a strong resemblance to the Bon ji—priests' letters—of the present, and it may be fairly inferred that the I, Ro, Ha was formed on this plan for convenience, at a period when Chinese was little known in this country except to the priesthood. "*A Gongio*" is the name of the book of prayers from which the Chinese characters are said to have been taken arbitrarily; and from these he formed the Iroha, which has two forms. The five (5) vowels are combined with nine (9) consonants, giving a table of $10 \times 5 = 50$ syllables, or, rather, 45 syllables and 5 vowels. These historical notes will be extended in a paper to be read at the Royal Historical Society on the 15th inst.

† "*Shippo*" is the Japanese name for *cloisonné* or enamelled ware. The meaning of the word may somewhat explain the origin of the art. When the Buddhist religion came from India, many of the altar decorations came with it, and these were often inlaid with precious stones.

The Seven Jewels are, "*Sango*," pink coral; "*Kohaku*," amber; "*Shako*," mother-of-pearl; "*Ruri*," emerald; "*Mono*," agate; "*Shinju*," pearls; and "*Suisho*," crystal. "*Kin*," gold, and "*Gin*," silver, are both usually included in the term. Some natives say the name originated in the fact that the article must go through the furnace seven times.

Formerly, this ware was enamelled exclusively on a copper foundation, upon which a thin thread of metal had been soldered, forming the outline of the design. It is easy to distinguish between the old ware, which was rarely found in large pieces, and the modern ware, which is made from the size of a common bead up to that of mammoth vases and other articles. Within the last few years, this work has been executed on porcelain, and of late some very beautiful and even large pieces have been produced.

In full dress the colour of the scabbard was black, with a slight tinge of green or red in it; the binding of the hilt, blue silk; the mountings of the guard and hilt, "*shakudo*" (alloy of copper, gold, and silver). The mountings were numerous, and the making of them is a special and honourable trade. Goto Yujo was a celebrated maker of the fifteenth century, whose descendants still exist. The work of this family is called "*Iyehori*" (the families' chasings).

A first group, called "*articles of three places*," comprises, first, the ferule on the head of the hilt and the ring behind the guard; second, the two pieces of metal interwoven with the silk binding of the hilt, used to hide the hole of the rivet, and to ensure a better and firmer grasp of the sword-hilt; and third, the small knife and skewer-like pieces of metal inserted into the scabbard, so as to be drawn out for use at pleasure. The small knife was used to throw at an enemy—the skewers to attach the heads of slain enemies to the girdle.

The guard ("*tsubu*") is often a wonderful piece of workmanship in metal. "*Nanban*" (southern iron) was considered the best, but they were often made of valuable metal, and worked up with gold and silver, into a detailed picture of battles, hunting, or scenery. Nearly every article connected with the sword was richly inlaid to correspond. Guards are also made of several thicknesses of leather, or raw hide, called "*neritsuba*," and also of "*shakudo*" (copper and silver alloy), and "*shibuichi*" (one-fourth silver, three-fourths copper). Silver and gold, separately and combined, as well as iron.

"*Seppa*" are the washers, of which there is one or more above and below the guard, made of flat pieces of metal—brass, silver, or gold.

"*Habaki*" is a ferule, extending about an inch below the guard, formed of the same metal as the "*seppa*."

"*Kojiri*" is the ornamental ferule on the lower end of the scabbard, often very beautifully inlaid to match the other mountings.

"*Kurikata*" is the small cleat on the scabbard through which the "*sage wo*," or silk cord, is rove. This is constituted of various materials, and generally made with the scabbard.

"*Saguri*" is a small hook on the scabbard, to prevent the sword slipping too far through the girdle.

"*Tska ito*" is the silk cord bound crosswise on the hilt. There are several styles of binding, "*maki*," "*dashi me nuki*," "*katatemaki*," "*heomaki*," &c. Some swords only have shark-skin hilts, without silk, but generally the silk binding is over the skin ("*same*"), those pieces which have the largest nodules being most valuable.

The sheath or scabbard ("*scia*") is made of a wood called "*ho*," generally varnished. Black and dark colours are preferred; gaudy crimson and variegated colours are affected by the old "*swashbucklers*." Leather covers are worn over the handsomely-lacquered scabbards; shark-skin ground down, inlaid with shell-work or peculiar kinds of lacquer, is sometimes seen on scabbards.

"*Sage wo*" is the long silk cord, of various kinds and colours of sennet, about five feet in length for large swords, and half that for the short sword, used to bind up the sleeves preparatory to fighting.

On journeys, the gentleman's sword-bearer carried the honoured blade, covered with the "*shiki hada*," a sword-case of leather or cloth emblazoned with the owner's crest.

Between 1688 and 1702, Hishigawa Monobu, of Yedo, made the Tosa style once more popular; he was succeeded by numerous celebrated artists. Modern artists do not seem to have been much esteemed.

Taiko, the great general of the sixteenth century, was himself a man of artistic tastes and some skill, and was renowned as a liberal patron of art.

The manufacture of artistic bronze is quite modern, dating from the end of the seventeenth century.

In 1695 printing in colours from wood blocks was so far perfected that five colours were used. Within the memory of citizens of Yedo Chinese painters were the guests of the Shogun, and executed flowers and rural scenery. Now, Italian artists have been hired to teach modern art in Japan. Such is the result of indiscriminate change—a rush of a parcel of wilful schoolboys to overturn and demolish everything their astute forefathers had matured; and this is the most naturally artistic country under the sun.

When it is considered that the very first effect of the introduction of Japanese art-production in England was a wholesale effort to reproduce it, and copy it; when it is seen that this has had a most marvellous and widespread influence upon our own decoration, design, and colour, for household, dress, and architectural purposes,—it must be admitted that there is something worthy of attention in the civilization of a people whose art was competent to produce such an effect; and it is to be rejoiced at, rather than deplored, that the effort to copy and reproduce Japanese design has ever signally failed.

Let us rather continue to look to Japan for its beautiful ware, and let us also learn to duly appreciate its best work, and endeavour to induce its people to go back to their old art, rather than continue to sink, step by step, in producing a meretricious hybrid style of manufacture, that is neither Japanese nor English.

Art patronage in Japan was centred at the old court Kioto. The chief ruling clan, the Tokugawa, and the great nobles, vied in supporting art. The lesser nobles, the gentry, and the wealthy traders also contributed largely to its universal spread. An artist of repute was ever welcome and well received, and was never left with an empty purse.

The old nobility had amongst their retainers numerous clever artists, and at their entertainments these would exhibit their skill for the amusement of the patron and his guests. Whether residing at their own provincial fortified residences in state, or during the period of their enforced residence in the city of Yedo, a numerous following of men of letters and artists always surrounded the great personages.

Much of the old art work was a "*labour of love*," and the leisure occupation of poor gentlemen; sometimes of rich amateurs. Every detail was carefully executed; there was no eager haste to get rid of it in exchange for the money of the hated foreign intruder. The object would be seen by art patrons and admired, whereas the article for foreign sale brought no reward beyond the pecuniary recompense; it went away amongst strangers, it was never seen by those who could appreciate its best points, and it is, therefore, not to be wondered at that it was inferior to the article made for the native art patron.

(To be continued.)

The House, Garden, and Home Farm.

THE BROOKLET.

O DEEP unlovely brooklet, moaning slow
Through moorish fen in utter loneliness !
The partridge cowers beside thy loamy flow
In pulseful tremor, when with sudden press
The huntsman flusters through the rustled heather.
In March thy sallow-buds from vermeil sholls
Break, satin-tinted, downy as the feather
Of moss-chat, that among the purplish bolls
Breasts into fresh new life her three unborn.
The plover hovers o'er thee, uttering clear
And mournful, strange, his human cry forlorn ;
While wearily, alone, and void of cheer,
Thou guid'st thy namoloss waters from the fen,
To sleep unsunned in an untrampled glen.

DAVID GRAY.

THE HOUSE.

ONCE more it is necessary to refer to the window boxes, for in many cases the plants with which they are filled are beginning to show signs of exhaustion, the powerful light and heat of the summer having tried their strength. It will be found that frequent watering has reduced the body of soil in the boxes, and the fact suggests how the plants may be refreshed, to aid them to the end of the season. The proceeding suggested is the supply of a top dressing, which should consist of rich earth in a somewhat fine condition, but is not to be sifted. Some rather fat soil from a hotbed, in a quite mellowed and sweet condition, will serve the purpose admirably. Where gardening is carried on systematically, it will be sufficient to ask the gardener for some rich fuchsia compost, and spread this on the surface evenly amongst the plants, keeping the general level fully an inch or more below the edge of the boxes for convenience in watering. If there is not room to lay down a top dressing, some of the top soil from which all the goodness has been washed by the watering may be scraped off to make room for it, but in doing this special care must be taken to avoid injuring the roots of the plants. If a sufficiency of nice fresh compost cannot be obtained there is another but less desirable method of refreshing the plants. Take some old soil from the flower pots, or from a garden border, and mix with it some of the patent fertilizers that are now so largely used. One of the best of these is Clay's, but there are several kinds available. The quantity to be used will of course depend on the nature of the substance, but it will be well to keep on the safe side, and in the case of the fertilizer mentioned, or any other equally strong, not more than one-fourth should be added to any given bulk of old soil turned out of pots. Mix well, and let the mixture remain exposed to the air for a day or two in a place where, in the event of rain, it will not be wetted. Then spread it over the boxes, and you will soon see a new and fresh growth of the plants, and you may expect them to continue flowering until the frost decides that there shall be no more flowers until next year.

THE GARDEN.

ANNUALS to stand the winter should be sown soon on poor hard ground, or in pans filled with poor soil, and to avoid delay an early opportunity should be taken advantage of for purchasing the seed. The sorts to sow within the next few weeks are candytufts, nemophilas, collinsias, eschscholtzias, erysimum, clarkias, Convolvulus minor, godetia, larkspur, lupinus, poppy, and schizanthus.

BUSH FRUITS should have attention as soon as the crop is gathered. Thin the present year's growth, tie and nail all the bushes on fences and wires, and give the trees their final shape for fruiting next year. Thin out the new canes of raspberry stools, so as to leave only three or four of the strongest to each; and as soon as the fruit is off cut the old canes to the ground tie out the new ones, that the wood may become hard and ripe.

CARNATIONS, PICOTEEs, AND PINKs to be propagated largely now from layers and pipings, both easy and certain methods.

CELERY newly planted will require abundance of water. Plant out as fast as possible, if any are left in beds or pots.

DAHLIAS want a heavy mulch after the ground has been lightly forked. This is said to harbour vermin, but practically its few disadvantages are balanced by the superior health of the plants and the beauty of the flowers, and the labour of watering is got rid of. As for earwigs, they always go upwards, and may be trapped with certainty.

FRUIT TREES that are still making young wood must not be stopped, or it will cause them to throw out useless side shoots, and the less the knife is used among them now the better. Espaliers must be tied and nailed before the young wood becomes too hard to be brought into regular order without injury.

GREENHOUSES containing all ordinary kinds of stock to have air day and night; but most soft-wooded plants in flower will enjoy to be shut up for an hour after watering, and then to have a little air again.

KITCHEN GARDEN requires now a general clearance of plots that have borne peas, beans, &c., to burn all the dry haulm and weedy stubble, and fork over and put on manure if necessary; all winter crops will do better in ground well dug, even if not manured, than with a mere scratching of the surface.

ORCHIDS must have every necessary assistance to ripen their pseudo-bulbs. They may have more light and air, and less moisture, but must be kept plump, and those that continue to grow all winter to be kept going steadily, but without excitement.

PANSIES to be propagated from cuttings of young wood. Keep the cuttings shaded, and sprinkle frequently, but the soil of the cutting pans only moderately moist. Beds to be planted to stand over winter should now be deeply dug and manured, which will tend to reduce wireworm, as they will be turned up in the process and be destroyed.

POTTED TREES must have every necessary attention to complete their growth and ripen their wood. No more pinching, and the pruning of useless growths to be deferred till the sap is down. Peaches and nectarines to be put on the south side of a wall or fence. The lights of the peach house should, if practicable, be off for a month at least, and any training required to be done at once, that the wood may ripen perfectly.

STOVE PLANTS intended for early bloom next season to be shifted at once to their blooming pots; let the soil be fresh, and the shifts not greater than the plants can reasonably fill up, and have time to ripen their wood.

STRAWBERRIES.—Plant out the first lot of well-rooted runners in ground well manured, and shade for a week and keep well watered; these will at once form good crowns, and bear well next season. Lay more runners, always removing them as soon as rooted, as they do better for being on their own feet early, and distress the parent stools less.

THE HOME FARM.

GENERALLY speaking, the work of the home farm is somewhat light for the horses now, but heavy for the men. The raising of rape for sheep feed is an important business in the fen districts, where it is, in many instances, thought more of than turnips for use from October to February, and does very much towards putting fat on the great frame of the Lincoln sheep. It is bulky, juicy, and nourishing, and might probably be grown in many districts where it is at present scarcely known. It is usual to sow four pounds of seed per acre, in drills fifteen inches apart on the flat, and the ground should be tolerably clean. A few stolen crops for similar purposes may be made on stubbles, such as rye, vetches, and trifolium. The risk of turnip or early pea and bean stubble is not great, but often on corn stubbles turnips fail through the occurrence of cold wet weather before they have obtained good roothold.

THE SPIDER-WORT.

Tradescantia virginica.

It has many times occurred to us, and perhaps to others, that this plant is unworthy of the name it bears. When we reflect upon the matter, however, we have to endure the conviction that we have gravely erred, and we feel bound to invite those who have shared with us the doubt to share the conviction also. The common spider-wort is a somewhat weedy plant possessed of exquisite beauty of form and colour. "Weedy?" Yes; the word has been spoken; but you may, if you please, say rustic or æsthetic; still we shall be inclined to call the spider-wort weedy, and the place we assign it is the mixed border, where large tufts of some half-dozen varieties have for many years past delighted us all the summer long. "And can a 'weedy' plant do this?" you ask. To which we answer, Yes, for at the moment of writing this we are about to leave London for the town of Leek, in Staffordshire, and we are full of joy at the thought that on the way we shall see meadows enclosed with stone walls and entirely occupied with the rosy flowers of the ragged robin, which is a weed of weeds, and in its common weedy form unfit for any garden. The "hay fields" between Buxton and Leek are in many instances so richly clothed with ragged robin (*Lychnis flos cuculi*) that the rosy flowers seem to fill the field, just as in some parts of Sussex, especially near the coast, the snow-white flowers of the bladder campion (*Lychnis vespertina*) appear to be the hay grass, and nothing else wanted.

The common spider-wort is perfectly hardy, and is a good London plant, as damp soil and a certain degree of confinement do not in any serious degree impair its beauty. On our heavy clay land it attains to a peculiarly fine growth, and makes amends for the failure of many a good thing that our clay is not good food for. There are about a dozen varieties in cultivation, and they are all worth having for the planting of a mixed border; indeed, the mixed-border man should secure all that are at his command, for in this class of plants minute differences are of importance, and the named varieties are for the most part sufficiently distinct. The flowers are really beautiful, more particularly the white variety, with its stamens delicately dressed with a violet fringe.

The genus is named after John Tradescant, the "mighty Dutchman," who, it appears, was not a Dutchman, although he may have enjoyed regard as such in a day when the Low Countries were looked up to by the students of botany and horticulture. John Tradescant travelled much, and had opportunities of exploring the northern shores of Africa and the islands of the Mediterranean. We catch him in a comfortable trap when we find him appointed gardener to King Charles I., in the year 1629, Tradescant's garden being then in Lambeth, and the king's garden a place of smallest import, for in that year his majesty dissolved the Parliament and tried the experiment of governing without one. Tradescant's son made a voyage to Virginia, and in returning brought home many strange plants. Thus was formed the nucleus of the curious collection which afterwards was known as "Tradescant's Ark," an account of which was published in the "Museum Tradescantianum," 1656. To this volume were prefixed portraits of the father and son, engraved by Hollar. To the father John, succeeded the son John, who bequeathed the museum to Elias Ashmole, so that it became ultimately a part of the Ashmolean Museum. In this museum were "two feathers of the phoenix tale," which of course makes an end of all questions as to the reality of the phoenix. The son died in 1662, and a curious monument in memory of the family was erected by his widow in Lambeth churchyard. An interesting account of the Tradescantian garden was drawn up in 1749 by Sir William Watson, and printed in "Philosophical Transactions," vol. 46. Some three years since an interesting and original biography of the elder Tradescant appeared in the *Journal of Horticulture*. It will repay any one interested in the subject to look it up, as it contains particulars derived from direct appeals to authentic documents, and is therefore of more than passing value.

Returning to our plant, we must confess to ignorance of what is termed its "life-history," and on one point our ignorance is now brought home to us. We have never looked for seed on our spider-worts, and we have no recollection of having seen seeds offered for sale, and we really cannot say if it produces seed in this country. However, this is of no great consequence, because the plant can be divided *ad infinitum*, and it is a question of time merely when a stock is required. To enjoy them, indeed, they should be left alone for several years to form large tufts; but to increase them it is only necessary to lift them in the spring and divide the roots and plant again. But this must be done with care, and it may sometimes be advisable to plant the pieces in a bed of sandy soil, or even to pot them and give them careful culture for one year, and then plant them out to make handsome specimens. We have spoken of ours as thriving on a heavy soil, but a light sandy soil is much better adapted for this plant, and a spacious rockery is the very best place on which the several varieties will most effectually display their beauties.

The double-flowering spider-wort is preferred by many to the single, because of its rosette-shaped flowers. It is a good thing to supplement but not to supersede the single flowers.—*Familiar Garden Flowers.*

A SWISS SUMMER HOUSE.

IN continuation of our notes on summer houses, in which we have been assisted by correspondents, we now present a sketch of a somewhat elaborate accompaniment to a country house in the Swiss manner, and which, though on an extensive scale, may be appropriately termed a summer house. This is given more especially in compliance with a request for something of the kind, and is taken from a litho. bearing the imprint of Stroobant, of Ghent. The scheme is essentially picturesque, and would be altogether out of place in the flat grounds of any ordinary mansion or villa in classic style. But in a romantic spot or broken ground, with the leading architecture in some modification of Gothic—and the more rustic the more suitable—these structures would combine use and ornament in a most agreeable manner. As here represented, the materials employed are stone and wood, but the work could be wholly carried out in wood with perfect propriety, and with the best results as regards comfort and endurance. As a workshop for an artist, combining also apartments for tea, smoking, and reading, it would be all the fault of the construction if the most perfect conveniences were not secured, for as regards ground plan there is room for almost any plan consistent with the available

adds to the likeness and sustains its charm. It is a native of the Antilles and New Grenada, and the northern provinces of Brazil. As a garden plant, the greenhouse or intermediate house will suffice for it. The heat of the stove it does not require.

Other species of *ionidium* or *viola* are employed in the way of *ipeca-cuanha*, as for example, *I. parvillorum*, *I. Poaya*, and *I. indecorum*. What is the true *ipeca-cuanha* of commerce we have failed to discover, and from the horticultural view of the subject it is of small consequence. Pereira says it is *Cephaelis ipeca-cuanha*, one of the *cinchonads*, a smallish shrub, native of Brazil. There can be no doubt the famous drug is obtained from several distinct plants.

LEAFY LONDON.

IT may not have occurred to you, my worthy Londoner, or to you, my worthy citizen of some other city, that London is a very leafy, bowery, tree-dotted place. If you seek for dreary regions, where mean houses are closely packed in the streets, and the inhabitants—who, perhaps, are neither so mean nor so miserable as they appear to the stranger—are still more closely packed, so that the only playground for men, women, and children is a filthy street, without a tree or a blade of grass



SWISS SUMMER HOUSE.

frontage. As for the rest, the sketch speaks for itself, and taste and ingenuity will soon discover how to turn it to practical account, where it may happen that anything of the kind is needed.

AUBLET'S TREE VIOLET.

THE genus *viola* produces but few shrubs, but in the section of white *ipeca-cuanha* plants we have a series of trees and shrubs, and the one here figured is the most ornamental of the series. It is the *Calyptrión Aubleti* of *Flore des Serres*, t. 2, 213; the *Ionidium Aubleti* of Schult. (Syst., v. 397); and the *Viola laurifolia* of Smith, in Rees' *Cyclopædia*. We place it under the last-cited name because of the interesting fact that it is a handsome flowering tree allied to the humble violets, and we care nothing about propriety, because the botanists themselves tread propriety under foot when it suits their fancy or their pride to do so. This is a beautiful Brazilian climber, with bold serrated leaves of a rich deep green colour, and diffuse axillary clusters of curiously-formed flowers, which are of a creamy white colour, and emit a very agreeable perfume. The characters of the violets are pretty closely reproduced in these flowers, as may be noticed in the conspicuous spur and the irregular petals, while the fragrance

to enliven it—if you seek for such regions you will soon find them, and they will make you say that London is a city of the living that is made by bricks and mortar, and mud and smoke, like a city of the dead, and might be buried out of sight with advantage. Yes, any old Londoner can put his hand on the map and say, There is a square mile, and there is a square mile, and there another square mile of mere tenements, ignoble, unrefreshed, and sometimes ghastly, all swarming with human life; and money settles everything: there is no margin left for love, beauty, or religion. For it is money that settles this matter: the ground-rents are the ground-work of the squalor, disease, and sordidness that reign in the almost unbounded slums of London. But for all that London is a leafy city. In proportion to its size, and the immense and ever-increasing value of land, it is peculiarly rich in gardens, and the gardens can mostly show noble trees, if they do not often display beautiful flowers. I have just spread out a map of the metropolis in order to trace a route that I frequently drive through, and I have made what I consider a small discovery. This map is sadly deceptive as regards the greenery of the town, for it requires to be closely searched to make out the various enclosures in which there are refreshing and indeed truly glorious masses of tree leafage. I have determined to mark all such spots as I can trace, and that I know to be

leafy with green colour, and I have resolved, as an occasional purchaser of maps, that in future I will look for maps that are carefully coloured in minute detail. As my map appears on the table now there are great blocks of green to represent the parks, but there are hundreds of green squares and "minor parks" that are not in the least degree distinguished by colour, and that ought to be indicated as leafy enclosures.

The route referred to as one I occasionally take for a particular journey exemplifies, as I think, in a very striking manner the leafiness of London. I start from the New River pumping station in the Green Lanes, and my destination is Brompton; but as I have to make calls on the way, I do not perhaps take the shortest course, although

soon find ourselves in Piccadilly. The Dials and the bird shops afford a taste of the worst part of unlovely London, but until we touch Endell Street we have had grass lawns, big trees, and bits of variable shrubbery of the most agreeable character to embellish every step of the route. Occasionally the calls I have to make compel me to include in the journey a bit of the Euston Road, which is embellished with a kind of third-rate rurality until we go some distance westward. But to make amends for this, we turn off amidst streets and squares, and we see the grand trees of Berkeley Square, or Cavendish Square, or Grosvenor Square, or Portman Square, and sometimes I "waste" five minutes in trotting round all these squares and making note of the beautiful balcony and window gardens that in those regions so



VIOLA LAURIFOLIA.

on that point a stickler for time will scarcely have excuse for finding fault with me. The edifice under the shadow of which I embark, on a thing I call my fire-engine, is a genuine adornment of a semi-rural scene. We begin with leafiness and architectural beauty. Thence for a thousand yards or so we skirt the western side of Newington Park, with its fringe of elms, chestnuts, and black poplars, and strike off obliquely to the right through Highbury New Park, where there is now a respectable avenue of young plane trees. Thence through Barnsbury, Pentonville, past the Foundling Hospital, round one corner of Bedford Square, we plunge into St. Giles's, and, by way of the Dials,

delightfully abound. Thus we reach Piccadilly by a greener route than before, and come round by way of Park Lane, where the fountain stands, abruptly to the side of the Green Park; and once more we are in the midst of greenery, and so it will continue until we halt in Brompton. "Pleasant drive," I say to my expert whip. "Yes, sir; very few people know what a lot of gardening there is in London." Just the truth, the very truth; and the royal parks add to the utterance their notes of exclamation, which, if you please, we will accept with acclamation. Thus I make a journey of six miles as the crow flies, and of about seven as the course runs, and about half a mile of sheer brick-

ness in St. Giles's is the only bit that is not leafy, or from some point or other commanding a view of trees. It was remarked by Leigh Hunt sixty years ago, that there were very few streets in London wherein or wherefrom you could not see a tree. The statement then needed qualifying, because a one-sided statement of a partial truth. There are hundreds, aye, thousands of streets in London that give no hint of a tree and scarcely of a window plant. But as much truth as there was in the saying then remains to this day. Many, too many, London trees have been laid low to accommodate the builder, but thousands have been planted, and the minor parks have been added to in a somewhat fair proportion to the increase of houses and population. More might have been done than has been done, but let us face the pleasant truth that London is a leafy city, and we shall not match it for leafiness, go where we may, making proper allowance for its extent, populousness, and the immense value of its ground rents.

Not to be tedious, I would say that I sometimes make my journey from the Green Lanes to Brompton by way of the City. That seems a death-blow to the dream of rurality, but it happens not to be so. My first mile is all green, then Petherton Road—a truly grand road—is but slightly touched with green. But as I near the Canonbury Station I behold a great lane of gardens running in behind the Grosvenor Road, and my charioteer takes me by ways that afford glimpses of the New River and its leafy margin, Islington Green, with its grass and ivy and plane trees, and the last bit of green I see before entering the City is at the north end of Goswell Road. But the journey continues enjoyable, for there is no squalor, no visible agony, no hideousness to shock the heart and shake the nervous system, and one or two agreeable calls made, we plunge through the civic boundaries to the breezy Embankment, and then by the turn round at the palace of Parliament we reach Birdcage Walk, and so past the Queen's palace to Brompton. Thus we have again a green drive, a forestal progress, the only interruption in the course being the mile and a half from the Angel to Blackfriars, which is all respectable and clean, and sometimes interesting for its architecture, while not, after all, quite destitute of a few green banners; for at St. Botolph, Aldersgate Street, there is a garden; at St. Paul's Cathedral there is another, and my clever charioteer will sometimes wind about to avoid obstructions, and, all unconscious of the benefit he is bestowing, show me bits of tree-life in all sorts of odd places; so that when some publisher in a fit of wise generosity shall offer me a million of money for a history of London I shall be ready to write the work while he writes the cheque. I don't mind even now writing the work and taking my risk of the pay, and here it is, signed with the author's real name and full address: "London is the capital of the British empire. It is noted for whitebait, champagne, bitter beer, and the publishing office of the GARDENERS' MAGAZINE. It contains five millions of human people and fifty millions of tree people, and sends fewer members to Parliament than the island called Ireland, and up to this date has made no complaint of the discrepancy. London is leafy; it is also beautiful, wise, and generous, and my name is

"No. 1, London-in-Cloudland."

"ALPHABETAGAMMA."

DWARF POINSETTIAS.

BY JOSEPH MACDONALD.

THOSE who wish to secure dwarf plants of the poinsettia with bracts nine to twelve inches across, and fresh green leaves hanging over the pot, have ample time before them for doing so. But to insure success there must be no delay. There must be the command of plenty of heat and a suitable structure to grow the plants in. The best kind of house for the purpose is a low span roof, with a walk down the centre and a bed on each side, with plenty of top and bottom heat.

The cuttings must be struck early in the month of August; they should be taken from plants that have not been exposed to a high temperature, as short stout shoots are the best. They should be taken off with a heel and should not be more than four inches long. The cuttings should be placed singly in three-inch pots; the soil for the cuttings should be rather light with a good proportion of sand incorporated with it. As soon as the cuttings are inserted they must be taken to the propagating pit or a close hotbed. In any case a bottom heat of 85 to 90 deg., with a top heat of 70 to 80 deg., will be necessary. As they should form roots quickly, they will want no air for the first ten days, nor even for the first three weeks, unless there should be an excess of atmospheric moisture in the pit; then, indeed, a little air for an hour or two will be necessary to balance the internal moisture. A fair amount of atmospheric moisture will be necessary to assist the cuttings to make roots. If they are in a propagating pit they will require to have the leaves damped at least once a day with the syringe.

As soon as the cuttings have made a few roots they will begin to make top growth. This is the stage to commence giving a little air to the pit or frame, at first for two or three hours a day, and then for five or six, until the plants will bear removal from the pit to the body of the house, where they will obtain more air and more light. When they have been treated in this way for a week they will be ready for shifting into larger pots. One shift only is required, and that should be into five-inch pots. The soil for poinsettias should be one-half fibrous loam, one-quarter each of leaf-mould and thoroughly rotten manure, with a fair proportion of sand to keep it open. They require moderate drainage, and in the process of potting the roots must not be disturbed.

Much better plants will be obtained if as soon as potted they can have the benefit of bottom heat, and at the same time have plenty of light and a little air. Bottom heat is not indispensable, but a moist

growing temperature ranging from 75 to 85 deg. they must have until their bracts are fully developed. During the time they are in active growth regular supplies of manure water, made of animal manure, and given them the same temperature as the house, will help them to make a more vigorous growth and a good finishing in respect of colour.

CLEVEDON HALL,

THE RESIDENCE OF C. HILL, ESQ.

CLEVEDON is a fast rising watering place on the Somersetshire coast, and that it should become popular amongst those who seek a change of scene, whether for health or pleasure, is not surprising, seeing that it is delightfully situated and within a short railway ride from the city of Bristol. Further, that a few large residences and good gardens should be found in the district is only what might be expected, so remarkable is it for its salubrity and picturesque surroundings.

Clevedon Hall is worthy of its name and the position it occupies. It is indeed a charming marine residence, for it commands extensive views, not only over the Bristol Channel, with Cardiff and a large extent of the Welsh coast, but far away to the west the ocean can be seen, with the promontories of the the Somersetshire coast standing out in bold relief. The residence itself is an imposing and substantial structure, and is surrounded by a large space of ornamental grounds, which have been designed and laid out with much taste. Much care was evidently taken in the selection of the subjects with which the grounds are planted, and favoured by a fine climate they offer at all times much to please and instruct the visitor.

The conservatory is close to the house, and connected with it by a wide corridor. The main portion of the building is lofty, and the pillars and a portion of the roof are richly and elegantly furnished with suitable climbers. The body of the house is well filled with camellias, tree ferns, palms, and a choice selection of flowering plants. Amongst the latter were some large and well-flowered examples of tuberous begonias. Near the conservatory is a splendid holly hedge in the most perfect form and condition. The variety with which this hedge is formed is *Nobleanum*, a smooth-leaved kind of the darkest green. I do not know any other holly so suitable for forming a hedge in a choice position as this. I was much struck with the hedge, and should have been sorry to have missed seeing it.

Stretching away from the mansion is a wide expanse of splendidly-kept turf, on which archery and lawn tennis are suitably provided for. Judiciously placed on the grass are several choice coniferous trees, and grand groups of evergreen shrubs, the luxuriance of which, and indeed everything about the place, told of a fine climate and a suitable soil. The greatest drawback appeared to be the salt spray which the wind brings with it when blowing across the Channel. A nice breadth of ornamental water occupies a position at the far end of the lawn, and on the right of the pond is a shady walk, well guarded on each side with trees. Near the walk on the left-hand side is a fine collection of hardy British ferns, many of them rare and choice, and all in a thriving condition. At the end of this walk we unexpectedly came upon a surprise as unlooked for as it was pleasing. The circuitous route beneath shady trees brought us in full view of a raised terrace walk, flanked on the right with trees and evergreens, and on the left with clumps of shrubs. The view from this raised walk is a charming panorama of sea and land, of which one would not soon tire; but as this garden contains many other features, I must hasten to notice them.

The glass structures are numerous, and grapes and peaches are largely grown, whilst fine-foliage and flowering plants for the embellishment of the conservatory receive due attention. There are several houses devoted to vines, and the earliest crop produced by pot vines was over before my visit. The second crop is borne by permanent vines, the bunches being of a very useful size and well finished. The vinery adjoining the second house is planted with Mrs. Pince's Black Muscat and Lady Downes. The crop is a medium one, and the vines clean and in good health. The only wonder to me was how vines in houses so crowded with other plants were kept so clean. This case is like many others: the gardener must either grow his plants with his vines or have no flowers for the conservatory. Vinery No. 3 is planted chiefly with Muscat of Alexandria, and has a fine crop of tomatoes near the glass in the front. In vinery No. 4 there is also a satisfactory crop; the same careful management was apparent in this house as in all the rest, but it was in vinery No. 5 that I was most interested. The crops of Alicante and Madresfield Court Muscat in this house are all that could be desired. I lingered some time in this structure with Mr. Pegg, the gardener, who, I found, is much interested in grape-growing. He detailed without any reservation his plan of feeding his vines, and I learnt from him that he is an advocate for feeding the roots of vines from directly the stoning process is completed until they have taken on a good portion of their colour. The condition of his grapes in the second vinery showed that his treatment was right, or they could not have produced such a heavy crop with every prospect of finishing well. The peach house is a useful lean-to structure, the trees remarkably healthy and bearing a good crop of fruit. Hale's Early Peach had all been gathered by the end of June, while other kinds were a fortnight later: this is a large highly-coloured fruit, but in the opinion of some people only second-rate in flavour. The orchard house is a very similar structure to the last mentioned, but it is not forced. Peaches and nectarines are trained to the wall, and on wires in the front the same kinds of trees are also trained; all the trees are clean and in fine health, with an abundant crop of fruit upon them.

There are melon and cucumber houses. In that devoted to melons there were some nice fruits of Colston Bassot. The next structure to be noticed is a large plant house in two divisions; in the stove department the usual kinds of tender exotic plants are grown, and in the other division I noticed a nice batch of abutilons. Those were fine young plants in a thriving condition, which had been just shifted into six or seven inch pots for winter flowering. In another house is a fine lot of Indian azaleas, the plants being large and in splendid health; in fact, every conceivable position in the houses was occupied with plants in pots, which plainly showed that there was a large demand to meet. Mushrooms are grown in a specially-arranged house.

The fruit and kitchen gardens cover a large space, and are divided into three divisions, all walled in. On the south walls there is a very good crop of peaches and nectarines. The crop of gooseberries and currants is a remarkably heavy one, as is also the crop of apples on some large bush-trained trees. If I omit to mention the rose garden, which is a separate feature, and the flower beds near the mansion, it is not because they are not interesting, but because my notes have already extended to so great a length.

J. C. C.

Notes of Observation.

THE INDIAN STRAWBERRY.

THE Indian Strawberry, *Fragaria indica*, has been so often mentioned in the Magazine as a beauty of the first order that I am afraid this note may appear out of date. But probably many readers, like myself, are slow to take hold of a fact until some accident forces it anew on their attention. It happens, then, that being interested in a garden fête, I have had the privilege of inspecting the vegetation of the far-famed Chiswick garden of the Royal Horticultural Society, and there I met with the Indian strawberry, and was beguiled by its beauty. It seems to be one of the most thriving plants in the world, for I met with it in baskets, and pots, in hot dry houses, and in moist cool houses, and just as I was about to ask about its hardiness I found a great mass of it on a bank of the open-air rockery; and there, as might be expected, its beauty was more fully demonstrated than in the specimens grown under glass. Whether hanging in elegant festoons from a basket or forming a kind of mat in the open air, it is surprisingly beautiful in leaf, flower, and fruit. The flowers are of a soft yellow colour and come near to those of *Potentilla anserina*, but the complexion of the plant is that of a *fragaria* all through. The fruits are small, bright scarlet in colour, and barely eatable. I imagine the birds would scarcely care to touch them, but on that point I cannot speak. To be without this little gem is to be in a state of extreme horticultural poverty, and I have taken care to secure some plants that I may not be depressed by a sense of destitution. R. W. B.

GLADIOLUS THE BRIDE.

Mr. Ware has made a great feature of this white-flowering gladiolus, which is valuable for its early flowering, and especially to cut from for decorative purposes. It is a variety of *Gladiolus Colvillei*, which, though ranking as a species, is really a hybrid resulting from a cross of *G. concolor* by pollen of *G. cardinalis*. All the forms of *G. Colvillei* are open border plants and they are all beautiful. The original and so-called species produces flowers of a rich rose or carmine-crimson colour, but the seedlings vary, and we have seen amongst them an occasional good yellow. To do them well, a border should be prepared at the foot of a south wall with good turfy loam or peat and a considerable proportion of sand. In such a border *watsonias* and *ixias* might also be grown, and would occasion no anxiety as to their hardiness. G.

KALOSANTHES.

For exhibition in July the kalosanthos are of immense value, because of the striking contrast their scarlet and crimson flowers present to the allamandas, bougainvilleas, and other subjects usually in bloom in that month, and the brilliant effect they produce when well grown. The finest examples exhibited this season were those staged by Messrs. Jackson and Son at Richmond and Regent's Park. These were about thirty inches in diameter and literally solid with bloom, and they were by no means the least effective specimens in their fine groups. Mr. Ward used to grow them exceedingly well a few years back, but since he discontinued exhibiting no private grower appears to have taken them in hand and done justice to them. The variety grown by Mr. Ward was named Phoenix, and had flowers of a brilliant orange-scarlet colour. The two kinds exhibited by Messrs. Jackson and Son this season are Dr. Duphemus, a splendid variety, with flowers of a deep scarlet colour, and Dr. E. Regel, a magnificent form, with flowers of a rich glowing crimson colour. All these are much superior to the well-known *K. coccinea*, and the three will suffice for any one collection. Grown in six-inch and eight-inch pots they are admirably adapted for the decoration of the conservatory, and well deserve more attention at the hands of cultivators than they have yet received. G.

THE HARDY PELARGONIUM.

There is but one hardy pelargonium, at least so the books say, and it will be time to correct them when we find another. The one hardy species is *Pelargonium Endlicherianum*, a native of the Western Taurus, or, say, the southern coast-line of Anatolia. It is an interesting and very curious plant. The leaves are nearly orbiculate and very slightly lobed; the flowers appear to have only two petals, but in reality they have five, but the two upper are large and showy and the three lower are minute and practically invisible. A well-grown plant is gay enough when in flower, for the top petals are richly coloured with shades and lines of rosy crimson, and the filaments of the stamens are similarly coloured; therefore as a plant this is worth growing, and it is hardy enough for frame culture in London and for the open rockery in the more favoured climates of the south coast. It is figured in *B. M.*, 4,946. G.

THE DALMATIAN LILY.

In the fine collection of lilies in the Hale Farm Nurseries, Tottenham, the dark variety of *Lilium martagon*, known as the Dalmatian lily, has been very fine this year. This variety conforms to the *martagon* type in all essential particulars, but differs in colour, being of a rich deep glossy maroon tending towards black, and indeed, for any fanciful purpose, might be called the black lily, as the younger Dumas once called a dark maroon tulip a black tulip, because he wanted such a flower as the basis of a story. The Dalmatian lily is one of the most striking, albeit not the most showy, of its season; it fascinates by its colour and wax-like substance, and is especially conspicuous when associated with the longiflorums and other light lilies that flower at the same time. One of the Dalmatian varieties, apparently inferior to one I saw at Mr. Ware's, is figured in Mr. Elwes's magnificent "Monograph of the Genus *Lilium*." To reproduce the maroon or purple or copper-black colour of the best variety is simply impossible, and compels repetition of Thomson's question, "Who can paint like Nature?" Mr. Elwes reports that it was secured for the benefit of the liliomaniacs in 1875, by Herr Max Leichtlin, who undertook a journey to Dalmatia on purpose to secure it, and succeeded to his own complete satisfaction. In a wild country on the frontiers of Turkey he found the plant at about 3,000 feet elevation, and they were most numerous in the Grivoschie, in the rocky bed of an extinct glacier. "Here the chalky ground is cut up at intervals by crevasses some forty to fifty feet broad and eighty feet deep, in the bottom of which ice and snow were lying. Wherever on the sides of these crevasses a little earth is lodged the lilies grow, having their roots close to rock in a calcareous gravel." As the lilies do not as a rule like chalk, it is a matter of some interest to note that this very peculiarity—the darkest in colour known—can subsist and thrive on a starving chalk soil. LILIOMANIAC.

THE WOOLLY MINT.

The other day, dining with some friends who are somewhat fastidious in respect to their eating and drinking, I experienced a new pleasure at a table where there has never been a deficiency of pleasures revolving as it were around good food. And this new pleasure was the mint sauce. It was very green, quite thick with mint, and of the most exquisite flavour. I was compelled to say that, though addicted to mint sauce, I had really never before tasted the delicacy "as it ought to be." My hostess at once informed me that we were indebted to your Magazine, both for the mint and the sauce, because the plant was given her by the Editor, and in the "Household" department of the Magazine she obtained a "wrinkle" on the proper making of mint sauce. So far as I am any judge, there is as much difference between the woolly mint and the common mint as between gold and silver. It seems that some years ago the Editor distributed a lot of this mint, and surely it would be a boon to thousands if he would repeat the benefaction. EPICURE.

[The woolly mint, *Mentha rotundifolia*, deserves an "Epicure's" encomium, and we regret it is not in our power to comply with his request. When we "distributed" the woolly mint some ten years ago we had a large stock of it, and had occasionally to send barrowloads of the roots to be burned with couch-grass and other weeds that need to be killed outright. Our present stock of the woolly mint would not more than fill a half-peck measure, root and branch, but it is quite enough for our requirements.—ED. G. M.]

MY GARDEN OF WILD THYME.

During the past five weeks the species of thyme in my rockeries and borders have afforded me much pleasure, and I am somewhat surprised that in the gardening papers there is so little said in praise of their fragrance and beauty. There are few amongst the "little bits" that make up the sum total of enjoyment in a mountainous country, capable of surpassing in real loveliness the tufts of flowering thyme, *Thymus serpyllum*, that may be met with on the limestone rocks. What heaps of chopped-up amethysts might we liken those tufts to when they are solid with their cheerful rosy-lilac flowers, and the air is perfumed with their sweet breath! One of my present pets is the woolly thyme, *Thymus lanuginosa*, which is a variety of the common thyme; and another is the lemon thyme, *T. citratus*, which is also a variety of *T. serpyllum*. The common garden thyme, *T. vulgaris*, which I have in several forms on the rockery, is an extremely beautiful plant in a sunny situation, but it will thrive almost anywhere, although in a shady place it does not flower freely. *T. rotundifolius* is one of the finest rock and border plants. The delicate *T. corsicus*, with its lovely golden green leafage and lilac flowers, likes a shady spot and will even thrive in a fern case. The purple (or so-called blue) thyme, *T. azureus*, is a lovely little thing that likes partial shade and a bed of moist peat. We have planted a great many thymes in the herb garden, and it seems they are cut from indiscriminately, the household folks declaring that for domestic purposes they are of about equal value. W. B.

A SNAIL TRAP FOR A TOWN GARDEN.

Eureka! henceforth the snails are at my command, and I will destroy them or eat them to the full extent of the herd that may be assembled within my garden walls. I have a trap; they never fail to enter it, and I can catch them alive oh! at my own sweet will. The trap is nothing less, nothing more, than *Sedum spectabile*. Go at any time in the day and search the plant and therein you will find the dainty creatures. Eureka! Hooray! My name is MOSES.

CAMPANULA CALYCANTHEMA.

I have forwarded you by this post a few blooms of *Campanula calycanthema* grown in the open border. Two years ago I purchased a packet of seed of each variety, white and blue; these I grew in pots for the conservatory. They were the admiration of all visitors. After they had bloomed I took a few of the best plants, which I had previously marked, and plunged them in the open ground to ripen their seed, from which I grew my plants for this season. Having more plants than I wanted for pots, I planted the others in the open borders, and I must say they look grand. It strangely happens that I have but very few that are quite like the parent plants, but many superior, which I shall keep for seed, and a few inferior, which have already been thrown to the rubbish heap. The best four I have numbered: 1, pure white, splendid for pots or borders; 2, purple, equally good; 3, pure white, double, good; and 4, purple, double. The very heavy rains which we have had here lately have knocked the blooms about very much. Hatfield Court, near Gloucester. JOHN APLIN, Gardener.

[A very fine lot, fully justifying the care bestowed upon them.—ED.]

DAY'S EARLY SUNRISE PEA.

I obtained two quarts of Sunrise Pea last year from Messrs. Veitch and Sons, set them singly eight inches apart and ten inches between the rows, and obtained at harvest some five pecks of excellent seed. This year have planted about one acre and have an excellent crop of fine large pods well filled, several containing seven, eight, and nine in each. Have cooked some of them, and they eat splendid. They are the best for field culture. If they have plenty of room they will do well; not if "crowded." Ikleford, near Hitchin. FREDERICK DAY.

P.S.—I have no connexion with Mr. Day, the raiser of Sunrise; neither do I know him.

Having grown all the sorts of peas obtainable during a period of over thirty years, I seem to recognize Early Sunrise as identical with Climax or Alliance. I cannot declare that it is identical with either, because I do not possess the last named, and actual comparison is alone to be trusted. But it is to me a question of some interest whether one of these two has not been, at least nearly, if not quite, reproduced in Early Sunrise. F. FLETCHER.

SUMMER EPIDEMICS.—Medical officers of health, as hot weather approaches, should remind the public that if they desire to be free from such infectious diseases as Scarlet Fever, Small-pox, and Measles, they should wash only with WRIGHT'S COAL TAR SOAP. Purchase only the genuine (Wright's), which is branded (as the medical profession prescribe), "Sapo Carbonis Detergens."—[ADVT.]

Exhibitions and Meetings.

WARWICKSHIRE HORTICULTURAL SOCIETY.—EXHIBITION AT LEAMINGTON, JULY 18.

AFTER several days of dull showery weather, a break in the clouds induced us on the morning of the show to make a journey to the "Queen of the Midlands," Leamington, where, after an hour's ride per Great Western "Express," we arrived, having been painfully impressed with the serious destruction of the hay crop as it lay rotting in the Cherwell Vale, between Oxford and Banbury. The latter town passed, a more favourable state of things was perceived, as we flew onwards through the agricultural district of "leafy Warwickshire."

Leamington—or rather, Royal Leamington Spa—possesses a number of attractions not always found in inland towns. The beauty and salubrity of the town itself, its central situation, and the facility with which it is reached from all parts of the kingdom, combined with the numerous objects of interest in the locality, render it a desirable retreat for the invalid or casual visitor. Among its chief attractions may be mentioned its eleven springs of mineral waters, its pump-room and baths, its cathedral-like church, its regularly built, wide, clean streets, its stately avenues, and its beautiful well-kept gardens are among the chief centres of attraction to visitors, who are constantly arriving from all quarters of the globe. The profusion of trees and flowers is everywhere noticeable; and, alighting at the railway station, this wealth of greenery strikes the eye at every turn. Its principal street is the Parade, a fine wide thoroughfare, rising gently from the Victoria Bridge, which spans the Leam, terminating with Christ Church, in Beauchamp Square, surrounded on three sides with a garden and shrubbery. In the very centre of the town is a populous rookery, in the summits of some grand old elms. To the poet, artist, or antiquary, the surroundings are rich in resources of pleasure and interest, as within easy distance stands Warwick Castle, "the finest monument of ancient and chivalrous splendour which remains uninjured by time;" Kenilworth Castle, with its hoary ruins; Guy's Cliffe, shrouded amid the foliage of grand historical trees, with the Avon winding gracefully at its foot; Stoneleigh Abbey, the ancestral home of the Leighs, once the abode of the Cistercian monks; Coombe Abbey (the seat of Earl Craven), wrapped in dense woods; and Stratford-on-Avon, the birthplace of the immortal Shakespeare.

For ourselves, we preferred to remain at Leamington, in order to witness the annual exhibition of the Warwickshire Horticultural Society, convened in the beautiful domain known as Jephson's Gardens, so named in honour of the "father of Leamington."

The gardens are fourteen acres in extent, and contain over a thousand fine specimens of ornamental trees, many of which are labelled with their botanic names. These beautiful grounds are delightfully placed on the north bank of the Leam, and with the Pump Room gardens opposite form a belt of greenery through the centre of the Royal Spa, dividing the newer part of the town from the southern half. Entrance is obtained between two handsome lodges, leaving which broad gravel paths wind in every direction. The grounds are agreeably diversified with flowers and ornamental shrubs, whilst an artificial lake (area one acre) adds a charm in summer and affords skating in winter. The gardens slope down to the Leam, from whose banks views of the parish church, the bridge, and Victoria Terrace are obtained. A circular eight-columned temple, of the Corinthian order, to the left of the principal walk, contains a fine marble statue of Dr. Jephson; not far from this is the Willes memorial, which commemorates the fact that the site of the gardens was due to E. Willes, Esq. At a short distance from the main entrance are two bridges, ornamented with rockwork, which conduct the visitor into the upper grounds, a large portion of which is devoted to the practice of archery. Grand meetings of the Toxophilites of the Midland Counties take place annually here. Rustic seats and arbours are placed in every available position, commanding the most beautiful prospects. A stately grove of trees skirts the river, their umbrageous foliage and wide spreading branches forming a delightful shade. The flower borders and beds contain a very choice number of roses in over one hundred varieties: the blooms on the day of the show, if staged, would have secured very high honours. At the farther end of the garden is a maze similar to the one at Hampton Court, but of smaller dimensions. In the north-west corner, near the Parade, the Hitchman Memorial Fountain (a thirteenth-century Gothic design, with a touch of the Romanesque) occupies a good position, while an avenue of Quercus ilex and other species of oak, including the cork oak, leads from the main entrance to the upper grounds. About forty of these were cut down recently in order to improve the south side of the lake. The gardens abound in choice trees and shrubs planted in 1864 by Mr. Cullis, a local nurseryman. Their present condition is a credit to Mr. H. Loford, the gardener in chief. But to the tents, of which four of large size were erected in a line on the archery lawn.

GROUPS ARRANGED FOR EFFECT.—These, four in number, contained the cream of popular varieties in palms, ferns, colens, geraniums, fuchsias, balsams, &c., the premier award falling to Mr. F. Perkins, Regent Street, Leamington, for a gracefully set-out group; Messrs. E. and J. Perkins, Leamington, second; and Mrs. C. Nelson, Crackley Hill House, Kenilworth, third (gardener, Mr. E. Chadwick).

STOVE AND GREENHOUSE PLANTS IN BLOOM.—In this division the exhibits were very compact full-size specimens, fresh and well-flowered, the "three guinea" silver cup being awarded to Mrs. E. Nelson for Allamanda Hendersoni, Vinca alba, Statice profusa, a Dipladenia, Stephanotis floribunda, and Bougainvillea glabra. Mr. F. Perkins second with Begonia Vesuvius, Bougainvillea glabra, Gloriosa superba, Allamanda Hendersoni, Ixora crocata, and Russolia juncea. For four varieties the best group was presented by W. R. Mann, Esq., Lillington (gardener, Mr. C. Finch), for very neatly-finished plants of Statice profusa, Allamanda Hendersoni, Clerodendron fallax, and Vinca alba. J. D. Balfour, Esq., Hilden, Milverton, second with Dipladenia, amabilis, Statice profusa, Lagerstremia indica, and Begonia carinata.

EXOTIC FERNS occupied a large amount of table space, the post of honour going to a very superior group from G. H. Nelson, Esq., Elmscote, including Cibotium Schiedii, Davallia Mooreana, Adiantum trapeziforme, Pteris tremula, Alsophila excelsa, and Blechnum corcovadense. Mrs. C. Nelson, Kenilworth, second with Dicksonia antarctica, Platycerium alcinorne, Adiantum cardiolobum, A. cuneatum, Neottiopteris nidus, and an unnamed New Zealand fern; third, Mr. R. Mann, with Dicksonia antarctica, D. squarrosa, Gymnogramma chrysophylla, Adiantum cuneatum, A. farleyense, and Leucostegia immersa.

HARDY FERNS were in plenty, and good. The best six came from Lady

Bertie Percy, Guy's Cliffe (gardener, Manuel Elliott). The varieties were Osmunda regalis, Scolopendrium crispum, Polystichum truncatum, Athyrium f. f. fissidens, Adiantum pedatum, and Polystichum angulare; Mrs. C. Nelson second with Lastrea dilatata, Osmunda regalis, Adiantum capillus-veneris, Athyrium f. f. Ellesworthi, and Lastrea cristata.

FOLIAGE PLANTS were a large show. In the class for six Mr. G. H. Nelson, The Lawn, Warwick (gardener, H. Wilkins), had massive specimens of Pandanus Veitchi, Latania borbonica, Maranta zebra, Corypha australis, Croton regina, and Allocasia Veitchi; Mrs. C. Nelson second with Seaforthia elegans, Croton variegatum, Chamærops humilis, Pandanus Veitchi, Cycas revoluta, and Croton interruptum.

LYCOPODS were in good variety, the premier set by Miss Percy, Guy's Cliffe, being fine rounded cones, displaying the trailing fan-like branches to perfection, the varieties being Selaginella denticulata aurea, S. apoda, S. Mertensi variegatum, S. caesia, S. erecta, and S. rubricaulis; T. D. Barbour, Esq., second with Willdenovi and Erythropus and some of the above-named varieties.

COLEUS were in strong force, though scarcely so bright as could be wished. Messrs. E. and J. Perkins first with large pyramidal bushes of Royal Purple, Miss Rosseneau, Amazement, Harlequin, James Barnshaw, and Dr. B. Hurstfield; Miss Percy second with Miss Rosseneau, Ernest, Royal Purple, Sensation, Dr. B. Hurstfield, and Mrs. G. Simpson. J. C. Lewis-Boulton, Esq., West Rock, Leamington, also staged a fair group, comprising Fair Maid of Kent, Duchess of Teck, Butterfly, Glow, Mrs. Wilmot, and Mrs. G. Simpson.

CALADIUMS, from the last-named exhibitor comprised Princess Alexandra, Reine Victoria, Houletti, Louis Duplessis, Aristide, Leplays, and Napoleon III.

FUCHSIAS in sets of six were represented by average groups of old varieties, the best being Avalanche, Beaconsfield, England's Glory, Arabella, Marginata, Display, Mrs. Burrows, Crystal Fountain, Rose of Castile, and Scarlet Gem. W. R. Mann, Esq., first and J. D. Barbour second.

BEGONIAS made a grand display of colour; Messrs. E. and J. Perkins presenting densely-flowered bushes of Chancellor, Williamsi, Perkinsi, Mme. O. Lamache, Sedeni fl. pl., and another; Mrs. Percy Barron, Myton, second.

GROUP OF PLANTS FOR DRAWING ROOM produced some nice arrangements, the best was produced by Messrs. E. and J. Perkins, who had a double tier rustic stand (French polished legs and frame) filled with very neat decorative plants edged with begonias, lobelias, and trailers. In separate classes there were also a number of achimenes, gloxinias, and adiantum.

CUT FLOWERS included a large number of bouquets, epergnes, &c.; the premier award for hand bouquet going to Messrs. E. and J. Perkins; for centre-piece, to Miss Rogers, Leamington, and Mr. Charles Brett, Leamington, for skillfully designed sets; the premier award for a basket of roses going to Mr. Frederick Perkins for a well-filled basket of glorious old Général Jacqueminots; the second-prize lot from E. and J. Perkins. Mr. F. Perkins was awarded a "special prize" for three differently-arranged bouquets, representing "table," "hand," and "brides" bouquets.

ROSES.—These presented a blaze of colour, four trade growers in the neighbourhood competing in the class for twenty-four, Mr. F. Perkins leading with a well selected and arranged box, including Thomas Mills, Captain Christy, Cheshunt Hybrid, Sénateur Vaisse, Catherine Mermet, Marie Baumann, Mdle. Marie Finger, Exposition de Brie, Charles Lefebvre, Auguste Rigotard, Mme. Lacharme, Mme. V. Verdier, La France, Mdle. Marie Rady, John Hopper, Niphetos, Pierre Notting, Beauty of Waltham, Princess Beatrice, Duke of Edinburgh, Alfred Colomb, Dr. Andry, Baroness Rothschild, and Fisher Holmes; Miss Watson-Taylor, Manor House, Headington, Oxford, second. Messrs. E. and J. Perkins, Leamington; Perkins and Sons, Coventry, and M. R. Bryant, Rugby, also competed with nice fresh stands. In the class for twelve the card went to Miss Watson-Taylor for a level lot, comprising Souv. de la Malmaison, François Michelin, Camille Bernardin, La France, Emilie Hausberg, Beauty of Waltham, Dr. Andry, Baroness Rothschild, Mdle. Marie Rady, Perle des Jardins, and Marie Baumann. The second prize was awarded to the Right Hon. Lord Willoughby de Broke, Compton Verney (gardener, John Garner), for Paul Verdier, Madame Lacharme, Marquise de Castellane, John Stuart Mill, Bouquet d'Or, Dr. Andry, Duc de Rohan, Cheshunt Hybrid, Fisher Holmes, Captain Christy, Mdle. Marie Rady, and Belle Lyonnaise. Mr. F. Perkins also staged some fine boxes, including a dozen of Captain Christy, twenty-four triplets, and a fine box of single trusses.

PERLARGONIUMS (bedding) were splendidly shown; the groups were arranged in triplet trusses (mixed), Mr. F. Perkins leading with Countess of Warwick, Mrs. Perkins, Hydrangea folia, Rosea striata, Jealousy, Avalanche, Samuel Plimsoll, and seedlings. In single trusses Mrs. C. Nelson took premier honours with Rev. — Atkinson, Louise, R. H. Clifton, Ellen, Lady Sheffield, Mr. Newdigate, Sybil Holden, John Gibbons, and others. The second place was assigned to J. D. Balfour, Esq.

DAHLIAS were limited to one fair exhibit by Mr. C. Nelson, Guy's Cliffe, who had good average examples of Andrew Dodds, Rembrandt, J. G. Lore, Darkness, Royal Queen, Julia Davis, Ovid, Mrs. Hodgson, Artiste, and Henry Walton.

COLLECTIONS OF CUT FLOWERS GROWN UNDER GLASS.—Here Mr. F. Perkins held his own with bunches of Agapanthus umbellatus, Bouvardia Vreelandi, Lapageria alba, L. rosea, Ixora Williamsi, Allamanda Hendersoni, Pelargonium Ed. Perkins, P. Volouté Nationale, Dipladenia boliviensis, Bouvardia elegans, and Ixora alba; E. J. Perkins second with Hibiscus brilliantissima, Begonia nitida, Allamanda Hendersoni, Oncidium Skinneri, Plumbago capensis, Ixora coccinea, Begonia Chancellor, Clerodendron Balfourianum, Statice profusa, and Lapageria rosea.

FRUIT embraced the most select varieties. For a collection Sir R. G. Phillips, Western House, Shipston-on-Stour, put up Black Hamburg and Buckland Sweetwater grapes, Grosse Mignonne peaches, Elruge nectarines, President strawberries, and Cox's Golden Gem melon. The second card went to J. D. Balfour for Hero of Lockinge melon, Morello cherries, Crown Bob gooseberries, Rubicon figs, Royal George peaches, and White Grape currants. For black grapes Lady Willoughby de Broke first with Hamburg; Sir R. Phillips second with Alicante. For white Sir R. Phillips first with Muscats; Mrs. C. Nelson second with Duke of Baccalouch. Peaches, first Sir R. Phillips with Grosse Mignonne; Lord Willoughby de Broke second with Violette Hâtive. Melons were plentiful, the premier card being affixed to a small example of Conqueror of Europe; the second place to a Bleuhoim Orange. Cherries, strawberries, gooseberries, and currants filled a large amount of table space, the varieties being well-known kinds.

VEGETABLES were altogether a strong point, both in collections and single dishes. In the first-prize collection, from the gardener at Guy's Cliffe,

were Harrison's Favourite cucumber, International Kidney potatoes, Moore's Cream marrow, William I. peas, Snowball turnips, Flat Tripoli onion, Nantes carrots, Autumn Giant cauliflower, and Globe artichokes. Second J. E. Lewis-Boulbee, Esq., for Telegraph cucumber, Veitch's Perfection peas, Suttons' Large Rod tomatoes, mushrooms, Early Horn carrots, Negro Kidney beans, Early London cauliflowers, Snowball turnips, and Tripoli onions. The best dishes of peas in the competing classes were No Plus Ultra and Telephone.

POTATOES. *Kidney Class*, three dishes—First prize, Miss Percy, Guy's Cliff, with Mona's Pride, Ashleaf, and Bresee's Prolific; Mrs. C. Nelson, Kenilworth, second. Single dishes (*Kidney*), Mr. W. Hayward, Guy's Cliff, first with International; Mr. James Doughty second with Mona's Pride, and Mr. Richard Brown third with International. *Rounds*—First, Mr. W. Hayward with Reading Abbey; Mr. James Ingram second with Red Emperor, and Mr. Abel Warner third with Breadfruit. We have only glanced at the "open" classes, but it must be understood that in the amateurs' divisions the classes were much the same, the number of varieties only being reduced.

The judges were, Mr. Thomas Crisp, Newbold Revel, Rugby, and Mr. Thos. Parkes, Bosworth Hall, near Rugby; the duties of hon. secretary being ably carried out by Mr. F. Bird.

Oxford.

WILLIAM GREENAWAY.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, JULY 25.

The excellent exhibition of the National Carnation and Picotee Society was supplemented by several miscellaneous contributions of considerable importance, and the conservatory presented a very attractive appearance.

Chief amongst the collections of ornamental plants were those of tuberous begonias, ivy-leaved pelargoniums, and achimenes, from the Chiswick gardens of the society, all of which were remarkably good. Particularly noteworthy in the group of ivy-leaved pelargoniums were the splendid examples of Gloire d'Orléans, one of the very finest varieties in the section; it has a compact habit, is very free blooming, and the flowers, which are produced in neat trusses, are of an effective shade of rosy magenta. The begonias were of medium size and densely flowered, and represented the best type of plant for the decoration of the conservatory. The achimenes were also admirably grown and superbly flowered, and comprised most of the finest varieties yet introduced to cultivation. Mr. Barron also sent a good specimen of the elegant Montbretia crocosmæflora, a bulbous plant of recent introduction, bearing spikes of orange-scarlet flowers.

Messrs. W. Paul and Son, Waltham Cross, Herts, exhibited twelve very fine boxes of roses, and half a dozen blooms of their splendid new hybrid perpetual, Queen of Queens, which will eventually take a foremost position amongst exhibition roses, and prove, as in the case of the many other fine roses introduced by the firm, of immense value for the garden. Messrs. W. Paul and Son also staged a large and representative collection of gooseberries.

Messrs. H. Cannell and Sons, Swanley, staged in their well-known style a collection of verbenas comprising about thirty of the very finest varieties, six trusses of each; and Mr. Charles Turner, Slough, contributed several stands of show and fancy dahlias, which for so early in the season were of excellent quality. Mr. Ware, Hale Farm Nurseries, Tottenham, exhibited an attractive collection of cut flowers, comprising single dahlias, pentstemons, and early-flowering chrysanthemums; the single dahlias included a stand of blooms of White Queen, an exceedingly fine white variety raised and introduced by Mr. Ware. Mr. Hooper, of Bath, sent a collection of pansies comprising show and fancy varieties in capital condition.

A few interesting orchids were staged by Messrs. J. Veitch and Sons, King's Road, Chelsea, Mr. Spyers, orchid grower to Sir Trevor Lawrence, Bart., M.P., Burford Lodge, Dorking, and other exhibitors. Messrs. J. Veitch and Sons had Cattleya Chamberlainiana, a handsome hybrid between Cattleya Leopoldi and C. Dowiana; in growth it has a strong resemblance to the first mentioned of its two parents, and bears comparatively large flowers, the sepals and petals dull rosy crimson, and the labellum rich purple; Lælia callistoglossa, a fine hybrid between L. purpurata and Cattleya gigas, combining the flowers of the former with the foliage of the latter; the flowers are of large size, the sepals and petals delicate pink, and the labellum rich purple. Mr. Osborn, Wilton House, Southampton, staged a well-flowered example of the beautiful Cattleya Sanderiana, and Mr. Williams, Signell Hall, Eccleshall, contributed a good specimen of Cattleya Eldorado, for which he was accorded a vote of thanks. A like compliment was paid to Mr. Heims, gardener to F. A. Philbrick, Esq., Oldfield, Bickley, for an exceedingly fine specimen of Aerides affine superbum, bearing nine splendidly-developed spikes. Mr. Spyers staged, in addition to the orchids for which he was granted certificates of the first class, the distinct and beautiful Mormodes luxatum eburneum.

One of the most interesting objects brought before the Floral Committee was the exceptionally fine specimens of Ceanothus Dampieri from Mr. Bennett, of Shepperton. This had been raised from seed sown early in the current year, and was furnished with four or five shoots, which were about eighteen inches in height, clothed with healthy foliage to the rim of the pot, and bearing an aggregate of fourteen fine trusses of the richly-coloured flowers. G. F. Wilson, Esq., Weybridge, exhibited cut blooms of several fine varieties of Iris Kämpferi, and Mr. R. Dean, Ealing and Bedford, a collection of antirrhinums, representing a fine strain. From Mr. B. S. Williams came Croton Duke of Albany, an effective variety with rather narrow erect leaves, richly coloured bright red and bronze.

The most important of the contributions before the Fruit Committee were the fourteen magnificent smooth Cayenne pines from Mr. Wilson, Castle Hill, North Devon. The fruit ranged from 7 lb. to 9 lb. each, were perfect in development, and afforded the best possible proof of the great success with which pines are grown by Mr. Wilson.

Mr. Stephen Castle, The Vineyard, West Lynn, King's Lynn, sent a basket of Gros Maroc grapes, well coloured but hardly ripe; and Mr. Charles Turner exhibited six standard red currant trees in pots, which were carrying a good crop of fruit and were very attractive. Several new peas of great promise were shown by Mr. Eckford, Sandywell Park, Cheltenham, and Mr. T. Laxton, Bedford; and the usual number of so-called new melons were exhibited.

There was a good competition for the prizes offered by Messrs. Hooper and Co. for the best dish of Abundance tomato, which appears to be a good strain of Trophy. The prizetakers were Mr. Phillips, Meopham, Kent, and Mr.

Castle, both of whom staged very excellent fruits. Mr. Staggle, Hadlow, Tonbridge, staged in the class for the three heaviest fruits examples weighing in the aggregate 3 lbs. 1 oz., and of good shape, but not well ripened. Mr. Phillips exhibited a capital form of Trophy tomato under the designation of Perfection, but not distinct enough to warrant its receiving a separate name.

The following First-class Certificates were granted by the Floral Committee:—

To Messrs. J. Voitch and Sons for

Lilium auratum virginale.—An exceedingly beautiful variety, in which the flowers are of superb form and the segments marked with a broad band of bright yellow.

Begonia gogoensis.—A distinct and handsome species with large orbicular leaves of a deep olive-green, with light green veins; the flowers small, and of a delicate flesh colour.

To Mr. Spyers for

Comparctia falcata vera.—A distinct and brightly-coloured species; the flowers rich orange and borne on long slender spikes.

Oncidium stelligerum.—A handsome species producing long spikes of medium-sized flowers; the sepals and petals green marked with bronzed spots; the labellum purple and white.

Renanthera matutina.—Remarkable for its distinctness and effective colouring; the flowers produced on slender spikes and of a rich orange-red, with crimson spots on the labellum.

Grammatophyllum multiflorum.—A very distinct species, producing bold spikes of large green flowers, spotted with blackish maroon.

To Mr. Heims for

Comparctia macrolepton.—A very beautiful species with large bright pink flowers.

To Messrs. H. Low and Co., Upper Clapton, for

Cattleya Whitei.—A handsome Brazilian species of dwarf habit and bearing medium-sized flowers; the sepals and petals rosy red, the labellum rich purple marked in the centre with yellow.

To Messrs. J. Carter and Co., High Holborn, W.C., for

Nasturtium Empress of India.—A very effective variety; the plant neat in habit and very free blooming, and the flowers of the most brilliant crimson-scarlet; without question the most valuable annual for bedding purposes introduced of late years.

To Mr. William Thompson, Tavern Street, Ipswich, for

Phacelia campanulatus.—A very beautiful hardy plant of dwarf growth, and bearing rather large bell-shaped flowers of a shade of blue almost rivaling in brilliancy that of *Gentiana verna*.

To Mr. C. Turner for

Dahlia Gem.—An excellent pomponé with beautifully-formed flowers of a rich crimson colour.

EXHIBITION OF THE NATIONAL CARNATION AND PICOTEE SOCIETY.

The exhibition of the Southern Section of the National Carnation and Picotee Society at South Kensington was hardly so extensive as that of last year, but the quality of the flowers generally was much higher, and the show may be regarded as one of the best of its kind that has yet been held at South Kensington. The leading exhibitors were, as in previous years, Mr. Charles Turner, of Slough, Mr. E. S. Dodwell, Stanley Road, Oxford, and Mr. J. Douglas, The Gardens, Loxford Hall, Ilford, and the whole of the flowers staged by them were of a high degree of excellence, though differing in relative merit.

CARNATIONS.—The competition in the class for twenty-four blooms, not less than twelve dissimilar varieties, was very keen, and the first prize was awarded to Mr. C. Turner for a stand of magnificent blooms. The varieties represented were: Master Fred, Admiral Curzon, Rev. F. Tynons, John Keet, James Taylor, James McIntosh, John Reed, Florence Nightingale, Mrs. Matthews, Matador, John Hines, Sporting Lass, Jessica, Thomas Moore, Jupiter, Squire Dodwell, William Laing, Rifleman, and Lord Lewisham; Mr. Douglas was a close second with Robert Lord, Tim Bobbin, Sarah Payne, Florence Nightingale, William Skirving, Sportsman, Mephistopheles, John Keet, Rob Roy, James Crossland, Sporting Lass, Arthur Medhurst, Crimson Banner, James Douglas, Master Fred, J. D. Hextall, Apollo, Henry Cannell, James Taylor, John Simonite; Mr. E. S. Dodwell third, Mr. J. Hines fourth, and Mr. H. Hooper, Bath, fifth.

The prizes for twelve blooms, distinct, were contested with even greater spirit than those for twenty-four, and at the head of the competitors was Mr. J. Douglas with superbly-finished blooms of William Skirving, Florence Nightingale, James Merryweather, Dreadnought, Earl Stamford, Sarah Payne, Sportsman, Admiral Curzon, John Keet, J. D. Hextall, Annihilator, and a seedling; Mr. E. S. Dodwell second with James Douglas, Ben Simonite, Rifleman, Henry Cannell, Tim Bobbin, Curzon Sport S. F., Master Fred, Florence Nightingale, Arthur Medhurst, Squire Dodwell, Alfred Hines, and Henry Taylor; Mr. Hines third, Dr. Abercrombie fourth, and Mr. Baxton fifth. For six blooms, distinct, Mr. Sharpe was first with excellent flowers of Sybil, James Taylor, Sarah Payne, Florence Nightingale, and Arthur Medhurst; Master Stanley Dodwell second, and Mr. W. Slack third.

An immense number of blooms were staged in the classes for single specimens. In the class for scarlet bizarre Mr. J. Douglas was first and second with Admiral Curzon and third with Edward Adams, and Mr. C. Turner fourth with Admiral Curzon and fifth with Robert Lord. For crimson bizarre Mr. J. Douglas first and second with Rifleman, Mr. Turner third with Rifleman, and Mr. E. S. Dodwell fourth and fifth with H. K. Mayor. Pink and purple bizarre, Mr. Douglas first and second with Sarah Payne, Mr. Turner third and fifth with Sarah Payne, and Mr. Hines fourth with Sarah Payne. Purple flake, Mr. J. Douglas first and third with Earl Stamford, second with James Douglas and fourth and fifth with Florence Nightingale. Scarlet flake, Mr. J. Douglas first, third, and fifth with Sportsman; Mr. C. Turner, second with Matador, and Mr. E. S. Dodwell fourth with Scarlet Keet. Rose flake, Mr. C. Turner first with Jessica, Mr. E. S. Dodwell second with Tim Bobbin, Mr. J. Douglas third and fifth with Rob Roy, and Mr. Gorton fourth with Rob Roy. The premier carnation in the show was the bloom of Robert Lord, a fine scarlet bizarre, staged in Mr. Douglas's stand of twenty-four.

The selfs made an attractive display, and for twenty-four Mr. C. Turner was first with good blooms of Jessica, Etna, Unexpected, Sybil, Robert Scott, Géant des Batailles, Constance, Rosa Bonheur, Mary Bertram, Alfred, Duchess of Connaught, and Lord Lewisham. For twelve Mr. E. S. Dodwell, Master Stanley Dodwell, and Mr. G. Duffield, Winchmore Hill, were the prizetakers, in the order of their names.

First-class Certificates for carnations were granted as under :—

To Mr. E. S. Dodwell for
Henry Cannell.—A superb scarlet flake, the flowers very large, full, and of grand form ; the colour very bright, and the ground remarkably pure.
Alfred Hadso.—A splendid scarlet bizarre, the flowers of large size, exceedingly well finished, and the colours bright and well defined.

To Mr. J. Douglas for
William Skirving.—A beautiful pink and purple bizarre, the flowers of full size and grand form, the colours rich and clear.

To Mr. Richard Gorton for
Tim Bobbin.—A rose flake of high-class quality, the flowers of medium size, with fine petal, and of excellent form.

To Mr. G. Duffield for
Mrs. Page.—A pleasing self, the flowers large and full, with serrated petals, and of a delicate bluish-pink colour.

To Mr. J. A. Wallington, Trowbridge, for
Florence.—A decorative variety, with rather large flowers of a bright yellowish buff colour.

PICOTEES.—In the leading class for twenty-four blooms, not less than twelve dissimilar varieties, Mr. C. Turner was first with fine blooms of Mrs. Chancellor, J. B. Bryant, Mme. Corbin, Baroness Burdett-Coutts, Louisa, John Smith, Constance Heron, Princess Dagmar, Mrs. Payne, Her Majesty, Muriel, Evelyn, Mrs. Gibbons, Mrs. Bowyer, Royal Visit, Clara Penson, Imogene, and Portia ; Mr. E. S. Dodwell, Stanley Road, Oxford, second with highly-finished blooms of Mrs. Chancellor, Mrs. Payne, Ethel, Countess of Wilton, Daisy, John Smith, Lizzie Tones, Edith Dombain, Tinnie, Louisa, Zerlina, Dr. Epps, Mary, Medina, Royal Visit, Clara Penson, Mrs. Wilson, Esther Minnie, and Muriel ; Mr. Douglas third with good blooms of Princess of Wales, Her Majesty, Brunette, Mrs. Gorton, Mrs. Payne, Thomas Williams, Baroness Burdett-Coutts, Jessie, Violet Douglas, Mrs. Alcroft, Norfolk Beauty, and Mary ; Mr. J. Hines fourth, and Messrs. Hooper fifth.

In the class for twelve blooms, dissimilar, Mr. E. S. Dodwell was first with grand flowers of Tinnie, Mrs. Payne, Mrs. Chancellor, Zerlina, Edith Dombain, Ethel, Mary, Medina, Dr. Epps, Esther Minnie, and Master Norman ; Mr. J. Douglas second with excellent blooms of Her Majesty, Mrs. Payne, Violet Douglas, Brunette, Mrs. Gorton, John Smith, Jessie, Norfolk Beauty, Mrs. Alcroft, Royal Visit, Ann Lord, and Mrs. Chancellor ; Mr. J. Buxton third, Mr. J. Hines fourth, Dr. Abercrombie fifth, and Mr. Duffield sixth. For six blooms, dissimilar, Master Stanley Dodwell first with Medina, Tinnie, Royal Visit, Master Norman, Miss Lee ; Mr. Slack and Mr. Sharp second and third respectively.

All the classes for single specimens were exceedingly well filled, and the flowers were remarkably good. Light-edged rose and scarlet, Mr. C. Turner first and second with Evelyn and fifth with Lady Carrington, Mr. J. Douglas third with Miss Lee and fourth with Mrs. Alcroft. Heavy-edged rose and scarlet, Mr. Douglas first and second, Mr. Turner third and fourth, and Dr. Abercrombie fifth with Mrs. Payne, the finest flower in its colour. Light-edged purple, Mr. Dodwell first, fourth, and fifth with Mary, Mr. Turner second with Clara Penson and third with Mrs. Tutton. Heavy-edged purple, Mr. Turner first with Muriel, third with Mrs. Chancellor, and fifth with Zerlina ; Mr. J. Douglas second with Mrs. Chancellor and fourth with Alliance. Light-edged red, Mr. Turner first and fifth with Violet Douglas, and Mr. Douglas second with Mrs. Gorton and third with Violet Douglas, and Mr. Dodwell fourth with Thomas Williams. Heavy-edged red, Mr. Turner first with Henry ; Mr. Douglas second and fifth with Princess of Wales and third and fourth with Brunette. Yellow ground, Mr. J. Douglas first, second, third, and fourth with Ne Plus Ultra, and Mr. Hooper fifth with Sir F. Roberts. The premier picotee in the show was the splendid bloom of Mrs. Payne in Mr. J. Douglas's stand of twenty-four.

In the class for twelve yellow ground flowers Mr. J. Douglas occupied the first place with a capital stand, in which were fine blooms of Mrs. Colman, Ne Plus Ultra, Lightning, Princess Beatrice, Prince of Orange, and Eleanor ; Mr. Hooper and Mr. Cattle second and third.

The undermentioned Certificates for picotees were granted :—

To Mr. E. S. Dodwell for

Muriel.—A very fine heavy-edged purple, the flowers extra large, with grand petal, the ground pure and the edge rich and sharply defined.

To Mr. J. Douglas for

Mrs. Gorton.—A superb light-edged red ; the flowers large and full and with grand petal, the colour very bright and the ground remarkable for its purity.

PLANTS IN POTS from any or all of the classes were represented by collections from Mr. C. Turner and Mr. J. Douglas, who were first and second respectively. The plants occupied eight-inch pots and had three blooms each, which were backed up with large cards as on the stand, and, to state the case very mildly, the collections served no other purpose than to show how unsightly it is possible to make these beautiful flowers.

MISCELLANEOUS CONTRIBUTIONS included a very large and interesting collection of carnations and picotees from Messrs. J. Veitch and Sons, which had been produced by plants that had not been disbudded. Mr. Howard, Southgate, sent bouquets of pinks and carnations, and Messrs. Cross and Steer, Salisbury, exhibited a stand of the Governor carnation, a beautiful decorative variety with large flesh-coloured flowers.

TOOTING HORTICULTURAL SOCIETY.

The July meeting of the Tooting Horticultural Society was a very successful and highly creditable affair. This society aims higher than most local societies, inasmuch as it brings together an exhibition in the committee room monthly, to which all members are free, and thus during the whole season a source of instruction and pleasure is open to them, whilst by the judicious awards of certificates of merit to seedlings, newly-imported plants, and hybrids, as well as cultural certificates, a deep and lasting interest is created amongst all the members.

Glancing briefly over the exhibits at this meeting, we noted some very fine examples of gloxinias brought by Mr. Todman, gardener to J. Connell, Esq., Bushy Down, measuring some two and a half feet in diameter, and carrying upwards of eighty flowers, whilst the foliage was simply everything that could be desired. They had been grown somewhat cool, and treated to some of Clay's Fertilizer in a liquid state. They were awarded a cultural certificate. Mr. Eade, gardener to J. Bonner, Esq., Bidge House, set up a very handsome melon, called Prizetaker, beautifully finished, and just in proper condition for table. This also was deservedly awarded a cultural certificate. The

same exhibitor brought a very fine hydrangea, Dwfana, bearing an immense head ; it was awarded a cultural certificate. Stands and glasses of cut flowers were in great profusion. From Mr. Bingham, gardener to Miss Goldsmidt, Lynwood, came some very fine seedling begonias, some whites and yellows being remarkably fine. Mr. Rapley, gardener to J. Brand, Esq., also put up some fine seedling begonias, calceolarias, and gloxinias. Mr. Glide, gardener to — Welton, Esq., The Laurels, brought a stand of double pelargoniums extra well done. Mr. W. Ball, The Gardens, Brooklands, had a most interesting collection, comprising gloxinias, begonias, carnations and picotees, petunias, neriums, and a remarkable set of Canterbury bells, double and single, and in all shades of colour. The same exhibitor also brought an example of Day's Early Sunrise pea, as grown to show its prolific character, which is truly great, whilst the flavour is excellent. Mr. Lansbery, gardener to Mrs. Alston, Hill House, brought a nice collection of cut flowers of tydeas, gloxinias, and some excellent purple intermediate stocks. Mr. F. Ball, gardener to H. Doulton, Esq., The Woodlands, staged a most interesting collection of old-fashioned herbaceous flowers, comprising potentillas of various colours, lychais, antirrhinums, campanulas, geraniums, mimulus, diplacus, and many others ; also a brace of very fine cucumbers, a cross between Rollisson's Telegraph and Duke of Edinburgh. Amongst new plants Mr. Bemby, gardener to W. Galton, Esq., Park House, brought a grand seedling dark fuchsia, called General Roberts, the flowers very large, well reflexed, and excellent ; it was considered quite distinct from anything in commerce, and awarded a first-class certificate of merit. Mr. Todman also brought a new pelargonium of the decorative section called Duke of Albany, exquisite in colour, small compact trusses fit for cutting, dwarf in habit, and most profuse in blooming ; it was also awarded a first-class certificate. Mr. Dalton exhibited a very creditable dish of President strawberry and some fine cabbage. Mr. Glide sent a dish of American Strap-leaved turnips of such exceptional quality that they were awarded a cultural certificate. Mr. Galber sent a stand of cut roses, and also some examples of his new curled Golden Feather ; the latter is a very fine plant for hedging purposes, having the appearance of double curled parsley, but of a deep rich golden yellow ; it was awarded a first-class certificate. Mr. Luff, gardener to — Hyatt, Esq., Streatham, brought cut blooms of the French spotted gloxinias ; they were all exquisite in colour, and one in particular was superb. Many other exhibits of flowers, fruits, and vegetables were there, the whole making a remarkable and rich display, and by the number of members in attendance, the beauties of the vegetable kingdom thus set before them was thoroughly appreciated.

11, Longley Road Tooting.

W. A. PARLETT.

WEST OF SCOTLAND ROSARIANS' SOCIETY.

On the 20th inst. the eighth annual exhibition of the above society was held at Helensburgh. A new feature in the show was the introduction of show and fancy pansies and pinks. Those shown by Messrs. W. Paul and Son, Paisley, were exceedingly good, the pansies being pure in colour and large in size, while the pinks were also large and well marked.

The display of roses was truly grand. The gold medal for forty-eight distinct varieties was won by Messrs. A. Dickson and Sons, Newtonards, Ireland, and the premier prize for thirty-six distinct sorts was secured by Mr. Hugh Dickson, Belmont Nursery, Belfast. There were 1,408 rose blooms staged, and 468 pansies and pinks. The judges in the various classes were : The Rev. H. H. D'Omhrair, Ashford, Kent ; J. G. Paul, florist, Paisley ; D. Findlay, Lennox Castle Gardens, Campsie ; M. Campbell, nurseryman, Blantyre ; J. McConnachie, Cameron House Gardens, Balloch ; and J. Forbes, Overtown Gardens, Dumbarton. We give the principal awards :—

ROSES.—Forty-eight blooms, distinct varieties : First (gold medal), A. Dickson and Sons, Newtonards, with grand blooms of the following : Alexander Dickson, Alfred Colomb, A. K. Williams, Annie Wood, Avocat Duvier, Baroness Rothschild, Beauty of Waltham, Captain Christy, Countess of Rosebery, Dr. Andry, Duchess of Bedford, Duke of Edinburgh, Egeria, Elie Morel, Etienne Levat, Francois Courtin, Général Jacqueminot, Horace Vernet, John Stuart Mill, Lady Sheffield, La France, Le Havre, Mme. Eugénie Verdier, Mme. Jacquier, Mme. Laurent, Mme. Louis Leveque, Mme. Maria Verdier, Mme. Nachbury, Mme. Rivers, Mme. Vidot, Mme. Victor Verdier, Mdlle. Eugénie Verdier, Mdlle. Marie Rady, Marquis de Castellane, Marquis de Lignerres, Marquise de Mortemart, May Quenuell, Marie Baumann, Mons. E. Y. Teas, Mrs. Jowitt, Paul Neron, Pierre Carot, Princess Mary of Cambridge, Prince of Wales, Richard Wallace, Rosieriste Jacobs, Sophie Coquerelle, and Wilbelm Koelle. Second T. Smith, nurseryman, Stranreer ; third W. Montgomery, nurseryman, Cardross ; fourth, D. Robertson, nurseryman, Helensburgh. Thirty-six blooms, distinct varieties : First Hugh Dickson, Belfast, who had several of above-named sorts, and fine specimens of Albert Paye, Duc de Rohan, Dupuy Jamain, Lady Sheffield, Barthélemy Jonthert, Ferdinand de Lesseps, Constantin Frietiaff, and others ; second Wm. Parlane, gardener, Row ; third A. McCallum, gardener, Helensburgh. Twelve blooms tea or noisette roses, distinct sorts : First A. H. Gray, Dunkeld ; second G. P. Hawtrey, Aldin House, Slough. Thirty-six blooms of roses, distinct sorts (open to Scotch growers only) : First (silver medal and £3) Wm. Parlane, with splendid flowers, of which the following were most noteworthy : Baron Haussmann, Marquise de Castellane, Francois Michelin, Marguerite Brassac, John Hopper, Gloire de Dijon, Captain Christy, Madame Vidot, Madame Caillat, Duchesse de Vallombrosa, Duke of Edinburgh, Madame Marie Finger, R. Wallace, Emile Hauserg, Paul Neron, Edouard Morren, La France, and Alfred Colomb ; second John McColl, gardener, Row ; third W. Montgomery, Twenty-four blooms, distinct varieties (open to Scotch growers only) : First Wm. Parlane, who in addition to several varieties named above had Madame Nachury, Pierre Notting, Miss Hassard, Etienne Levat, Marquis de Mortemart, and Dupuy Jamain ; second W. Montgomery ; third T. Brown, gardener, Cardross. Sixteen blooms, distinct varieties : First J. Kidd, Rothesay ; second D. Wallace, Rothesay.

PANSIES.—Twenty-four fancy pansies, distinct varieties : First Wm. Paul and Son, Crossflat Nurseries, Paisley, with extra large brilliantly-coloured flowers of Mrs. Barrie, Mrs. Scott Plummer, General Grant, Robt. Goodwin, Countess of Homo, A. McMillan, Miss Bliss, Catherine Agnes, Wm. Storrie, Mrs. Russell, Mrs. Jameson, Earl Beaconsfield, Mrs. E. H. Wood, Ringleader, Perfection, Thalia, Sir P. K. Murray, Mrs. J. Stewart, Wm. Cuthbertson, and five yearling seedlings ; second D. Findlay, Lennox-town, who in addition to some of the above sorts had beautiful flowers of Mrs. Findlay, Lady Falmouth, Mrs. Robinson, James Griovo, Wm. Windle, Miss Tofts, and Livadia ; third James Barr, Paisley, with a very tidy lot, mostly seedlings. Twenty-four show pansies, distinct sorts : first, James

Barr, whose collection, although smaller in size than those in the second prize pan, were of fine quality and included the following: D. Malcolm, Rev. J. Morrison, Capt. Knowles, D. Whitton, A. Watt, Rob Roy, H. A. Hawkins, Count Bismarck, dark self; Snowball, white self; Sir Wm. Collins, R. Donaldson, Thos. Ritchie, John Waterston, A. Henderson, J. B. Robertson, Bailie Cochran, Amy, yellow grounds; Miss Janet Spiers, Miss Barr, white grounds, and three seedlings; second, William Paul and Son, who in addition to several of the above had large bold flowers of Artemis, Mauve Queen, Marquis of Lorne, and J. P. Barbour, dark self; Mrs. Galloway (seedling), white self; Gomar, yellow self; Wm. Robin and R. Pollock, yellow grounds; Miss Henderson and Jessie Foote, white grounds, and several seedlings; third David Findlay with fine clean blooms. Twenty-four show and fancy pansies, distinct varieties (open to gardeners and amateurs): First, D. Findlay with well-grown flowers, including Mrs. Cadzow, Mrs. Dobbie, Miss Baird, Jeannie Grieve, Mauve Queen, Rev. J. Morrison, Golden Circle, Sir W. Collins, and J. B. Robertson, shows; W. McIntosh, Mrs. Robinson, Mrs. E. H. Wood, Catherine Agnes, Earl Beaconsfield, Perfection, Mrs. Findlay, Ringleader, Countess of Home, and Mrs. John Stewart, fancies; second R. Miller, Paisley; third David Malcolm, Kirkintilloch.

PINKS.—Twelve blooms, distinct varieties, first, William Paul and Son, with large double flowers, perfectly laced, of the following: Dr. Masters, Wm. Paul, W. Murray, Wm. Bruce, Geo. White, Bertram, Venessa, Egeria, Emmeline, Nelly, Emily, and Mary Amberton; second, Wm. Parlane, Row.

HORTICULTURAL EXHIBITION AND MARKET IN THE AGRICULTURAL HALL.

Merry Islington is once more a place of assemblage for persons interested in the rural arts, the Horticultural Exhibition in the Agricultural Hall having attracted from all quarters the lovers of gardens and the practitioners of gardening. The gathering comprises examples of every species of mechanism available in the garden, and associated with familiar things are many novelties that will afford considerable interest to practical men. Considering the very utilitarian nature of the exhibition it is highly attractive, for from the first pictorial display was never thought of, the sole object being to bring together in a most convenient market the various implements and appliances that are now in request for the work of the horticulturist, and to place them side by side for public inspection and comparison of their several merits. In such an extensive affair it is no easy matter to select subjects for special notice, but we have thought that our readers would expect some account of this new undertaking, and have accordingly penned a hasty sketch as the result of one walk round.

PLANT HOUSES are conspicuous, and amongst them one by Mr. Lascelles, 121, Bunhill Row, London, which occupies a central position, will be found worthy of some attention. This house rests on cheap imperishable concrete slabs, which form the side walls and may be likened to flagstones of fine texture, although they were manufactured on the spot in one day. Very near this is a house of somewhat novel construction, by Messrs. Wrinch and Sons, Holborn Viaduct, and St. Lawrence Works, Ipswich; one of its peculiarities is that the side lights project outward, and the roof glazing is extended to meet them, and thus the glass roof overhangs the sides, giving extra head-room and light all round to the plants on the side stages. In another spot near the centre is an example of admirable plant-house construction by Messrs. Dennis and Co., of Mansion House Buildings, and Chelmsford; and again, near at hand, Mr. Lewis, of Stamford Hill, makes a demonstration. To the right, near the entrance, is a handsome conservatory with capital arrangements for ventilating by Mr. P. J. Perry, of Banbury; opposite to Mr. Perry's stand is that of Mr. Warhurst, who shows how portable greenhouses may be built and heated, and adds several examples of gas heating stoves that may be placed in the midst of plants with perfect safety. At the other end is an example of glazing without putty from Messrs. W. and S. Deards, of Harlow, Essex. The squares are held in zinc mouldings, which carry away moisture, and at the end of each length is a stop, on which the glass rests instead of on clips. It is extremely simple and complete rigidity is secured, while as regards ventilation, air can be admitted or excluded over the whole structure as may be required. Near at hand is the exhibition by Messrs. Rendle and Co., of 3, Westminster Chambers, Victoria Street, of the now famous Rendle system of glazing, which is peculiarly adapted for the roofs of large edifices. Crossing over beyond Messrs. Rosher's display, we find Messrs. Messenger, of Loughborough, with a very useful style of amateur's span-roof greenhouse and a series of boilers and valves that have been abundantly tested for efficiency. The student of plant houses may now pass round to the entrance, and he will find further entertainment in the way of frames, blinds, boilers, and models of houses.

HEATING APPARATUS of very various characters will be found in this exhibition. To the left, between the tents, is a collection of boilers from Mr. J. Keith, of Edinburgh and Arbroath. One of these is adapted to be set down wherever convenient in the conservatory, and even on a wooden floor if necessary. Next door to Mr. Keith is a collection of boilers and pipes from Messrs. Bailey, Pegg, and Co., of 8, Bankside. Passing down and round to the remote corner where Messrs. Deards are located, we meet with Mr. W. Stainton, of 26, Liverpool Street, King's Cross, who has a novel high-pressure water furnace and some other aids in heating. Another step brings us to the Thames Bank Iron Company, of Upper Ground Street, who present a series of tubular, saddle, and conical boilers, adapted for every variety of heating, whether of large or small houses. Amongst many good things here, the elegant skirting for apartments, and in certain instances for conservatories, is worthy of notice. A range of pipes is carried round the room, covered in with a perforated screen. Thus the apartment is at once adorned and warmed, and practically there is no space occupied by the apparatus, for no one walks so near a wall as to touch it.

STONWORK is represented grandly by Messrs. Rosher and Co., of King's Road, Chelsea, and some other half a dozen places. Bennett's indurating process has through a series of years been carried out in the production of imperishable curbs and edgings, and beautiful statuary, fountains, vases, and the like.

IRONWORK is liberally displayed by the Coalbrookdale Company, who occupy three compartments. One of these is devoted to the display of a beautiful garden pavilion, and in other places near at hand are fountains, vases, and many other handsome productions, for which very reasonable prices are asked. Very near by is the showy collection of vases, fountains, garden seats, and tables of Messrs. A. Handyside and Co., of 32, Walbrook; these being admirable iron castings from special models or copies of the antique.

TENTS are largely shown by Messrs. Unite and Sons, of Edgware Road, and Messrs. Piggot Brothers, of 59, Bishopsgate Street. These are extremely interesting displays, because many of the tents are adapted for lawn parties,

and those other smaller uses which promote enjoyment of the garden during our brief summer.

RUSTIC ADORNMENTS include many very various productions, but for the sake of a classification of some sort we shall accumulate as many things as possible under this head. And we begin with the beautiful rockery of Messrs. Pulham and Son, of Broxbourne, which is near the centre of the hall, and one of its best adornments. It is in the best of taste, because according to nature, but the general scheme is supplemented by ingenious engineering, the Pulhamite path being a capital feature. In a position corresponding to this display, on the other side of the centre, we find Messrs. Deane and Co., of 46, King William Street. Here are beautiful and useful garden seats, awnings, folding carports, window boxes, and useful implements innumerable. A few steps towards the tents brings us to Messrs. Dick Radclyffe and Co., of 179, High Holborn, who show well-made and effectively-furnished window conservatories, fountains, and other elegancies adapted both for the permanent adornment of the house or for fêtes and festivals. Opposite to Messrs. Rosher's display is a very pretty collection of articles in bent wood, from the Austrian Bent Wood Company, 3, Newgate Street; and next the wall, in a line with Deards and Perry, is a large display of garden seats, summer houses, and flower baskets from Mr. H. Lovegrove, of High Street, Slough. Many miscellanies that might come under this head will be met with, but special mention must be made of an effective display of summer houses and other rustic wood furniture from Mr. Trotman, of 196, Holloway Road. This showy lot is near the main entrance, and will be seen by all.

POTTERY is strikingly represented by Mr. Matthews, of Weston-super-Mare, who has a large display of useful and ornamental articles near Messrs. Unite's range of tent work. Here are pots of immense size, which give out a fine bell tone when struck; they are remarkable for their fineness of texture and even burning. The orchid baskets and ornamental works are also worthy of special attention.

WIREWORK is shown in several parts of the hall, and in almost endless variety as to forms and uses, by Messrs. J. J. Thomas and Co., of 87, Queen Victoria Street and 285, Edgware Road. Amongst the contributions from this celebrated firm are aviaries filled with birds, some adapted for the open garden, others for the conservatory and entrance hall. There are wire baskets of all shapes and sizes, arches, trellises, garden chairs, flower stands, bird-cages, fences, &c. We made note of a Corinthian column, such as might occur in a portico or colonnade, which Messrs. Thomas have clothed with a wire trellis to show how such columns may be adorned with climbing plants without employing injurious nails or ugly ties. Here also will be found a bit of historical wirework in the shape of the original wire verandah that was shown in the Paris Exhibition. The West London Wire Works, 337, Oxford Street, have a good display of temples, arches, trellises, and netting.

IMPLEMENTS AND TOOLS are shown in immense variety by Messrs. Deane and Co., of 46, King William Street. Here are innumerable garden engines, lawn mowers, rollers, barrows, spades, forks, knives, grindstones, and the best appliances for the poultry yard.

BEE-KEEPING is largely illustrated by Messrs. G. Neighbour and Sons, of 149, Regent-street, at a stand in the centre line facing Messrs. Rosher's stone-work. Here will be found observatory hives containing living bees; a new double-cased beehive, the walls of which are rendered non-conducting, for the purpose of maintaining an equable temperature. Several of the cheaper kinds of hives are shown for the encouragement of the humane system by cottagers who cannot afford the bar-framed hives that are favoured by scientific bee-keepers. The collateral hive that won a medal at Kilburn is shown, as also various bee-feeders, safety smokers, and protectors for the hands and face of the working apianian.

IRRIGATORS of some sort or other abound. Mr. Keith, of Edinburgh; Messrs. Deane and Co., of King William Street, London; Messrs. Orme and Co., St. Andrew's Street, Holborn Viaduct; Messrs. Arnold and Sons, 35, West Smithfield, and Mr. Deverill, Jersey House, Slough. The last-named exhibitor invites attention to an ingenious apparatus for producing fine showers for irrigating lawns, washing the foliage of shrubs and trees, and otherwise refreshing and improving the garden with the aid of artificial rain.

MATTING, LINES, BAGS, &c., are shown in variety by Mr. T. Anderson, 149, Commercial Street, whose stand is next the centre, near to Messrs. Unite's display.

FERN AND ORCHID BASKETS are shown by Mr. C. G. Warne, of Weston-super-Mare. These are made of a hard red ware in every variety of design to suit various purposes. Mr. Trotman has some handsome and useful rustic wood baskets associated with his summer houses. Messrs. Smith and Williams, of 23, Farringdon Road, have teak-wood orchid baskets, well made and likely to last long.

GLASS for decorative purposes is superbly shown by Messrs. Phillips and Co., 175, Oxford Street, who have a large table irregularly set out to display épergnes, vases, fruit baskets, bouquet holders, and other of the more elegant requisites of a dress dinner. This firm is located next to Mr. Lascelles' plant-house in the centre of the building.

PLANTS and FLOWERS are shown by Mr. Laing, Stanstead Park Nurseries, Forest Hill; Messrs. James Outbush and Son, of Highgate; Messrs. H. Stroud and Sons, of the Green Lanes; Messrs. Dick Radclyffe, of High Holborn; Mr. Burley, of Brentwood, and others.

WINDOW BLINDS and GREENHOUSE SHADES are an important feature, owing to the display of Mr. Paul Metz, of 17, Long Row, Nottingham, which will be found in the centre, next to Mr. Lascelles' stand. The wood-wire work employed in the manufacture of these blinds renders them as flexible as cloth for rolling up and down, while they have the solidity of wood and admit light abundantly, although excluding the full glare of the sun. There are in all 180 exhibitions, and we cannot make room now for noticing them all.

HARDY PLANTS.

By J. S. WOOLSON, in Report of New Jersey State Board of Agriculture.

In no other class do we find such a variety of plants, adapted to so many purposes, as here; whether for planting in beds upon lawns for colour effect, in mixed herbaceous borders, along brooks and the margins of ponds, either natural or artificial, in meadows, upon the rugged hill-side or sandy plain, are many beautiful species which readily adapt themselves to these varied soils and positions.

We also find that their period of flowering is much longer than with bedding plants. From the earliest spring, when the beautiful hepatica opens its azure flowers, to the time when the last golden rod or aster fades in November, there is scarcely a day when we cannot find some new or interesting

species in bloom in a well-selected collection. The idea, so prevalent with many, is that hardy perennial plants are nothing more than weeds, and not worthy of a place in a good garden, and we often hear this remark made by persons who should know better.

That a mass of weedy plants is sometimes to be found in gardens under the name of "hardy plants" we must admit, for, for instance, some of the weedy asters, golden rods, toad flax, live for ever, hemerocallis or day lily, and some others occasionally seen; but these will never be planted by one who understands their habits, or if planted by mistake will soon be rooted out, when there are so many showy species which are easily grown and which, either in foliage or flower, are more attractive. The comparative cheapness of hardy plants is an item to be taken into consideration by those whose time and means are limited. No costly greenhouses and their attendant expenses are required, no immediate large outlay for plants or seeds, no necessity of being obliged to procure new stock each season, as with bedding plants; only a few dollars expended judiciously from year to year, either in plants or seeds of the choicest sorts, and in a wonderfully short period a garden well worthy of the name, and one which will be a delight to its owner as well as the visitor, is the result.

In how few of our gardens, either public or private, do we find groups of magnificent lilies, one constant succession of bloom, from the earliest dwarf *Lilium tenuifolium* to the latest auratum and speciosum? And yet there are no plants more easily grown. A deep soil, well dug and enriched to a depth of not less than two feet, and an abundance of heavy mulching in summer to prevent the bulbs and soil from drying out, are all that is required to give us the most beautiful and rich shades of colour throughout the summer and autumn months. Such a bed prepared as above, and planted with the various species of lilies, now much cheaper and more commonly found than formerly, the bulbs planted not less than six inches deep, will not need to be disturbed for four or five years; the only attention it requires is to apply a heavy coating of well-rotted manure each fall or spring, and fork it lightly in. We have growing over our meadows and roadsides in this State three species of lilies, which, though common, are none the less beautiful and worthy of a place in the garden, as there they become much finer.

Nor need we confine ourselves to lilies for beautiful subjects; take our own wild orchids, plants scattered over many portions of the Northern States, and which, from their showy as well as curious flowers are attractive to all, surpassing in many instances in beauty those rare species which can only be grown in greenhouses. These are readily cultivated in low moist ground, where they can have partial shade, or even, in many instances, in ordinary garden soil. What is so showy in the orchid family as our native Ladies' Slipper, *Cypripedium spectabile*, with its charming white and pink flowers, or its near relative, the Yellow Moccasin Flower, *Cypripedium pubescens*, both of easy cultivation in spots such as we have described, or the last species even in quite dry soil if it can have partial shade. Besides these, we have the pretty little *Calopogon pulchellus*, *Pogonias* of several species, *Calypso borealis*, a rare and delicate plant, whose beauty is seldom seen in cultivation, and *Arethusa bulbosa*, found in many of our bogs, with beautiful large rose-purple flowers; the last two require more care and attention than the Ladies' Slippers, but can readily be grown in pots or pans of sandy leaf-mould with plenty of drainage, and kept in a shaded cold frame.

There are also many species of *Habenarias* or fringed orchids, with spikes of fringed white, purple, or yellow flowers, which appear in summer and early autumn, and are of easy cultivation. We might also mention many of the orchids found in Northern and Central Europe, and which are as well worth growing as our own, such as the Fly Orchis and Bee Orchis, but enough has been said to show the capabilities and uses of hardy orchids.

Still another large group of hardy plants must claim a share of our attention, as the species are so readily grown and so showy in flower. This is the Iris, which for beauty of bloom may be compared to that of the Orchis family. From the early-blooming bulbous Irises, like the Spanish, English, Snakehead, and other species, to the large German sorts of nearly every shade of colour, followed by the Japanese *Iris laevigata* Kämpferi, there is a constant succession of flowers of nearly every hue, combined in many queer and fantastic associations, like *Iris iberica*, with large dull purple flowers marked with a velvety black spot on each petal, and *Iris tuberosa*, or Snake-head Iris, with a queer combination of velvety black and green in its flowers, or *Iris sibirica*, var. *sanguinea*, with deep rich purple flowers. A choice collection of Irises, with the colours properly arranged in beds or groups in the garden or on the lawn, is a very beautiful sight.

THE MIXED BORDER.—We now come to speak of the different methods of planting. The most common method is in what is known as the "mixed border." This may be described as a bed five feet or more wide, and of any length suited to the size of the garden or number of plants used. Such a bed as this allows ample scope for the display of judgment and taste in the proper selection and planting. At the back should be arranged the taller-growing species, gradually sloping to the front edge, where some dwarf or creeping plants are to be used. In planting such a border care must be taken not to repeat the same species at equal distances, as this gives too formal and monotonous an appearance. A few of the plants adapted to such a bed, and which are perfectly hardy in this latitude, we here enumerate, simply adding that this list could be increased almost indefinitely. For tall-growing plants, *Campanula pyramidalis*, *Delphinium formosum* and the finer hybrid sorts of larkspurs, *Iris laevigata* Kämpferi, *I. sibirica* and its varieties, *Lobelia cardinalis*, than which there can be no showier scarlet flower; *Lychnis chalcedonica*, *Liatris* or Blazing Star, in its many fine species; the choicer hardy pentstemons, such as *Pentstemon*, *Cobaea*, *Murayanus* and *Torreyi*; the best sorts of hybrid *Phloxes*, *Spiraea lobata* or *Queen of the Prairie*; *Veronicas* or *Speedwells*, like *Veronica candida*, *graudis*, and *amethystina*. These are but a few of the more effective plants for the back of the mixed border. Next in size we will mention *Anthemis tinctoria*, with its bright yellow flowers and finely-cut leaves; *Asphodelus luteus*, or Yellow Asphodel; *Dictamnus fraxinella*, or Gas Plant, with its brilliant spikes of red or white flowers, which give off a vapour which is readily lighted and produces a considerable flash, seen easily at dusk; the smaller-growing *Asters* or *Starworts*, like *A. bessarabicus*, *A. ptarmicoides* and *A. spectabilis*, all showy and not in the least weedy; *Dicentra spectabilis*, or Bleeding Heart, one of the oldest and best of our hardy plants; *Funkia subcordata*; perennial Candytufts or *Iberis*, such as *I. coriifolia* and *I. gibraltaria*; *Iris florentina*, with its large, deliciously fragrant white flowers; *Scutellaria macrantha*, with purple and white flowers; *Aquilegia* or *Columbines*, especially the fine blue one from the Rocky Mountains; *A. cerulea* and its relative, the long-spurred yellow one, *A. chrysantha*; *Anthriscum hlastrum* and *A. liliago*, or St. Bernard's and St. Bruno's Lilies, with their numerous white fragrant flowers.

Replies to Queries.

Roses.—A. O.—In the selection of stocks for roses it is necessary to take the character of the soil into consideration. For heavy soils the brier is the best, and on those which are light and dry the manetti is the most suitable. The brier, it may be added, is alone suitable for standards. The varieties mentioned will form an excellent selection. "The Amateur's Rose Book," published by Messrs. Groombridge and Sons.

Neapolitan Violets.—Mrs. Roger Kension.—The usual practice in the cultivation of the Neapolitan violet is to plant strong runners in a border of moderately rich and well-prepared soil early in May, and lift them and replant in frames towards the end of September. A rather shady position should, if practicable, be selected for the beds, and after the soil has been enriched by a moderate dressing of well-decayed manure, and dug over to a depth of ten or twelve inches, the plants should be put out one foot apart each way. They will require the assistance of occasional waterings if the weather happens to be dry when they are first put out, and the space between them must be kept quite clear of weeds. In September lift them and put in pots of a suitable size and winter in a cold frame, or plant them in a bed of light rich soil made up within that structure. The surface of the bed should be about twelve inches from the glass, and the plants put rather close together, but without overcrowding. It is a great advantage to make up a bed of dry leaves in the frame, and then cover it with about eight inches of soil, in which to plant the violets. The frame must be ventilated freely in mild weather, and during frosts the glass must be covered with sufficient mats or litter to keep the plants safe.

Obituary.

RECENTLY, at Hyères, M. GERMAIN DE SAINT-PIERRE, author of a Dictionary of Botany, and one of the leading contributors to the *Journal des Roses*.

On July 12, at his residence, 7, Dover Terrace, Old Trafford, Mr. MATTHEW BROWN, of the firm of Messrs. Dickson, Brown, and Tait, Corporation Street, Manchester, in his 58th year.

Markets.

COVENT GARDEN.

FRUIT.

Apricots.....	per doz.	0s. 4d. to 1s. 3d.
Cherries.....	per lb.	0s. 3d. to 0s. 8d.
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Figs.....	per doz.	3s. 0d. to 6s. 6d.
Gooseberries.....	per 3 sieve	1s. 6d. to 3s. 0d.
Grapes.....	per lb.	1s. 0d. to 4s. 0d.
Lemons.....	per 100	5s. 0d. to 7s. 0d.
Melons.....	each	2s. 0d. to 3s. 6d.
Oranges.....	per 100	4s. 0d. to 4s. 0d.
Peaches.....	per doz.	6s. 0d. to 10s. 0d.
Pine-apples, Eng.....	per lb.	3s. 0d. to 4s. 0d.
Plums.....	per 3 sieve	4s. 0d. to 5s. 0d.
Raspberries.....	per lb.	0s. 3d. to 0s. 6d.
Strawberries.....	per lb.	0s. 6d. to 1s. 0d.

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Artichokes, Globe, per dz.	3s. 0d. to 5s. 0d.
Beans, French.....	per lb. 0s. 4d. to 0s. 8d.
Beet.....	per doz. 1s. 0d. to 1s. 6d.
Cabbages.....	0s. 9d. to 1s. 6d.
Carrots.....	per bunch 0s. 4d. to 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.
Cucumbers.....	each 0s. 4d. to 0s. 9d.
Endive.....	per doz. 1s. 0d. to 1s. 6d.
Garlic.....	per lb. 0s. 10d. to 1s. 0d.
Herbs.....	per bunch 0s. 2d. to 0s. 4d.
Horseradish, per bundle	3s. 0d. to 4s. 0d.
Lettuces, Cabbage, per dz.	0s. 6d. to 1s. 0d.
Lettuces, Cos.....	0s. 6d. to 1s. 0d.
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Mushrooms.....	per basket 1s. 0d. to 3s. 0d.
Onion Spring.....	per bunch 0s. 4d. to 0s. 6d.
Parsley.....	0s. 4d. to 0s. 6d.
Peas.....	per quart 1s. 0d. to 1s. 6d.
Radishes.....	per bunch 0s. 1d. to 0s. 3d.
Small Salading.....	per pun. 0s. 3d. to 0s. 4d.
Spinach.....	per bushel 3s. 6d. to 4s. 6d.
Tomatoes.....	per lb. 0s. 6d. to 1s. 0d.
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Vegetable Marrows.....	per doz. 3s. 0d. to 5s. 0d.

FLOWERS.

Abutilons, per doz. blooms	0s. 3d. to 0s. 6d.
Bouvardias.....	per bunch 1s. 0d. to 1s. 6d.
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Liliums.....	per doz. blooms 1s. 6d. to 4s. 0d.
Marguerites, per doz. bun.	3s. 0d. to 5s. 0d.
Mignonette.....	3s. 0d. to 5s. 0d.
Pansies.....	1s. 0d. to 2s. 0d.
Pelargoniums.....	0s. 9d. to 1s. 0d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d. to 0s. 6d.
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Roses, Tea.....	1s. 0d. to 2s. 6d.
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Straw.....	30s. to 56s.

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Wheat, Red, new.....	per qr. 37s. to 52s.
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Flour, Norfolk and other seconds	37s. to 43s.
Barley, Malt.....	per qr. 30s. to 50s.
Barley, Grinding.....	20s. to 37s.
Malt, English.....	35s. to 50s.
Malt, Scotch.....	33s. to 43s.
Malt, old.....	28s. to 35s.
Malt, brown.....	30s. to 32s.
Oats, English.....	22s. to 26s.
Oats, Irish.....	22s. to 26s.
Oats, Scotch.....	42s. to 45s.
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Beans, English, Mazagan.....	20s. to 45s.
Beans, Fick.....	40s. to 45s.
Peas, Winter.....	31s. to 37s.
Peas, Grey.....	41s. to 46s.
Peas, White.....	37s. to 45s.

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Beef, prime small, per 8 lbs. 5s.	0d. to 5s. 2d.
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Beef, middling.....	4s. 0d. to 4s. 4d.
Beef, inferior.....	3s. 0d. to 3s. 4d.
Mutton, prime.....	5s. 4d. to 6s. 4d.
Mutton, middling.....	4s. 8d. to 5s. 2d.
Mutton, inferior.....	3s. 8d. to 4s. 2d.
Lamb.....	0s. 0d. to 0s. 4d.
Veal.....	5s. 0d. to 5s. 2d.
Pork, small.....	4s. 4d. to 4s. 6d.
Pork, large.....	3s. 10d. to 4s. 0d.

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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. at 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; O, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths after Noon.	Sets.	Rises. After.	Sets. After.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	D.F.G.		1882	
6	S	9th Sunday after Trinity. (Last	4 33	5 39	7 38	10 46	1 38	6 37	7 2	3 35	4 2	63.1	Achimenes, s.	Various.
7	M	BANK HOLIDAY. [Quarter, 4h. 13m. morn.	4 35	5 32	7 36	11 29	2 46	7 30	8 0	4 27	4 55	63.0	Begonia diversifolia, o.	Rose.
8	Tu	Trinity Law Sittings end.	4 36	5 25	7 34	Morn.	3 44	8 33	9 10	5 25	5 54	62.9	Commelina caelestis, o.	Blue.
9	W	Order executed, 1828.	4 38	5 17	7 32	0 21	4 35	9 55	10 35	6 35	7 20	62.9	Lilium auratum, n.	White and Yellow.
10	Th	St. Lawrence.	4 40	5 8	7 31	1 16	5 16	11 15	11 50	8 0	8 40	62.8	Miltonia spectabilis rosea, s.	Rose.
11	F	Dog Days end.	4 41	4 59	7 29	2 18	5 50	—	0 25	9 15	9 50	62.8	Oncidium pulchellum, s.	White.
12	S	Grouse Shooting begins.	4 42	4 49	7 27	3 21	6 18	0 50	1 15	10 15	10 40	62.7	Salvia coccinea, o.	Scarlet.

The Gardeners' Magazine.

SATURDAY, AUGUST 5, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

MONDAY, AUGUST 7.—ROYAL HORTICULTURAL SOCIETY.—Artisans and Cottagers' Show.

MONDAY, AUGUST 7.—MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Gooseberry Show and Table Decorations.

MONDAY, AUGUST 7.—HEADINGTON HORTICULTURAL SOCIETY.—Annual Exhibition.

MONDAY, AUGUST 7, AND TUESDAY, AUGUST 8.—WEST BROMWICH HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, AUGUST 8.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.

SATURDAY, AUGUST 12.—ALEXANDRA PALACE.—Exhibition of Floral Decorations and Gladioli.

THE SPECIAL SOCIETIES AND THEIR SEVERAL PROMOTERS are being weighed in the balances, and it is to be hoped they will not be found wanting. In its issue for July 29 the *Gardeners' Chronicle* discusses the position of these societies from a point of view that is certainly defensible, and in a manner which must command respect. On a former occasion our contemporary spoke of the subscriptions needful to sustain these societies as constituting an objectionable form of taxation, and this we thought an unfair way of treating the subject, as will be seen by our leading article of July 15. Now the case is stated differently; the personal and pecuniary elements are eliminated, and the discussion takes a healthy form. It is a question of considerable importance whether special societies should increase and multiply, or should be "affiliated" with the Royal Horticultural Society. By affiliation we are to understand that as independent societies they should cease to exist, and become committees of the R.H.S. The Pomological Society of years gone by became the Fruit and Vegetable Committee, and our friends who object to special movements would, we imagine, convert certain other societies into similar committees to represent roses, pelargoniums, carnations, &c., &c. The proposal is a proper one, but it will have to be carefully considered in all its bearings, for we have had a sufficient number of mistakes in the organization of horticultural endeavours, and we really cannot afford to blunder again, more especially with our eyes open.

There appears to be a growing desire for the economy of effort in floriculture. But those who are earnest in the matter think much more of the cause than of their own convenience. Experience has taught them that it is only by their own exertions, by independent action, by self-sacrifice, by a manifestation of enthusiasm, that the cause can be vindicated and sustained in a healthy life. As economy of effort is acknowledged by all to be necessary, we are bound to point to the fact that the special societies steadily increase in number and in strength, and thus the seal of public approbation is visibly stamped on their proceedings. And why should the public support them thus liberally? Because, in the first place, the work they do is for the public advantage, and in the next place their plans are simple and direct, and every subscriber to their funds knows exactly what will become of his money. The support given to these societies is a tremendous argument in favour of their continued independence; and there is perhaps more

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"dignity and importance" in the independence that leads to success than might be found in a condition of "affiliation," with its possible failures.

A certain proportion of the members of the special societies remember but too well that the florists were during a series of years systematically snubbed by the Royal Horticultural Society. Floriculture was said to be perishing, because the so-called "parent society" would not recognize it as an important department of the science or art of Horticulture. The florists saw that special efforts were absolutely necessary in the interests of their several pursuits; and the success they have achieved is a source of embarrassment to the so-called parent society. Hence it is we hear of the necessity for affiliation; and it is proposed to effect this without any detriment to the independence of action which is the life and soul of all individual endeavour.

In our issue of July 15 we were careful to maintain a position of expectancy, saying, "we reserve the right to speak with decision only when a definite scheme is before us." The question will now arise, Will a definite scheme be propounded? It must be obvious, we think, that the special societies will make no general proposal whatever. They are thriving. They are not torn by inward dissensions; they have no debts to distract them; and their labours meet with approbation. To a certain extent they are affiliated, for they gravitate to South Kensington, as to the manner born; and they gladly place the results of their efforts at the disposal of the parent society. They are much more loyal than they have the credit for, and they commonly shape their ways that they may be useful at head-quarters without being or appearing intrusive.

It will not be to the advantage of floriculture or any other interest that there should arise anything in the nature of a schism. If there are proposals to be made, the Council of the R.H.S. must make them; and they may properly do so when the specialists ask for certain accommodations. They may even refuse the aid they have hitherto—in most, though not all cases—given generously; and in this way the contention may be narrowed to a point. But the subject having been broached, whether in accordance with an understanding or by the accidents of public life, it may be said that it will not keep. It would be a grave misfortune if the R.H.S. should imitate the Sublime Porte in dallying with danger and deciding on a proper course just an hour too late. The special societies, with one exception only, are partially affiliated already; and it remains to be seen whether the affiliation can be completed without destruction of that freedom of action in which men who mean it find sufficient wages for their labour. It would be an epoch in the history of the Royal Horticultural Society if it should take Floriculture to its bosom at last. It has never in earnest wooed the fair creature, although she is a most honourable maid of honour in Queen Flora's court. But it is "never too late to mend," for as abstract beauties do not grow old, so corporations keep their youth and vigour just as long as they are faithful to their appointed duties.

It is not unlikely there are more than two sides to this question. Thus far we have considered it in relation to the sectionists and the specialists. But it will have to be considered whether the R.H.S. will be any stronger when it has absorbed them than it is now by their cordial co-operation in doing what some people boldly declared to be "the Society's work." When the proposed affiliation is accomplished the annual expenditure of the R.H.S. will be increased to the amount of about five hundred pounds. There should be, concurrently with the affiliation, an accession of at least two hundred and fifty additional Fellows to provide the necessary funds. Should it happen that the roll of Fellows is not augmented in due proportion, the R.H.S. may be tempted to cut down the prize lists, and in various ways take the life out of certain exhibitions that, as the case now stands, are admitted to be in a thriving condition and of very great service at South Kensington.

Discussions of this kind, however necessary at times, do certainly tend to unsettle things. Therefore, the sooner we hear the voice of authority on the subject the better. At the present moment the discussion is limited to certain horticultural papers, and there is no evidence that the Council of the R.H.S. in their corporate capacity have ever entertained the proposed affiliation. Should they consider the matter, we hope they will allow a margin for the proverb which declares that it is sometimes well to let well alone lest worse may come of it.

THE PARCELS POST, long talked of, is at last hastening to become a reality. The necessary Bill has been introduced and circulated, and all arrangements have been provisionally concluded with the railway companies. The countries that might reproach us for our slowness, as for example, Egypt and Turkey, which have long since had a parcel post in operation, are very differently situated, as the railways are so fully under Government control that the mechanical difficulties have alone to be considered. But here the companies are free, and a parcel post is an impossibility until they can be brought to be of one mind on the subject. It is scarcely to be feared that the Parcels Post Bill will meet with the fate that has already befallen about two-thirds of the legislative measures proposed in the present session of Parliament, for there can be no proper excuse for swamping it with a flood of talk. But we shall wait in hope, knowing that there is nothing safe now, and that it is folly to calculate on what might otherwise be regarded as reasonable expectations. As regards the maximum weights and dimensions of parcels, the Government will reserve the right of altering them from time to time as experience may suggest. For the present the maximum weight is to be 7 lb., and there is no stated maximum of size. In the course of the Bill through Parliament it may be expected that this point will receive attention, and we shall hope to see it disposed of at a very early date, for very much will turn upon it in the commercial world for the advantage or disadvantage of trade, as the case may be. As regards the charges, the rates will be for parcels up to 1 lb., 3d.; up to 3 lb., 6d.; above 3 lb., and not exceeding 5 lb., 9d.; above 5 lb., and not exceeding 7 lb., 1s. It is worthy of observation that the maximum weight allowed by the Inland Post exceeds the maximum of the International Parcels Post. This will have to be carefully kept in mind, and will no doubt often prove inconvenient and vexatious. The international maximum is three kilos., equivalent to 6 lb. 9 oz. avoirdupois.

It is not intended to convey parcels at the same rate of speed as letters, but the difference will not be great. The reason for making a distinction is obvious, for at times the aggregate of parcels will be so great that the letter post would be endangered by association with it. But we are promised a reasonably rapid conveyance and a reasonable certainty of delivery such as we have never known hitherto. A somewhat singular feature of the Bill, and one strikingly illustrative of the reluctance of the Government to interfere with matters of trade, is that the railway companies will be left free to carry parcels on their account as heretofore.

One of the inevitable consequences of the development of the Inland Parcels Post will be to link it with the Continental system. It would be a happy circumstance if this could be accomplished at the first start, so that a parcel weighing less than 6 lb. 9 oz. might be sent from London to Paris for about 1s. 6d., the present charge, according to the International Convention, being 1s. 10½d.

Garden products of various kinds will be largely distributed by the aid of the parcels post, and very many flowers and fruits will be sacrificed through imperfect packing. Delicate flowers will be packed in cotton wool and thereby desiccated; others will be packed in moss and loaded with moisture, and will become offensive pulp long ere they reach their destination. We do not elect to be prophets of evil; we are but regarding the approaching boon from the experiences of every day in the receipt of parcels. The employment of cotton wool is chargeable with a greater amount of mischief than any other method of spoiling flowers sent by post. Excessive moisture is not less injurious than excessive dryness, but fewer err in this respect than in the other. It is, however, a very simple matter to pack flowers and fruits so that they will travel safely great distances, and when the thing is properly done they retain their freshness for a great length of time. The first requisite of success is to secure them against motion of any kind within the receptacle. In some cases bars of wood and a few firm ties will accomplish this. In other cases light packing material, such as paper, cotton wool, or other cheap waste, may suffice. As we have denounced cotton wool as a destroyer, it is proper to say that when leaves and flowers are in contact with it for any length of time their beauty is likely to be destroyed, and even their identity may be no longer determinable. But for filling in, when the perishable articles are otherwise protected, it has its uses, and is admirably adapted to reduce or prevent damage by tremor and concussion. As regards the moisture necessary to maintain the freshness of the articles it is impossible to speak with precision, because it must depend on the nature of the articles themselves and on the distance they are to travel, and on the weather prevailing at the time, and also on the nature of the package. The very worst samples we receive come in wood, chip, and card boxes. The air searches these receptacles, and in hot weather the contents are soon dried out of character. If they are embedded in cotton wool their destruction is the more sure and the more rapid. On the other hand, close metal boxes do not quickly

part with moisture, and if flowers are packed in wet moss, as they often are, they suffer considerable damage in tin boxes, while the same packing in wooden boxes might carry them through in the best condition. Speaking generally, flowers and leaves should be packed quickly and while quite fresh from the plants. It is not good practice to associate with them any materials artificially moistened, for a very little moisture will sustain them through a long journey if they are well protected from the atmosphere. Fresh green leaves, such as ivy, spinach, the tops of privet, grass newly clipped—in fact, any fresh green herbage from a cabbage leaf to a tuft of moss—may be used with advantage to impart moisture; but only in peculiar cases should those be intentionally wetted. They will usually exhale enough from their own substance to sustain the more delicate contents of the package in a fresh bright state to the journey's end.

In the packing of fruits thin tough paper is of great service. Grapes may be sent long distances with the bloom scarcely impaired if the bunches are first loosely and completely wrapped in thin paper and then bedded in some soft and clean material. It is good practice sometimes to attach the stem firmly to a cross-bar, or some other holding, as a guard against concussion and the small shakings to which parcels are necessarily exposed. Such fruits as peaches and nectarines should be separately wrapped in paper and then filled in between with soft packing. Messrs. Christy have rendered a peculiar service to growers of fruit by the manufacture of cheap boxes with compartments, for these boxes endure wear and tear admirably, and they may be packed in half the time of ordinary boxes, because of the security afforded by the divisions. The Parcels Post will quicken invention in this and other directions very much, we trust to the advantage of trade and the convenience of the public generally.

As a last word for the present on this subject, we desire to say that to send zonal pelargoniums anywhere, anyhow, through the post is, ninety-nine times in every hundred, a complete failure. The petals are almost invariably shed, and while it is impossible to restore them to their places so it is sheer waste of time to coax any remaining buds into expansion, for blooms obtained in that way give no proper idea of the merits of the variety.

EASTBOURNE FLOWER SHOW will be held in the grounds of Compton Place on Wednesday next, August 9.

WALTON-ON-THAMES CHRYSANTHEMUM SOCIETY will hold its annual exhibition in the Oatlands Schools on Tuesday, November 14.

EAST TOWER HAMLETS FLORICULTURAL SOCIETY.—The annual exhibition will be held in the Assembly Rooms of the Sir John Cass, Victoria Park Road, on Monday, the 28th inst., and two following days.

PELARGONIUM SOCIETY.—The annual meeting of this society will be held in the autumn, and the members will be duly informed of the date.

NATIONAL CARNATION AND PICOTEE SOCIETY.—The exhibition of the Northern Section will be held in the new Town Hall, Manchester, on Friday next, August 18, under the presidency of Richard Gorton, Esq.

"THE FLORIST AND POMOLOGIST" for August contains coloured figures of *Nerine excellens* and *Harriett Plum*, both comparatively unattractive and unimportant subjects.

A PINK SHOW is proposed to be held in June next. It is thought a five-shilling subscription will suffice, as there are many admirers of pinks who would make a small sacrifice to save them from the extinction that appears to threaten. Mr. Hibberd will act as secretary until the first exhibition has been held, after which the affair can be organized by the light of experience gained.

THE PENNY HOLIDAY HANDBOOKS, publishing at 125, Fleet Street, are the best things of the kind hitherto produced. The one on Holland just issued is admirably done, the subjective as well as the visible beauties of the country being as well suggested as the others are described. We intended to merely glance at it, but were quite caught and compelled to read it through.

REPORTS ON THE CROPS are abundant now in the papers. They agree pretty nearly. Wheat is a thin crop; oats and barley an average or beyond it; the hay crop immense but badly saved; mangels middling; potatoes a good crop, and generally speaking clean. The disease that has made havoc of the garden potato crops has scarcely yet touched the field crops. Harvest will be late, and the outlook as regards the weather is somewhat gloomy. The later the harvest the greater the risk. In any case this cannot be a good year for farmers.

GLIANTHUS DAMPIERI is appreciated at last, and we think we may say that it is understood. We have reported on a fine specimen, naturally grown, that was shown at a recent meeting of the R. H. S. Now we have to report that Messrs. Wheeler and Sons, of Gloucester, grow it in the ordinary way of a half-hardy annual without any trouble at all, making "no bones" of the delicate details of management that have puzzled so many. Specimens now before us justify us in saying that Messrs. Wheeler's "short and easy method" is quite sufficient for the most perfect development of this interesting plant.

REPORTS ON THE CROPS OF FRUITS, ROOTS, AND VEGETABLES of the present season, compiled from returns supplied by correspondents, will be published in this paper on the 19th of August. Any of our friends who have not received the usual form for filling up are desired to communicate by letter or post-card, and the papers shall thereupon be forwarded.

BALSAMS OF FINE QUALITY have been sent up from the nurseries of Messrs. Hender and Sons, of Plymouth. It is satisfactory to see these useful annuals well grown for seed purposes, for the balsams we meet with in the gardens of amateurs are too often of inferior strains that are really not worth growing at all. It seems that in these matters people think more of cheap seed than of good seed; or perhaps they do not think at all, but buy whatever comes first to hand, and discover too late their mistake.

ORCHIDS IN BLOOM in Messrs. J. Veitch and Son's Chelsea Nursery at the present moment include the following splendid hybrids raised by the firm:—*Cattleya Chamberlainiana*, *Cypripedium Morganian*, one of the newest and most beautiful of the lady's slippers; *C. pycnoptrum*, *C. Selligerum*, *C. calanthum*, *C. porphyrospilum*, *C. superciliale*, *C. grande*, *C. curyandrum*, *C. Sedin*, *C. marmorophyllum*, *C. oenanthum*, *C. albo-purpureum*, *C. Domini*, *Dendrobium rhodostonia*, *Lælia callistoglossa*, *L. Philbrickiana*, and *Zygopetalum Sedeni*.

INTERNATIONAL FISHERIES EXHIBITION.—The Executive Committee of the Great International Fisheries Exhibition took possession of the Horticultural Gardens at South Kensington, a site covering twenty-two acres, together with all the buildings and offices, on Saturday last, and steps are about to be taken for the erection of large additional buildings. Announcements have been issued by the committee to the effect that applications for space, and entries for Great Britain and Ireland, should be sent in by September 1. In favour of distant colonies and countries, the date has been extended to November 1.

CARNATIONS AND PICOTEEES AT CHELSEA.

For several weeks past the carnations and picotees in the nurseries of Messrs. J. Veitch and Sons, at Chelsea, have produced a display which, having regard to the number of plants and the splendid development of the flowers, has probably never been equalled. It is certain that none of the florists of the present generation can call to mind any exhibition outside of the competitive gatherings that could for a moment compare with it, and it is equally beyond doubt that at no time or place have the general public had so good an opportunity for seeing how wonderfully attractive are the picotees and carnations when grown in what may be described as a natural manner. Only the other day it was written by one of the most successful cultivators of the present time that the florists, so far as regards the two classes of flowers under notice, had been labouring for an "ungrateful public." This is not perhaps a fitting opportunity for entering upon controversial matters; but, with all due deference to the highly-respected authority referred to, it is impossible to avoid saying that the Chelsea exhibition has proved to demonstration that the public are not "ungrateful" for the benefits that may be derived from the work of the florist. The number of visitors at Chelsea, by no means small at any time, were considerably augmented by the exhibition as soon as its extent and beauty became known, and, rich as is this immense establishment in attractions, none it may be safely averred were more highly appreciated than the display of carnations and picotees when at its best. Not only did it engage the attention and excite the admiration of those who went expressly to see the flowers, but that the visitor with no special predilection for either the carnation or the picotee was found, after an inspection of the wonderful collections of orchids, nepenthes, and other important classes of plants within doors, lingering over the beds to enjoy the beautiful markings of the show flowers, and inhale the delicious odour of our old and well-tried friend the *Crimson Clove*.

The carnations and picotees forming the exhibition at Chelsea occupy the beds to the right and left of the entrance to the magnificent camellia house on the Brompton Road side of the nursery, and they comprise about two thousand plants, representing all the finest varieties at present in commerce. The plants were bedded out in March, as that course is found at Chelsea preferable to the practice of planting the beds in the autumn, and the splendid growth made and the large number and high quality of the flowers produced showed that Mr. Swift, who has charge of the department, is a master of their culture. The majority of the plants attained to a large size by the time they were coming into bloom, and have produced from fifty to sixty flowers each, not all up to exhibition standard, but of large size and superb quality. One of the most interesting points in connexion with the exhibition is the fact that there had been no disbudding. Each plant was allowed to develop the whole of its flower buds with no more assistance than a few stakes for the support of the principal flower stems, and it therefore had the appearance it may be expected to present when grown in the border by amateurs and others totally unacquainted with the manipulative details considered of so much importance by growers for exhibition. The plants, indeed, had an appearance so pleasing and attractive that it is much to be regretted a dozen or so could not have been staged at South Kensington, to show how much more beautiful they are when some degree of latitude is allowed their growth, and the flowers are free from the cards, which the florists of the old school believe to be indispensable for bringing out their form and exquisite markings to the best advantage. There are half a dozen beds or so on each side of the walk, and these are parallel to each other, with a narrow walk between them, and of a width convenient for the examination of the individual flowers. During

the time the plants were in bloom the flowers were protected from heavy rains and dust by tiffany stretched over a light wooden framework. The tiffany was employed more for the protection of the flowers from dust, which does so much mischief in town gardens as compared with its effects upon the occupants of gardens in the country, than for sheltering the flowers from storms. In the country the flowers may be fully enjoyed without the help of tiffany or other protecting material. The plants could also be bedded out in the autumn immediately on their being detached from the parent, for it is only when there is a risk of their being injured by the fogs peculiar to the metropolis that it is necessary to keep them in pots and afford the protection of glass during the winter.

All classes of both the carnations and picotees are adequately represented, and the self-coloured varieties of the former produced a particularly rich and striking effect. In referring to the self carnations mention must first be made of *W. P. Milner*, a superb variety; the growth strong, very free flowering, and the blooms large, of fine shape, and of the purest white; one of the very finest of the white carnations. *The Bride* is also a fine variety, of which much might be said. *Imperial Purple* is one of the most effectively coloured of all the self carnations, and cannot be too strongly recommended; it has a vigorous free-blooming habit, and the flowers, which are of large size and fine form, are of a very rich shade of magenta-purple. *Magnum Bonum* is a crimson variety of much merit, combining rich colouring with high-class quality. *Crimson Pet* is of much excellence, the colour a very rich shade of crimson, and the flowers of good size and form. *Black Knight* has flowers of a very dark shade of crimson, and is very distinct and most desirable in the smallest collection. Of a very distinct shade of colouring to either of the foregoing is *Florence*, which had a first-class certificate conferred upon it at the recent exhibition of carnations in the gardens of the Royal Horticultural Society. It has a very strong constitution, is a most abundant bloomer; the flowers are of large size, and the colour is a very distinct and pleasing shade of yellowish buff or pale nankeen. So distinct is it in colour that it must be regarded as quite indispensable where carnations are grown. The *Old Crimson Clove*, if less effective in colour than some of the other crimson varieties, is one of the most desirable, because of its delightful fragrance, and it was satisfactory to observe that it had a whole bed to itself. *Daniel Delworth* is a superb variety of a glowing magenta-purple colour, and *Walter Ware* has flowers of a deep purple colour, and is so good as to deserve a place in the front rank. *Virginal* claims attention for its splendid constitution and the high quality of its flowers; it will be found a worthy companion to the other white varieties enumerated. A new variety, *Sir Archibald Grant*, has a very compact habit, and flowers of a glowing crimson colour, which are very freely produced. *Dan Godfrey* produces brilliant scarlet flowers of good form, and remarkable for their fragrance. *James Wilkins* has flowers of a rich crimson-scarlet hue, and with a grand petal. The *Coroner* and *Heaton Bank* are two scarlet varieties thoroughly distinct and highly meritorious. Other very fine varieties are *Gertrude Teigner*, bright pink, dwarf, and free flowering, very beautiful; *Lothair*, bright pink, flowers large, full, and of splendid shape; *Hettie*, rich pink, a charming flower; *Mrs. Teigner*, deep rose-pink, flowers large, and of fine form, one of the most beautiful flowers in its shade of colour, and *Fireman* and *Fire Eater*, two beautiful light red flowers.

The yellow carnations have undergone considerable improvement of late years, and all the finest varieties are represented in Messrs. Veitch's collection. The most noteworthy of these were *Lady Roseberry*, a splendid flower of a clear rich yellow colour; *Miss Wheeler*, sulphur-yellow, soft and very pleasing; *Mrs. Wheeler*, yellow tinted orange, dwarf, free, and effective; *Niphetos*, white tinted yellow, flowers large, full, and fine, rather later than the others, and valuable on that account; *Chromatella*, canary-yellow, large and fine; *Admiral Sir Beauchamp Seymour*, orange tinted and flaked red, the flowers of splendid quality and freely produced; *King of the Yellows*, a superb yellow flower, well deserving of its name.

The flaked and bizarre flowers, if not quite so effective in colour, were most wonderfully attractive, and the following were selected for their strong constitution, freedom of flowering, high quality, and pleasing colour, and they can be depended upon to produce a most satisfactory effect when grown in the open borders with ordinary attention:—*Rose flake*, *John Balmer*, *Mrs. Hurst*, *Pioneer*, *Earl of Beaconsfield*, a new and very effectively-coloured flower; *Mrs. Laxton*, *Rose of Stapleford*, and *Lord Chelmsford*. Scarlet flake, *Candidate*, *Dan Godfrey*, *Lord Lyons*, *Miss Bateman*, *Mrs. Franklin*, *Bayley Junior*, one of Mr. Dodwell's fine new flowers; *W. Allen*, and *Bright Phæbus*. Purple flake, *Earl of Stamford*, *Juno*, *Captain Jinks*, *Bellerophon*, and *Florence Nightingale*. Pink and purple bizarre, *Sarah Payne*, *James Taylor*, and *Princess Beatrice*. Scarlet bizarre, *George*, *Rembrandt*, *William Holliday*, *Ben Simonite*, *Dreadnought*, *Arthur Medhurst*, *Robert Lord*, and *Douglas*. Crimson bizarre, *Robert*, *Eccentric Jack*, *Albion's Pride*, *Rifleman*, *William Caxton*, and *Charmers*.

The show and yellow ground picotees were not less meritorious than the carnations, and in a critical inspection of the show flowers the following were selected for their high quality and attractive appearance:—*Rose edge*, *Royal Visit*, *Lady Boston*, *Mrs. Fordham*, *Miss Williams*, *Rev. H. Matthews*, *Mrs. Payne*, *Northern Star*, *Lady Louisa*, *Mrs. Somerville*, *Beauty of Plumstead*, *Edith Dombain*, and *Mrs. Rayner*. Purple edge, *Her Majesty*, *Clara Penson*, *Baroness Burdett-Coutts*, *Princess Dagmar*, *Mrs. A. Chancellor*, *Mrs. Langtry*, *Mrs. Ingram*, *Robin Hood*, *Mary*, *Mrs. Little*. Red edge, *Mrs. Brown*, *Queen of Summer*, *Jewess*, *Picturata*, *Delicata*, *Mrs. Dodwell*, *Mrs. Reynolds Hole*, *Coxcomb*, *J. B. Bryant*, and *Lizzie*.

The finest of the yellow-ground picotees, which have been immensely improved during the past three or four years, were *Lady Armstrong*,

Ne Plus Ultra, one of the finest of its class; *Alice, Cloth of Gold*, *Princess Margaret*, *Eleanor*, *Stanstead Beauty*, *Jenny Lind*, and *Solfa-terre*. The value of the yellow-ground picotees, as in the case of the yellow carnations, is considerably enhanced by their being rather later in flowering than the varieties forming the other sections.

The exhibition at Chelsea will, there can be no doubt, have an immense influence in promoting the more general cultivation of the carnation and picotee, and the labours of the Messrs. Veitch and Sons in this direction are not likely to fail in being heartily appreciated by those who take an interest in these two classes of flowers.

GEORGE GORDON.

EUCCHARIS AMAZONICA.

I HAVE lately had the opportunity of visiting many good gardens, and seeing the *Eucharis amazonica* under various kinds of treatment. It occurs to me, therefore, that it might prove interesting if I make a note of some of the conditions under which I found them cultivated, and state the conclusions to which I have arrived concerning the treatment necessary to secure the most satisfactory results.

I may first say that the *Eucharis* is an accommodating plant, and therefore not by any means a difficult subject to handle. This is proved by the satisfactory condition in which I have seen it lately under a variety of conditions as to culture. But I am bound to state that there is a greater difference in the results obtained by different cultivators than there is in the details of management of each. This evidently points to the fact that although it will thrive and flower under ordinary circumstances, it succeeds still better when all the conditions are supplied it for the promotion of vigorous growth and the formation of flowers. What these conditions are, as learned by recent observation, will appear as these remarks extend.

The aim of the cultivator, in many instances, is to grow the plant well without the aid of bottom heat. And this surely can be done, as my observations have satisfied me; indeed, in one place I saw four dozen plants so grown that were in fairly good health and vigour. It will be proper to add that while these plants were not aided with bottom heat, they had ordinary stove temperature. I was assured that they were never rested further than after flowering the supply of moisture was reduced somewhat for five or six weeks.

I was told under this treatment they flowered freely. It must be understood that I did not see the results of this treatment; but, so far as an inspection of the plants would guide me in forming an opinion, they were healthy and promising. In this particular instance there is not the convenience of giving them bottom heat, if it was wished to do so. From the information given me of the number of bulbs which flowered during the year the result was fairly satisfactory. It has caused me some thought to understand that these were never rested in the sense as ordinarily understood by reducing the temperature as well as the supply of water. I found the plants on a low back shelf in what I should consider for a stove plant a rather cool situation. This is no doubt to be accounted for from the fact that different cultivators take a different view of the conditions under which they are placed. To rest them as it is generally understood is to bring them out of a stove temperature into another house where the temperature is from 15 deg. to 20 deg. lower. In this particular instance the idea seemed to be that in the quarters where I found them they were still growing and not resting, but I must confess I thought differently. However, it is very plain from the information furnished me as to the number of flowers produced that, although there may not be much to complain of in that matter, it is certain they are not produced with any degree of regularity twice in a year, as is the case with other stocks treated differently.

In another garden, where the number of plants was not so great, the treatment they received was quite different; that is to say, the plants are kept always growing; there is no attempt to remove them out of the stove except when they are in flower, and then some of the smallest plants are used for decorating the rooms of the mansion. This is all the rest they get; at other times the pots are plunged in tan over a hot-water tank. As regards health and luxuriance of foliage, they are far ahead of those I have just noticed; the plants being altogether more vigorous, the leaves larger and of a much deeper colour. But here again, from what I could learn, there is some uncertainty about the plants flowering more than once a year, and if I were consulted as to this uncertainty of flowering, I should say the plants were too luxuriant; in other words, they were kept too long a time in a high temperature and had too much water at the roots.

The next and last case which I shall notice is in a large garden, where there was not only a good stock of plants, but where every suitable convenience was provided according to their requirements. There are rather more than three dozen plants, which are divided into three different sets. Set No. 1 will flower in October, No. 2 in December, and No. 3 in February; and I was assured that each set invariably flowered twice in the year. The treatment they receive is for each set to be rested for six weeks after flowering in a temperature of about 60 deg. They are repotted once a year, and after being rested and potted they are plunged in a tan bed, in a bottom heat of 80 deg. to 85 deg. A fine batch of plants was just going out of flower on the day of my visit, and I must say a more satisfactory lot I never saw. The treatment they received evidently suited them. They were potted in a mixture of equal parts turfy loam, peat, and leaf-soil. In the winter months the temperature is maintained from 60 deg. to 75 deg.; from March to September 75 deg. to 95 deg., according to the weather. They are given plenty of water when making active growth, and only just enough water while they are resting to keep the leaves from flagging. So far as I am able to judge, I consider the last case alluded to the best way to grow them.

J. C. C.

Calls at Nurseries.

MESSRS. DOWNIE AND LAIRD'S, EDINBURGH.

EDINBURGH is unquestionably well supplied with nurseries, and of the comparatively large number to be found in the suburbs of the city none possesses a higher degree of interest or are of greater importance than those belonging to the old and well-known firm of Downie and Laird. Not only are they well able to afford much profitable entertainment to the visitor, but they are remarkably convenient of access, and the horticulturist attending the great International Horticultural Exhibition, to be held in the Waverley Market early next month, will have no difficulty in enjoying a "look round," however short may be his stay.

The head-quarters of the firm occupy a prominent position in South Frederick Street, one of the numerous thoroughfares which connect those two important arteries, Prince's and George Streets; but as they include the offices and seed warehouse only, the visitor with but little time on his hands will proceed direct to the nurseries. These will be found at West Coates and Pinkhill, the one containing the indoor stock; and the other is the home of the stocks of pansies, pentstemons, phloxes, and other hardy flowers, which have assisted so materially in rendering the nurseries famous throughout the United Kingdom. West Coates is near the Haymarket station of the Caledonian Railway, at the western end of Prince's Street, and can be reached in a very short time by means of the service of tram cars between the Post Office and Colthridge, which, it may be added, start at intervals of ten minutes and pass the door. At West Coates there are an immense number of structures filled to repletion with stocks of stove and greenhouse plants, and a large winter garden, which forms an imposing entrance to the establishment, and affords accommodation to a large number of splendid specimen camellias, stately palms, tree ferns, and other subjects of noble aspect. This magnificent show house or conservatory has but few equals, and, as it is richly furnished and admirably arranged, it would of itself fully justify a visit to West Coates. Connected with the winter garden is an admirably-arranged fernery, in which kinds requiring but little artificial heat appear to be at home, judging from their luxuriant condition. In the rear are the stoves, propagating houses, and pits, the comparatively large area being almost entirely covered with glass. In addition to the houses built on the same level as the winter garden, there are two long ranges of houses built on the top of the ranges of packing shades and warehouses which form the boundary on the east and north sides of the nursery, and whilst enhancing the general effect they shelter immense stocks of greenhouse plants. In the four houses forming the northern range was a splendid display of pelargoniums, the zonals predominating; and on the eastern side the structures were occupied chiefly by azaleas, camellias, and other hard-wooded plants, which included a considerable number of specimens of large size and in splendid condition. Land, it may be added, is of great value at West Coates, and now fully occupied with buildings, chiefly residential; and when the ranges of houses on the ground level no longer sufficed for the requirements of the firm it was impossible to extend the area, and the only alternative was to erect the additional houses required on the top of the sheds or at Pinkhill, and the former, as stated above, was adopted, and it may be added with singular advantage. It is not necessary to particularize the occupants of the several structures, but it must be said that in passing through them one cannot fail to be struck with the admirable condition in which everything is found.

To reach Pinkhill, which is about two miles farther westward, the journey can be continued to Colthridge by the car, and thence by the Corstorphine omnibus which runs in connexion and passes the nursery gates. The omnibus runs once in the hour each way and connects with the car passing West Coates at the half-hour, but from Colthridge to Pinkhill the distance is not much over a mile, and the nursery gates may be reached in a pleasant walk of a little over twenty minutes. There are several spacious plant houses at Pinkhill, some of which are devoted to the fine stocks of greenhouse rhododendrons, such as the Countess of Haddington and similar kinds, and to the immense specimen rhododendrons which usually figure so conspicuously at the spring exhibitions of the Royal Caledonian Society, which are held in the Waverley Market. But the chief attractions are to be found in the splendid collections of hardy florists' flowers in the open quarters. When we were at the nursery the fancy and show pansies were rather past their best, and the young growth was being rapidly converted into stock; but the show pinks, the violas, the early-flowering phloxes, and the delphiniums were in splendid condition, and pentstemons and late phloxes were just coming into bloom, and their condition amply testified to the pleasure in store for those who visit the nursery during the International week.

Although somewhat past their best, the fancy pansies were by no means over, and afforded plenty of opportunity for noting a few of the best. The fancy pansy may be said to have originated at Pinkhill, for it is to the labours of Mr. Downie that we were indebted for the earliest varieties introduced, and to them we owe by far the largest proportion of the finest varieties now in cultivation. As stated some years since in these pages, Mr. Downie commenced with the Belgian pansies, which are remarkable more for their robust habit and showy colouring than for good form and definite markings, and by great perseverance and the exercise of sound judgment in selecting he has succeeded in obtaining a race possessing a strong constitution and producing flowers of as fine a form and with the colours in most cases as clearly defined as those of the best of the show varieties. Other raisers have engaged in the work of late years, but the beginning was made by Mr. Downie, who, in justice it must be said, has well maintained the lead he has had from the first. Amongst the varieties of which we shall hear something next year were May Tate, a superb variety, the flowers of large size and of a rich bronze yellow with rose-coloured band, and Ruby, a very distinct and effectively-coloured variety; the top petals rose shading to white, the lower petals bronze-red with yellow band. Of those distributed this spring special mention must be made of B. K. Bliss, maroon shaded with light crimson and edged with red and yellow; Miss Bliss, bronzy-red shading to yellow, the edge rose and white, very fine in form and pleasing in colour; Mrs. Dr. Paterson, rich crimson-maroon, edged with rosy purple and yellow; Mrs. Forrester, bright crimson, the top petals yellow tinted rose; Mrs. General Grant, golden yellow with bronze blotch, very rich in colour; Mrs. Kirkham, white with purple blotch, very distinct and beautiful. Those sent out last year included the following, which were made note of for their great excellence, namely, David Lowe, yellow shaded with bronzy-crimson; James Gardiner, rosy crimson, very distinct and pleasing in colour; Edward Caird, ruby-red shading to a lighter colour at the edge; L. V. Heathcote, deep, rich mulberry; Mrs. Dow-

hurst, purple edged with white; R. K. Mitchell, bright purplish crimson, and Robert Laird, yellow shaded purple.

Much success has been also achieved by Mr. Downie in the improvement of the viola, and he has succeeded in raising a quite new race, in which the rich and attractive colours of the fancy pansies are combined with the free and continuous-flowering habit of the violas. These, although the taking of cuttings was in full swing, were almost solid with bloom, and so effective as to leave no doubt upon the mind as to their value for flower garden decoration in situations favourable to them. Particularly noteworthy in the collection were Duke of Albany, purple and lilac; Bianca, mauve and white; Emelyn, dark blue shaded with white; Aurora, blue-purple, very fine; Triton, rosy purple; Peri, light purple and white; Countess of Hopetoun, pure white, very free and fine, and one of the very best of the white varieties; Lady Polwarth, is also an exceptionally good white variety, and quite distinct from the flower immediately preceding it; Archibald Grant, rose-purple, beautifully shaded; Countess of Kintore, bluish purple margined with white; Crimson Gem, reddish purple, very distinct and effective; Duchess of Sutherland and Lottie, mauve shaded blue; Mrs. McMaster, bluish purple, shaded with white on the top petals; Miss Doan, rose and white; Princess of Teck, mauve; Psyche, crimson shaded with clarot, and Purple Gem, deep purple. The bedding pansies also formed an attractive feature, and conspicuous amongst them was a fine purple variety under the name of The Bloomer.

The early-flowering phloxes, varieties of *Phlox suffruticosa*, produced a striking effect, and proved how valuable they are for the embellishment of the mixed border in advance of the varieties of *P. decussata*. There is not so much diversity of colouring in the early as in the late phloxes, and we miss some of the rich hues for which the latter are famous; but the varieties are all more or less attractive, and a judicious selection will contribute materially to the attractions of the flower garden during July and some part of August. The height averages eighteen inches, and the flowers are of large size, fine shape, and form immense spikes; they are also delightfully fragrant. It may be said that these also form a speciality of the Pinkhill Nursery, many thousands of seedlings being raised annually. The following comprise some of the very best of the varieties, new and old, at present in cultivation, and would form a capital selection:—A. McKinnon, Charles Downie, Archibald Keith, Angus Cameron, Countess of Galloway, Cybele, Eclipse, Forward, King of Purples, Lady Napier, Luna, Miss R. Marten, Mrs. Dr. Fraser, Mrs. Forbes, Mrs. Campbell, and Mrs. A. Duncan.

SPECIAL SOCIETIES.

THE following is from a leading article in the *Gardeners' Chronicle* of July 29:—

One reason for the existence of these special societies we have often heard advanced, and it is this, that the Royal Horticultural Society has never fairly risen to the full level of its duties, that it has discouraged rather than promoted these specialities, and that the upgrowth of this neglect on the part of the parent society has been the crop of special societies. We believe that this is a correct statement, but if so it tends rather to show that the Royal Horticultural Society has been negligent, if not indifferent, when it ought to have been sympathetic; it does not show that specialization, especially when carried to an extreme, is in itself a good thing, but only that it has arisen because and in consequence of the indifference of the parent.

The experience of the past year leads us to hope that the respective positions of the general and sectional societies may be reconsidered and adjusted to their mutual advantage. It is quite certain this season that the special societies have very materially contributed to the pleasure and the interest of the fortnightly meetings at Kensington. Their co-operation has been specially valuable at a time when indications were not wanting that exhibitors are falling off, and that even the fortnightly meetings—the very backbone of the society—have been perceptibly weakened. At such a time the co-operation of the special societies has been particularly valuable. For our own parts, we should like to see a special display of some particular flower at each meeting, beginning with the Crocuses and ending with the Chrysanthemums and Christmas Roses. We should like to see encouragement given by the society to each and all of these plants, and so secure throughout the year an ever-changing exhibition. But we think that, under proper management, all this might be as well done, and at much less cost and trouble, by one society rather than by five-and-twenty. If really requisite, by all means let there be five-and-twenty committees or sections to co-operate with the main society; let the five-and-twenty each in their turn have the sanction of the main body and the direction of all matters connected with their speciality—of local affairs as contrasted with imperial ones, if we may so say. The five-and-twenty would be the representatives of scores and hundreds of specialists who would contribute to the general fund, while the imperial exchequer should be taxed in support of each speciality to an amount commensurate with the number of specialists and the amount of their respective contributions. A single subscription would then render any one and every one free, not only of his particular section, but of the whole; and any specialist desirous of particularly favouring his special weakness might do so by contributing funds for special prizes, or by other means. The Horticultural Society has got into its present depressed state in some measure in consequence of the narrow restricted views its officers have taken of what should be the scope of a national horticultural society. It has unduly favoured some and passed over others. The specialists not unnaturally resented this. There are many signs that they did so in no spirit of antagonism, and that they are willing and desirous to co-operate with the parent society if only sufficient encouragement be given them. We believe it would tend greatly to the advantage of both parties if the union could be rendered closer. We believe that the efficiency, power for good, and dignity of all parties, might be materially enhanced, and the necessity for separate subscriptions, which are now so severe a tax upon some well-wishers, materially reduced by co-operation and federation.

“PAXTON'S FLOWER GARDEN,” Part 24, just published, is a little less showy than usual in the subjects selected. The coloured figures represent *Dendrobium transparens* and *Allium acuminatum*. The last named is a Californian onion with showy umbels of flowers, in which white and rosy carmine mingle to produce a very rich colouring. Mr. Baines ranks it in beauty as equal to the Guernsey lily, and adds that the plant does not emit the odour peculiar to the alliums. The subjects figured in black and white are *Acacia Riceana*, *A. oxycedrus*, *A. diffusa*, and *Berberis pallida*.

SOUTH KENSINGTON.

MAKING the grand discovery one day that I had an hour to spare between the termination of business and the time of the arrival of my fire-engine that I had appointed to carry me to the City, I made a leisurely walk about South Kensington, and thence into Kensington town, and I confess I very much enjoyed the unwonted season of midday leisure. I had begun to think that quiet times would never return, so tremendous had been the turmoil of the season; but the truth is, winter brings quiet times to all who do not cough much, and for the coughers probably there are quiet moments when they may remember the excitements of the summer gone and speculate on the summer that is coming. If their speculations that way are as hopeful as those of the sexton in the “Curiosity Shop” they will be no harm to them, and, as a matter of conventionalism, I will hope they will be better justified.

The very first thought that occurred to me when I started for a walk was the difficulty of determining where and what are the boundaries of South Kensington. I will suppose the new Natural History Museum to be the centre of the district; but the district itself, though a fact in the material sense, is, I fancy, apocryphal as regards its name. Beginning with this supposed centre, I pause and look around. It is not long since the International Industrial Exhibition of 1862 was here; at all events, it seems but yesterday, and of course it is but half of yesterday to the International Horticultural Exhibition of 1886, which occupied in the most worthy manner part of the site. It may not be known to many of the present generation that this spot may be regarded as the metropolitan centre of the history of horticulture in this country; and if this be the fact, the Royal Horticultural Society occupies a spot which may be described, as regards its particular uses, as the very centre of the earth. Chelsea is near by; Sloane Street is not less near. Chelsea and Brompton, for some reason or other, enjoyed a monopoly of the horticultural energies of Britishers from the days of the Stuarts to the days of the Guelphs, from the house of Tudor to the house of Hanover, and the monopoly has only been destroyed by the Builder, who may be regarded as the arch destroyer of everything. The builder, however, makes some slight return in sentiment for what he destroys in fact. He commemorates in the names of the roads and streets he forms the persons who have made the sites famous. Thus standing on the borders of the estate of Her Majesty's Commissioners, we are reminded of Oliver Cromwell by the name of Cromwell Road. Hale House was traditionally said to have been inhabited by Oliver Cromwell, but the truth appears to be that it was occupied by Henry Cromwell, and that Oliver being in the district on one occasion was in fear of molestation by certain Cavaliers, and so took refuge in the house of his son; and it is even said there was a recess prepared near one of the chimneys in which he might occasionally conceal himself. But there is no proof that Oliver ever entered Hale House; nevertheless, it obtained the name of Cromwell House, and there is some uncertainty as to whether it was Henry or Richard Cromwell who resided in it. It is, however, certain that it was long the property of the Methwold family, and that the only son of Burke died within its walls. At the eastern end of the Cromwell Road the Commissioners of 1851 purchased the estate on which is now located the Royal Horticultural Society. Although the R.H.S. is in a less flourishing state than, considering its usefulness, it deserves to be, the locality may be regarded as very richly endowed with intellectuality in its museums, libraries, galleries, and schools of art.

This group of liberal institutions covers what was formerly the Gore House estate, and Gore House originally stood about 150 yards to the east of the chief entrance to the Albert Hall, where now will be found a mighty mass of red brick chambers, lodgings, flats, or other homes for a miniature republic. It was a quite humble structure, having but little beauty, and was seen for almost the last time on the occasion of that “revolution” which wrought a change in the management of the Royal Horticultural Society, one of the meetings which led up to the crisis having been held therein. The estate was anciently called the Gare, being under this name given by Herbert, Abbot of Westminster, to the nuns of Kilburn. A “gare” may be a gate or it may be a tuft of coarse wool. In the case before us the term doubtless has a geographical purport as indicative of the boundary or entrance to a royal property. For Kensington and Kingston are both famous as former abodes of royalty, and in each case the name may be read as “the King's town,” the particular spot where we are now standing having been long known as the King's Gore. The Gore has had an eventful history, but not much is known of it until after it was purchased by William III. in 1691, when it became one of the more important residences in the “Old Court suburb.” In late days it was inhabited successively by Mr. Wilberforce and the “gorgeous” Countess of Blessington, and finally it became a restaurant of a very costly sort under the direction of the famous Alexis Soyer. In its best days Gore House has entertained Campbell, Rogers, Moore, Landor, Horace, and James Smith, N. P. Willis, Monckton Milnes, Bulwer, Thackeray, Dickens, Planché, lords, dukes, and society notables innumerable; and here it was in August, 1840, under the splendid rule of the Countess of Blessington, that Prince Louis Napoleon arranged for a dinner party at the Tuileries to take place in August, 1841, when, instead of being monarch of all he surveyed, he was a prisoner in the fortress of Ham.

The Gore House estate, when purchased by the Commissioners of 1851, comprised only twenty-one acres, of which probably not one now remains in the exact state in which it came into their possession. Should there be a scrap remaining, we should be disposed to look for it in the odd corners between the great conservatory of the R.H.S. and the Albert Hall, where possibly a few of the original trees may still stand as melancholy mementoes of the “Kings Gate,” or of some toll of wool or payment of wool as the basis of tenure.

The site of the South Kensington Museum is not a part of the Gore, although usually so considered. This institution is located in part on the Baron de Villars' estate, which skirted the Brompton Road, and comprised an area of about fifty acres. Some veritable scraps of this property remain as yet, with the original trees and minor features untouched, but only too likely to suffer change at no distant date. The big trees that adorn the entrance to the museum from Brompton Road carry us back to days when the idea of an international exhibition had not been broached, and in particular there stands on this site the finest plane tree in London, which any one may discover by searching for it, although it is scarcely to be discerned during the summer from the roadway. It stands in a recess, which will doubtless be filled up, as additional galleries are required, and then, alas! poor tree, thy days are probably already numbered.

Passing many historical sites, we stroll down towards kingly Kensington; we pause at the entrance to the palace, and look around. It matters not as to the tendency of our tastes, the great mansion built at the cost of

over a million sterling by Albert Grant, will, from this point of view, compel attention, if not admiration. On that site stood of yore Kensington House, a structure of red brick, for some years inhabited by the Duchess of Portsmouth, for whom our second Charles made many sacrifices in behalf of his own disgrace and the injury of his country. In this house the king supped on the 1st or 2nd of February, 1685, immediately preceding the fit of apoplexy which terminated in his death on the 6th of the same month. Those who have read Evelyn will scarcely doubt, I think, that the king was systematically bled to death, in strict accordance with the surgical science of that day. However we may despise the man and execrate the king, Evelyn's narrative of the treatment he was subjected to must cause a sympathetic shudder, and a desire to denounce a course of treatment that comes so near akin to murder. Charles X. of France resided here for some time, when the

Mr. Grant purchased an Irish colony situated in the rear of the Kensington High Street—formerly called the 'Rookery' and 'Jenning's Buildings'—both of which had been a nuisance to the parish for years past. These places are now entirely demolished, and the ground has been converted into a picturesque lake, three acres in extent, with two small islands in the centre. To secure an uninterrupted view of the Kensington Gardens, Mr. Grant purchased the pretty antique lodge which used to stand at the entrance to the gardens, together with the dead wall enclosing the grounds. These have been removed, and in their stead a handsome range of gilt iron railings erected." What happened to the Rookery will soon happen to this huge house, for it will be demolished, and the site will be absorbed in a building speculation. The "town" is of greater importance in respect of history and associations than the "gate." But we shall go not there on the present occasion. We



GREAT PLANE TREE IN THE GARDEN OF THE SOUTH KENSINGTON MUSEUM.

house was in the occupation of some French emigrant priests of the Jesuit order; and here died Mrs. Inchbald, the novelist, in the year 1821. N.B.—She killed herself by tight lacing.

It was in the year 1872 that "Baron" Grant came on the scene and pulled down Kensington House and the adjoining Colby House to make a site for his great mansion, which has been named "Grant's Folly." Referring to "Old and New London," by Edward Walford, vol. v., p. 125, I find the following statement:—"The mansion contains a grand hall and staircase, built entirely of white marble, drawing rooms, library, picture gallery, three dining rooms *en suite*, and a spacious ball room. In the construction of the windows, numbering over a hundred, no less than three tons of stone have been used. In the formation of the grounds, which are twelve acres in extent,

prefer to have another look round, for South Kensington is a grand place, and needs but a few more touches of the right kind to render it magnificent. The "South Kensington Museum," as an architectural mass, needs finishing, for it is an *olla podrida* of sheds and shanties, with palatial fragments between. The new Natural History Museum is extremely beautiful, and a quite original bit. It is certainly worth something in the artistic sense as an example of genuine Victorian architecture. The garden side of the Exhibition Road is a disgrace to the district, and cannot long remain so. Here are located the Indian Museum, the Royal Horticultural Society, the Portrait Gallery, and the branch Post Office, and there is not one yard of respectable frontage to any or all of these noble institutions. The Albert Hall is a magnificent edifice and well suited to its commanding position. None of us are ashamed of the

Albert Memorial that faces it on the green turf opposite, and the trees that abound harmonize the whole. The garden and conservatory of the R.H.S. ought to be—but no matter what they ought to be; let the future unfold its events, and let us shape our course in regard to them with dignity and honour.

In maps that antedate the establishment of the Museum and Schools at South Kensington, the corner plot between Thurloe Place and the Exhibition Road is labelled "Brompton Park," which extended thence northward as far as Prince's Gate, and is therefore now covered by the handsome houses that form the east side of the Exhibition Road. We are thus in South Kensington reminded of one of the most spirited nursery firms whose names appear in the history of English horticulture. The Brompton Park Nursery was founded by Moses Cooke, the son of a Lincolnshire farmer. He is mentioned by Evelyn in the "Diary," under date April 18, 1680, as thou gardener at Cashibury. "The gardeners are very rare, and cannot be otherwise, having so skilful an artist to govern them as Mr. Cooke, who is, as to the mechanic part, not ignorant in mathematics, and pretends to astrology." In the year 1681 Moses Cooke entered into partnership with Messrs. Lucre, London, and Field, in the establishment of the Brompton Park Nursery. Cooke wrote a work on trees, which was published in quarto in the year 1679,* under an assumed name, and he retired or died about the year 1694. London, one of his partners, had been in the service of Bishop Compton previous to his joining in the nursery speculation, and had travelled on the Continent in pursuit of knowledge. It is certain that Lucre and Field, the other partners,

gravel pits into a shrubbery, through which were winding walks, so much admired by Addison that he compares Mr. Wise to an epic poet. London and Wise wrote a few books, the principal of which are "The Complete Gardener," 1699, and "The Retired Gardener," 1706. Wise survived London, but at what date he died does not appear.

As we have been compelled to go so far away as Kensington Gardens, it may be well to add that as these now appear they represent work of later date than London and Wise. The gardens they had to do with in the first instance comprised only twenty-six acres. Queen Anne, about the year 1706, added thirty acres, which Wise laid out, and this was the last of his work here. Between 1727 and 1760, Queen Caroline added three hundred acres, which were taken from Hyde Park and laid out by Bridgman, who, according to Walpole, "banished verdant sculpture and did not even revert to the square precision of the foregoing age." Then was formed the Serpentine river, "which is not serpentine," and those noble plantations that render Kensington Gardens the loveliest woodland near the metropolis. Horace Walpole relates that Queen Caroline proposed to shut up St. James's Park and convert it into a private garden, and asked Walpole what it would cost? He answered, "Only three crowns," and that appears to have decided the matter. London ("Ency. Gard.," 571) quotes from Batty Langley (1728) as follows. "The regular gardens were first taken from the Dutch, and introduced into England in the time of the late Mr. London and Mr. Wise, who being then supposed to be the best gardeners in England (the art being in its infancy) were employed by the nobility and gentry of England to lay out and plant their



SELAGINELLA GRANDIS.

died about the same time as Cooke, but the dates of their several deaths cannot be exactly determined. However, we find London alone in the nursery in 1694, when he took into the concern Mr. Henry Wise, and thenceforth for many years London and Wise were the leading men both in the production of nursery stock and in the planting of parks and gardens. The Brompton Park Nursery covered more than one hundred acres of ground, and the stock was estimated to be worth £40,000. London became superintendent of all the Royal Gardens. Amongst the works accomplished by London and Wise may be mentioned the planting of the gardens of Fulham Palace for Bishop Compton; the formation of Wanstead Park for Sir Richard Child; the arrangement of the grounds at Blenheim, and the remodelling of the surroundings of Kensington Palace for King William III. The approach was under a double row of elms, from the town of Kensington, through an enclosed field rendered unsightly by a gravel pit. To effect a transformation London and Wise introduced a mimic fortification with bastions, counterescarpes, and the like formed of clipped yew and holly. This vegetable screen acquired considerable renown as representing a high order of garden art, and was long known by a playful designation as the Siege of Troy. It was an age when trees were much clipped, and yew and box were much employed in the fashioning of figures and embroidery. Subsequently Wise converted the

gardens in that regular, stiff, and stuck-up manner, in which many yet appear." And yet there is still a charm in some of the few remaining examples of the "stiff and stuck-up" style, because of the harmony of the surroundings with the architecture. Moreover, time sanctifies even ugliness, so that where there is some kind of consistency in the several features of a property we are influenced in its favour by the fact that it represents the taste of a past age, and has historical, and perhaps also archaeological interest. It is not well to disturb, much less to destroy, the few memorials that remain to us of bygone fashions in gardening, any more than it would be well to level the old cathedrals and put up in their places edifices designed in strict accordance with modern taste, which in building, as in gardening, is not always the better for the lateness of the invention, and in many instances is much the worse.

PASSER-BY.

SELAGINELLA GRANDIS.

ON May 23 Messrs. Veitch and Son presented to the Floral Committee a specimen of this remarkable lycopod, and as it stood on the table we hastily sketched it, and the subjoined figure will afford a fair idea of its peculiar complexion. It was then named *Selaginella platyphylla*, but, as the leaves are "not specially broad," the provisional name has been suppressed, and it is henceforth to be known as *Selaginella grandis*.

* "The Manner of Raising, Ordering, and Improving Forest and Fruit Trees, &c., by Mr. Gabriel Plantes. London, 1679."

Cultivators of lycopods will not fail to notice the exceeding massiveness of the plant. It has erect stems, which divide into bold lines in the divisions of the fronds, which are triangular ovate, of a clear grass-green colour, the principal branches about seven inches wide. The appearance of the plant is most striking, not so much because of its beauty—for we almost doubt if it is beautiful—but on account of its daring distinctiveness; for it appears to depart from the ordinary type of a selaginella by as many degrees as possible without losing at any point its alliance, however subtle, with the proper family type. If we can incorporate a definite and very massive frontage with our idea of vegetable beauty, we shall have to acknowledge that this grand lycopod is really beautiful, and it has one characteristic which apparently dominates in the general expression. This is seen in the very close arrangement of the leaves and the several divisions of the fronds, so that there is no peep of daylight between, and yet the visible lines tell us that it is, after all, a lycopod we are admiring, and the spikelets of the fruiting state complete the conviction.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

LAYERING CARNATIONS AND PICOTEEES.

It has on several occasions been stated in the pages of the GARDENERS' MAGAZINE that of the flowers which may be successfully grown in the town garden none are more suitable than the carnation and picotee, and to dwell upon the fact is now no longer necessary. It may, however, be said that neither in the town nor the country garden is it possible to have during the summer season flowers more beautiful, or which can be cultivated with so little difficulty. I am not alluding to the production of blooms for exhibition, and I may at once state that before the amateur can achieve much success as an exhibitor he must have considerable experience, and be prepared to pay close attention to the plants throughout the year. When grown simply for the decoration of the garden and for furnishing cut flowers for the embellishment of indoor apartments, their culture is so easy that the amateur with but little experience in garden management may engage in it with the assurance of a fair measure of success. The comparative inexpensiveness of good varieties is a strong point in their favour, and when a stock has been once obtained a very small annual outlay will suffice, as they can be grown entirely in the open beds and borders. Those who have no stocks to furnish layers must of necessity wait until the end of September or the early part of October, and then purchase young plants; but those who have plants to work from should commence propagating at once. The usual and, in fact, the best way of propagating carnations and picotees is by means of layers, and there is no better time for layering them than just as the flowering season is drawing to a close. The work is very simple, although those who have not had any experience will probably be a little perplexed at first, and spoil some of the best "grass," as the shoots are technically called. All the shoots on a plant that are of a moderate length are suitable for layering, and the first step will be to carefully remove the leaves from the lower part: generally speaking, they should be taken off to about one-third of their length. The next step will be to cut each shoot about half-way through and peg it down upon the soil. The cut must be commenced on the under side at a joint most convenient for pegging the shoot down, and be made in an upward and slanting direction, and extend for a length of about three-quarters of an inch. It is necessary to bend the shoots down very carefully, particularly if the cut is made to a depth exceeding that here advised, because of their liability to snap off when handled at all roughly. On the completion of the pegging down enough soil must be heaped about the plants to cover the shoots to about one inch beyond the pegs. If the soil is light and friable, that required for covering the layers may be drawn from the surface of the bed or border; otherwise a small quantity of some light and sandy mixture should be specially prepared for the purpose. Some growers draw the surface soil away from beneath the shoots previous to layering them and replace with a mixture of loam, leaf-mould, and sharp silver sand in about equal proportions; and where the soil is at all heavy the practice has much to recommend it.

PLANTING CARNATIONS AND PICOTEEES.

Towards the end of September, or, at the latest, early in October, the layers will be furnished with roots, and in a suitable condition for detaching from the stools and planting in the beds. The amateur who is desirous of obtaining exhibition blooms will either put the plants in three-inch pots and winter in a frame, or put them in beds of a suitable size for covering with canvas when they are in bloom. Those who require them for adding to the attractions of the garden, or for furnishing cut flowers, will plant them in beds by themselves, or arrange them in the mixed border; the latter affords a very suitable position, and when placed in the second row they, in conjunction with other subjects, are exceedingly attractive. It is a very common practice in arranging them in borders to put the plants singly, but it is much better to arrange them in threes, the plants in each group to be nine or ten inches apart, as they then form large masses, and are very effective. In planting in beds devoted exclusively to them they should be a foot apart each way. A moderately rich and well-stirred soil is the most favourable to a strong growth and the production of good blooms, and very little preparation will suffice.

CHOICE CARNATIONS AND PICOTEEES FOR THE AMATEUR.

The following comprise some of the very best of the varieties in cultivation, and as they are obtainable at a comparatively cheap rate they are specially adapted to the requirements of the amateur.

The self carnations are in my opinion the most valuable of all, but the amateur should not confine himself entirely to them, as the flaked and bizarre varieties are very attractive, and the picotees are exceedingly beautiful. The following self carnations are distinct in colour and of excellent quality:—Hodges's Bride, a free-growing variety producing large pure white flowers; the Coroner, brilliant scarlet, very fine; Cremorne, light purple, distinct and good; Fire Eater, rosy scarlet, a distinct and pleasing shade of colour; Florence, yellowish buff, very distinct in colour and remarkably fine; Géant des Batailles, bright crimson; Gertrude Teigner, bright pink, very pleasing; Imperial Purple, a superb variety, the flowers very large and freely produced, and the colouring exceedingly rich; Mrs. Matthews, white, very sweet scented, strong in growth; Mrs. Teigner, bright rose-pink, and Old Crimson Clove, deep crimson, so well known for its delightful odour. From the flaked and bizarre carnations should be selected Admiral Curzon, Dreadnought, Lord Lewisham, and John Hines, scarlet bizarres; Eccentric Jack, J. D. Hextall, Rev. F. Tymons, Rifleman, and Saturn, crimson bizarres; James Taylor, Purity, Sarah Payne, and Unexpected, pink and purple bizarres; Bellerophon, Dr. Foster, James Douglas, Squire Meynell, purple flakes; Annihilator, Dan Godfrey, John Ball, and William Mellor, scarlet flakes; Cleopatra, James Carter, John Keet, Mary Ann, Rose of Stapleford, Rose Perfection, and Sybil, rose flakes. The picotees that can be highly recommended are, Emily, H. K. Mayor, J. B. Bryant, Master Norman, Mrs. Dodwell, Mrs. Wilson, and Thomas Williams, red edged; Alice, Her Majesty, Medina, Mr. Tutton, Rival Purple, and Zerlina, purple edged; Estelle, Louisa, Miss Williams, Mrs. Lord, and Regina, rose edged; Aurora, Coronation, Eleanor, Lady Aitchison, Mrs. Colman, Ne Plus Ultra, Princess Beatrice, Sultana, and William Greenaway, yellow ground flowers.

CINERARIAS AND PRIMULAS.

We have been busily engaged in potting off cinerarias and primulas, and it has occurred to me to remind those amateurs who have not been successful in raising stocks from seed of these useful subjects that the present moment is very favourable for the purchase of seedlings. As is now so generally known, several nurserymen make a speciality of supplying seedling plants of cinerarias, primulas, and calceolarias at a very low rate, and to those amateurs who have not had much experience in the raising of stocks the seedlings are of much value. Several of my friends have now given up the raising of seedlings and purchase supplies, and they say that they save themselves much trouble and anxiety with but little additional expenditure. When the seedlings are received they should be put singly in sixties and when they have filled their pots with roots be shifted into others five or six inches in diameter. Fibrous loam, to which a moderate proportion of leaf-mould or well-rotted manure and sharp silver sand have been added, should be used.

CAMELLIAS AND AZALEAS.

Both camellias and azaleas so frequently suffer from neglect at this season of the year that a note of warning may be useful. It is too much the practice to place them out of doors and only attend to them at long intervals, particularly if showers are frequent. It has been stated repeatedly that the rains are seldom sufficient to moisten the soil to a depth exceeding two or three inches, and that when the lower part of the ball of soil remains in a dust-dry state for even a short period the plants suffer severely. In many instances the shedding of the buds in the early part of the winter is due to the injury received by the plants during the summer and autumn. The plants should be carefully examined daily or every second day.

WINTER FLOWERS.

Amateurs who have a cucumber or melon house may enjoy throughout the winter season a very beautiful display of flowers, provided they commence preparations at once. In an ordinary greenhouse in which camellias, heaths, and other hard-wooded plants are kept, it is not possible to have many plants in bloom during the winter, as the temperature is not sufficient for the majority of those flowering at that season. But with the aid of a small cucumber house, in which a temperature ranging from 50 deg. to 60 deg. is maintained, an abundance of flowers may be had from the autumn until the spring. The plants best adapted to the requirements of the amateur are the zonal pelargoniums, of which about twelve varieties should be grown; bouvardias, primulas, cyclamens, and salvias. Some zonals are much better adapted for flowering in winter than the others, and it may be useful to state that I have found the following exceedingly good:—Vesuvius, White Vesuvius, Salmon Vesuvius, West Brighton Gem, Commander-in-Chief, Atala, H. M. Pollett, Beatrix, Mrs. Davidson Remus, Salmon Reinzi, Mrs. Daniels, Lady Sheffield, Louisa, Madonna, and Eureka. The most useful of the bouvardias are Jasminiflora and Vreclandi, pure white; Elegans, scarlet; Queen of Roses, pink. The cyclamens and primulas will of course be obtained from seed. Salvias of special value are Splendens, Bruante, a dwarf variety with brilliant scarlet flowers; Pitcheri, light blue; Bethelli, rose; Hoveyi, rich purple; and Rutilans. Strong plants in three-inch pots of the pelargoniums, bouvardias, and salvias should be obtained at once and shifted with as little delay as possible, the pelargoniums into six-inch pots and the other two subjects into five-inch pots. After they have recovered from the shift and are commencing to grow freely they should have the points of the shoots nipped out, and be allowed to grow without any further stopping. The bouvardias should be placed in a frame if room can be found for them, and the others on a bed of coal-ashes in the open, where they can remain until the middle of September and then be taken indoors.

UNSATISFACTORY FLOWERING OF CONSERVATORY CLIMBERS.

Within the last three weeks I have received several letters from the owners of small conservatories, in which complaints are made of the climbers not flowering so freely as could be wished. The writers say that the plants, which comprise *passifloras*, *tacsonias*, and the jasmine-flowered *solanum*, grow very freely, but produce few flowers. I am also assured by one writer that his climbers are certainly not neglected, for he is very careful to cut back the shoots before they attain to a very great length and become overcrowded. By this intimation a clue is obtained to the cause of the non-production of flowers, and from my experience in the management of plants of scandent habit I have no hesitation in saying that it is the indiscriminate use of the pruning knife. It is not an unusual practice to cut the shoots of conservatory climbers back at regular intervals, particularly where the houses are of small size, under the impression that it is necessary to their welfare. But, as a matter of fact, these subjects ought not during the summer to be subjected to any pruning beyond that necessary to prevent the roof being overcrowded. When this is likely to be the case a few of the shoots should be cut clean away close to the base, and the others be allowed to grow unchecked. If they attain to so great a length as to hang down longer than is desirable, they should be looped up in as light a manner as possible with a strip of bast. Flowers, it should be remembered, are not produced until the shoots have attained a considerable length, and if they are regularly cut back when from two to three feet long it is quite impossible for the plants to bloom satisfactorily, if at all. I should like more attention paid to conservatory climbers, for there is plenty of room for improvement in the making of selections as well as in the management of the plants. It is quite time that such coarse things as *Cobæa scandens* were abolished from the conservatory, and their place occupied with choice subjects like the *lapagerias* and the newer passion flowers and *tacsonias*, which are unsurpassed in elegance of growth, and produce an abundance of flowers of the most attractive character.

Exhibitions and Meetings.

HORTICULTURAL EXHIBITION AND MARKET,
AGRICULTURAL HALL.

IN continuation of our notes on the large and representative exhibition of horticultural structures, appliances, and elegancies which has been held in the Agricultural Hall, Islington, during the past fortnight, we now purpose briefly referring to a few other matters of special importance.

PEAT, which is such a great necessity in most gardens, was represented by excellent samples from Messrs. Rosher and Co., of King's Road, Chelsea, S.W., and Kingsland Road, E. It included selected samples for orchids and for the choicer kinds of hard-wooded plants, and peat of better quality or more suitable for the respective subjects could not well be desired. The cheaper quality for such free-growing subjects as the hardy *rhododendron* was also so remarkably good that it would compare most favorably with that usually offered for more delicately-rooted subjects. Decidedly good also was the peat and other garden requisites from Mr. H. C. Smith, 17A, Coal Yard, Drury Lane, W.C. Well deserving of the attention of practical men was the peat-moss litter and peat-moss manure from Mr. Alan Metcalf, 11, Millbank Street, Westminster. The peat-moss litter is a very light peat, now being used extensively for bedding horses in the London stables. It has for some time past been used largely in the stables of the General Omnibus Company, and we understand that it is regarded with considerable favour. The peat-moss is spread out thinly over the floor of the stall and replaced at frequent intervals with fresh as it becomes saturated with urine, or it remains for some time and receives a thin covering of fresh material occasionally, the latter course being considered the best, when the manurial value on its removal from the stable is considered of prime importance. As it possesses great absorbent powers and rapidly fixes ammonia, it can remain until the floor is covered to a considerable depth without its giving off an unpleasant smell or being in any way injurious to either horses or cows. There were samples also of the peat-moss manure as it comes from the London stables, packed in bales, with gypsum, and in a loose state.

PLANT HOUSES AND WALL PROTECTORS were exhibited by Messrs. W. Richardson and Co., the well-known horticultural builders of Darlington, in addition to the structures from the firms mentioned last week. The admirably-designed wall cover for the protection of fruit trees was well represented, as also was the portable span-roof garden frame of which the firm makes a speciality. The frames are manufactured in various widths, ranging from four to eight feet, and to be placed upon brickwork or with wooden sides. They are remarkably substantial, and the lights are so arranged that they can be readily fixed at any angle for ventilation or affording facilities for attending to the plants, or they can be removed altogether. In addition a movable cap is provided for the admission of air when it is not desired to open the lights. The portable frame is one of the best structures of its kind, and equally suited for both large and small gardens. Messrs. Tracy and Sons, Ilford, Essex, exhibited their patent system of glazing without putty, which possesses considerable merit. The glass is held in metal bars, which resemble two tubes soldered together, with slots on the outer sides, and the bars are supported by wooden purlins arranged horizontally.

THE PARISIAN CHAIN BLINDS, which were exhibited by Messrs. Richardson and Co. in working order, are well suited for shading plant structures of all kinds, more especially those of large size, and it is not surprising to hear that they are gaining very rapidly in popularity. The blinds are made with thin wood laths, connected in such a way that there is a narrow space between. When the upper edge is fixed to the apex of the roof they can be readily let down or drawn up with a single line running over a pulley. Whilst very light in appearance, they are so strong and durable that they will last almost as long as the structure on which they are placed, provided the precaution is taken to apply a coat of paint when necessary.

TEAK ORCHID BASKETS of the description manufactured by Messrs. Smith and Williams, 23, Farringdon Road, are rapidly rising in the estimation of orchid growers, and it is not surprising, for they are remarkably light and elegant in appearance and very strong and durable. On the stand of the firm

mentioned were square and octagonal baskets, ranging from three to nineteen inches across, the former admirably adapted for newly-imported plants of small size, and the largest afford space sufficient for the roots of the largest specimens. The long boat-shaped and the cylindrical baskets, of which there were several examples, are admirably adapted for plants that thrive on blocks, and by no means wanting in elegance.

PUMPS AND BOILERS of various construction, and for all kinds of special uses, were shown by Messrs. Appleby and Co., of Renishaw Ironworks, near Chesterfield. One of the most interesting amongst many is the chain pump, which lifts almost anything that is freely movable in the water, and, consequently, is of great service for pumping sewage, and for use in quarries and earthworks where muddy water has to be lifted, and a valve pump would soon be choked. Force pumps, house pumps, anti-freezing pumps, and all other kinds of pumps, save dancing pumps, are here in great variety. Associated with the pumps are boilers, stoves, and pipes for heating plant houses, warehouses, dwelling houses, and places of worship. Some useful coil boxes and throttle valves add to the interest of this excellent exhibit.

METAL AND PORCELAIN CROSSES AND WREATHS were exhibited in large numbers by Messrs. Wadham and Co., 192, Euston Road, N.W., and by Messrs. Zobel and Son, 139, Euston Road, N.W., and they were interesting as showing the great improvement that has been effected in the manufacture of these things of late years. Fidelity to nature was apparent throughout, and in the more elaborate wreaths much taste was evinced.

WELLS'S PATENT SPRAY DIFFUSER, to which we have alluded on more than one occasion, was shown at work throughout the exhibition, and its usefulness in the treatment of plants infested with insect pests practically demonstrated. To describe the Diffuser is not now necessary, but it may be said that it is one of the most efficient inventions of its kind, and so simple that it may be employed with the best possible effect by the inexperienced amateur. In fact, all that has to be done is to charge it with the insecticide or preparation to be employed in the destruction of the pests it is desired to annihilate, and then work the two handles backwards and forwards in much the same manner as an ordinary pair of bellows. When the apparatus is at work the insecticide with which it is charged is delivered in the form of a dense cloud, and thoroughly saturates the foliage and wood, and practically there is no waste.

GROUPS OF PLANTS from Messrs. W. Cutbush and Son, Highgate and Barnet, Messrs. H. Stroud and Son, Green Laues, Messrs. J. Laing and Co., Forest Hill, and Mr. C. Burley, Brentwood, formed an attractive feature and a pleasing contrast to the vast array of plant houses and garden furniture. Particularly attractive was the splendid group from Messrs. Cutbush and Son, in which were several noble pyramidal box trees and very fine standard bays. In contrast with the more sombre-coloured evergreens were some fine bushes of *Acer negundo* variegata, and, as a finish, the group had a tastefully-arranged belt of dwarf shrubs with variegated leafage, and a broad band of green turf. Messrs. Laing and Co.'s and Mr. Burley's collections were both very attractive, and in the tasteful arrangement of Messrs. H. Stroud and Son were several fine specimens of *Lilium auratum* and *L. speciosum*.

FERN CASES, WINDOW BOXES, and other elegancies were exhibited in large numbers and in the best of taste by Messrs. Ewart and Son, 346, Euston Road. Aquaria also figured conspicuously in the extensive collection from this firm, who had an ingenious stove for heating window conservatories and other structures of small size. Messrs. Kessell and Son, 11, Southwark Street, Borough, exhibited several elegant fern stands and aquaria, fitted with their self-acting fountains. Very elegantly-designed metal tiles for window boxes were contributed by Messrs. Henry Rees and Co. (Limited), Westminster Bridge Road, S.E., who appear to have devoted considerable attention to their production, and have achieved much success.

FLOWER POTS AND VASES included, in addition to those mentioned last week, a large and excellent assortment from Messrs. C. G. Warne, Weston-super-Mare. The vases and statuary from these exhibitors were all in terra cotta of fine quality.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—SECOND
SUMMER SHOW, AUGUST 2.

The second exhibition for the current year of this old and important society was held in the grounds of Wadham College on Wednesday last, and as regards its extent and the excellency of the productions bore a most favourable comparison with the corresponding shows of previous years. Flowering and fine-foliage plants were admirably shown, but on this occasion the great leading features were formed by the cut flowers, the fruits and the vegetables, all of which were contributed in large quantities, and in the most satisfactory condition. Much additional interest was imparted to the gathering by the holding of the supplementary exhibition of the Southern Section of the National Carnation and Potted Society in connexion with it: this, under the active superintendence of Mr. E. S. Dodwell, proved a great success, for the flowers were staged in large numbers and in splendid condition, and their eminently attractive character was made sufficiently evident by the crowded state of the tent devoted to them. Throughout the day three tents were set apart for the plants, fruits, and flowers staged in competition for the prizes offered by the Royal Oxfordshire Society. The whole of the arrangements were admirably carried out, and the executive committee and Mr. William Greenaway, the courteous and highly efficient acting secretary, are deserving of the highest praise for the manner in which their several duties were performed.

FLOWERING AND FINE-FOLIAGE PLANTS included a capital collection of stove and greenhouse plants in bloom from W. Wootten, Esq., Headington House, Oxford, in which the attractive *Hæmanthus puniceus* was well represented. For a single specimen stove plant Mr. Bates was first with a good example of *Adiantum farleyense*, and Mr. Thorne, of Woodstock, was a close second with *Adiantum cuneatum* in capital condition.

ZONAL PELARGONIUMS were both plentiful and good, and occupied a prominent position in the tent devoted to collections of plants. The collections of single and double flowered varieties consisted chiefly of neat, fresh, and exceedingly well-bloomed specimens; and the most successful of the exhibitors in the several classes were Mr. Thorne, Mr. Coster, and Mr. Bates. Gold and silver zonals or tricolors were well shown by Mr. Thorne, Mr. G. Jacobs, Barton, the Rev. H. A. Packard, and Mr. Coster, the plants not large, but fresh and well coloured. Bronze zonals or bicolors were represented by capital collections from Mr. E. Thorne, who was first in the unlimited class, and by Mr. Coster, who occupied the post of honour in the class for six, and by other exhibitors.

FUCHSIAS consisted exclusively of bush specimens, and were remarkable for their freshness and the excellent manner in which they were flowered. The leading exhibitors were Mr. J. Bates, Mr. J. Walker, Thame, Mr.

Dearlove, Mr. Coster, and Mr. Thorne, who were awarded the principal prizes in the several classes.

BEGONIAS AND PETUNIAS were not numerous, but those staged evinced cultural skill of a high order, and contributed their share to the many attractions of the exhibition. The first and second prizes for six begonias were awarded to Mr. Pince, Headington, whose specimens were particularly neat and well flowered, and Mr. Bates. Petunias were particularly well shown by Mr. J. E. Lewis Boulton, Westcock, Leamington, his collection consisting of neat and well-flowered specimens.

COLIUS were represented by numerous collections of medium-sized and richly-coloured specimens, and the most successful exhibitors were Mr. Hill, Rowley Nursery, Oxford, Mr. Jacobs, and Mr. Coster.

FERNS included British and exotic kinds, and although the specimens were not large they were such as to bring much credit to the exhibitors. For six exotic kinds, W. Wootton, Esq., was first, and Mr. Bates second. The first prize for six British ferns was awarded to Mr. J. Walker for a collection of much excellence, the specimens of the varieties of *Scolopendrium vulgare* being remarkably good.

FRUITS were plentiful and on the whole of high quality. Splendidly-finished bunches of Black Hamburgh were shown in the classes for black grapes by Mr. Finlay, Wroxton Abbey, Banbury, Mr. J. Gough, and Mr. Thomas, Bicester. In the corresponding class for white grapes Mr. Thomas was first with capital Buckland Sweetwater and Mr. Finlay a close second with Golden Champion, but wanting a few days to finish. Mr. Finlay secured the premier award for peaches with Early Admirable, and for nectarines with Victoria. Mr. J. E. L. Boulton was second for peaches with that fine old variety Royal George, and for nectarines with Hunt's Tawny. Apricots were exceedingly good, and W. Wootton, Esq., was first with St. Ambrose, Mr. W. Coppack second with Large Early, and Mr. Maunders third with Shipley. The prize-takers in the class for culinary cherries were Mr. Ashton, Oxford, Mr. Gough, and Mr. Coppack, all of whom staged the Morello. In the class for melons Mr. Thomas was first with Improved Victory of Bath, a large handsome fruit of good quality, and Mr. Gough second. Black currants were shown in large quantities, and Mr. Harper had the finest dish. Red currants were well represented by the contribution of Mrs. Finlay and Mr. Walker, and the first and second prizes for gooseberries were awarded to Mr. Finlay and Mr. Walker.

VEGETABLES were so numerous that to speak of them in detail would require more space than can possibly be spared. The quality, it may be observed, was good throughout, and the result was a display that is seldom equalled. In competition for the prizes offered by Messrs. Sutton and Sons for a collection Mr. Gough and Mr. Hawley were first and second respectively. The first prizes for potatoes were awarded to Mr. Gough, who had Rector of Woodstock in the round class, and International in the kidney class. The first prize for a dish of peas was awarded to Mr. J. Walker for an excellent sample of his Perpetual Bearer, a dwarf variety of much excellence, and the second to Mr. Finlay for Pride of the Market, the merits of which are well known.

CUT FLOWERS sufficed to fill the greater part of a large tent, and chief amongst them were the stands of twelve bunches of hardy herbaceous from Mr. Laking, Temple Court, Oxford, and Mr. J. Walker, of which it would be impossible to speak too highly. Mr. C. Turner exhibited several stands of show, pompon, and single dahlias, in which the blooms were highly meritorious.

In addition to the many good things we have thus far reported on, there were features of interest we would gladly describe if time and space permitted. The exhibition of roots and vegetables was altogether admirable, and being set out in the open air, on benches under the venerable walls of the college, the inspection of them was at once convenient and agreeable. There was a large exhibition of bouquets, and a considerable and beautiful collection of flowers of hardy plants, which were for the most part of fine quality and correctly labelled.

At the luncheon in the College Hall, a large party assembled under the presidency of his Worship the Mayor of Oxford; the vice-chair being occupied by Mr. S. Barlow, of Castleton. A considerable toast list was provided and was carried through in a lively manner, the chairman and vice-chairman necessarily taking leading parts. Other speakers were the Rev. F. D. Horner, Messrs. Ridley, Gorton, Dodwell, Moore, Hibberd, Turner, and Wallington. There were several ladies present at the table, making the party more complete and enjoyable than is commonly the case at floral meetings.

NATIONAL CARNATION AND PICOTEE SOCIETY.—EXHIBITION AT OXFORD, AUGUST 2.

The supplementary exhibition of the Southern Section of the National Carnation and Picotee Society at Oxford on Wednesday last, in connexion with the second summer show of the Royal Oxfordshire Horticultural Society, was attended with a full measure of success, and fully justified the labours of the promoters. The blooms, although not so numerous as at the exhibition recently held in the gardens of the Royal Horticultural Society, were staged in sufficient numbers to fill a large tent, and the quality was exceptionally high throughout. The date appeared to suit the northern growers, several of whom staged splendid stands of flowers, those from R. Gorton, Esq., of Eccles, and Mr. B. Simonite being the most noteworthy. The arrangements were good, and the beautiful collection of decorative plants contributed by Mr. Mayo enhanced in no small degree the general effect. The exhibition was regarded with much interest by the visitors, for, from the opening to the close of the show, the tent was so crowded that it was no easy task to have a good look at the flowers.

CARNATIONS.—The most important class for carnations was that for twenty-four blooms, comprising not less than twelve varieties, and at the head of the competitors was Mr. C. Turner, Slough, with large and superbly-finished blooms of Jessica, Thomas Moore, George Rudd, Flirt, Lord Clifton, Isaac Wilkinson, Rifleman, Philip Thomas, Robert Lord, Rev. F. Tymons, George, Sybil, John, Hines, Thomas Tomes, John Keet, Matador, and Squire Llewellyn. Mr. E. S. Dodwell, Stanley Road, Oxford, was a good second with flowers of medium size and superb quality; the varieties of which the stand consisted were Mr. Hewett, Thomas Moore, Sarah Payne, Robert Lord, Mrs. Moore, Unexpected, Rudoman, Richard Gorton, H. K. Mayer, Tom Power, Master Fred, Mrs. Burton, John Keet, John Haigh, Squire Dodwell, Florence Nightingale, and Arthur Medhurst. Mr. H. Hooper, Bath, third.

There was a keen competition in the class for twelve blooms, distinct, and the post of honour was occupied by Mr. E. S. Dodwell with magnificent flowers of Thomas Moore, Sarah Payne, Henry Cannell, Seedling pink and

purple bizarre, Seedling rose flake, Robert Lord, Alfred Hudson, Florence Nightingale, James Merryweather, Arthur Medhurst, and Mrs. Barlow. Mr. B. Simonite, Sheffield, second with superbly-finished blooms of James Douglas, Dodwell's Seedling, Admiral Curzon, Thomas Moore, Dr. Foster, Dr. Tomes, Dreadnought, Mayor of Nottingham, James Taylor, and two seedlings of great promise. Mr. S. Brown, Birmingham, third; R. Gorton, Esq., Eccles, fourth, and Mr. J. P. Sharp, Perry Bar, fifth.

For six Master Stanley Dodwell was first with splendid blooms of Mrs. Matthews, John Hines, Richard Gorton, James Douglas, Fred, and A. D. Sontingale; Mr. H. G. Sharp, Perry Bar, second with good flowers of Arthur Medhurst, Thomas Moore, Mrs. Matthews, Florence Nightingale, Clipper, and John Keet; Dr. Abercrombie, Cheltenham, a good third.

The whole of the classes for single specimens were well filled, and the flowers were mostly of excellent quality. In the class for Scarlet bizzars Mr. Charles Turner was first with George, and Mr. Dodwell was second, third, fourth, and fifth with Robert Lord. Crimson bizzars, Mr. Dodwell first with Master Fred, second with E. S. Dodwell, fourth with Dr. Crowding, and fifth with Thomas Moore, Junior; Mr. Brown third with Thomas Moore. Pink and purple bizzars, Mr. Dodwell first and third with Sarah Payne, and fifth with Mrs. Barlow; R. Gorton, Esq., second and fourth with William Skirving. Purple flake, Mr. B. Simonite first with James Douglas, third with Mayor of Nottingham, and Mr. J. P. Sharp fourth with Dr. Foster. Scarlet flake, Mr. Dodwell first with Curzon Sport, scarlet flake, and fifth with Scarlet Keet; Mr. Turner second and third with Thomas Tomes, and fourth with William. Rose flake, Mr. Turner first with Jessica, and second with Mrs. Medhurst; R. Gorton, Esq., third and fourth with Tim Bobbin, and fifth with James Merryweather. The premier prize was awarded to Mr. C. Turner for the bloom of Philip Thomas in his first-prize stand of twenty-four.

PICOTEE.—For twenty-four blooms, not less than twelve varieties, Mr. C. Turner was first with very large and superbly-finished flowers of Mrs. A. Chancellor, Thomas William, Mrs. Rayner, Lonisa, Queen of Summer, Thomas Jiven, Constance Heron, Her Majesty, Royal Visit, Dorothy, Mrs. Webb, Lady Carrington, Madame Corbin, Baroness Burdett-Coutts, and Mrs. Payne; Mr. E. S. Dodwell second with excellent blooms of Mrs. A. Chancellor, Royal Visit, Tinnie, Mrs. Rayner, Edith Dombrain, Medina, Louisa, Zerlina, Mary, Dr. Epps, Lizzie Tomes, Muriel, and Eveline; Mr. Hooper third.

For twelve Mr. E. S. Dodwell was first with splendid blooms of Tinnie, Mrs. Payne, Mrs. A. Chancellor, Royal Visit, Master Norman, Lizzie Tomes, Mary, Muriel, Louisa, Esther Minnie, Edith Dombrain, and Medina; Mr. B. Simonite second with remarkably fine flowers of Mrs. Nevin, Mrs. Gorton, Mrs. Payne, Zerlina, Mrs. Allcroft, Lady Holmesdale, Tinnie, Theresa, Mary, Dr. Epps, Violet Douglas, and Edith Dombrain; Mr. S. Brown third with good blooms of Emmeline, Muriel, Beauty of Bath, Charles Barnes, Picturata, Her Majesty, Zerlina, Edith Dombrain, Baroness Burdett-Coutts, Fanny Helen, Mrs. Bower, and a seedling; Mr. J. P. Sharp fourth, and Mr. H. Cattley, Bath, fifth. In competition for the prizes for six Master Stanley Dodwell was first with excellent blooms of Medina, Royal Visit, Louisa, Dr. Epps, Minnie, and Miss Wood; R. Gorton, Esq., second with Master Norman, Louisa, Mrs. Payne, Tinnie, Titania, and Edith Dombrain; Mr. H. G. Sharp third with Zerlina, John Smith, Thomas Williams, Edith Dombrain, Beauty of Cheltenham, and a seedling; Dr. Abercrombie fourth.

The classes for single specimens were well filled, and the flowers were remarkable for high quality. Heavy Red Edge: Mr. Dodwell first with Dr. Epps, Mr. Turner second with Dr. Epps and fourth with Monarch; Mr. S. Brown third with John Ball, and Mr. J. P. Sharp fifth with James Smith. Light Red Edge: Mr. B. Simonite first, second, and fifth with Mrs. Gorton; Mr. J. P. Sharp third with Thomas Williams, and Mr. S. Brown fourth with Emmeline. Heavy Purple Edge: Mr. C. Turner first with Muriel, second with Edith Dombrain, and third and fifth with Mrs. Summers; Mr. B. Simonite fourth with Mrs. Nevin. Light Edge Purple: Mr. Dodwell first and second with Mary; Mr. S. Brown third with Mary; R. Gorton, Esq., fourth with Titania, and Mr. B. Simonite fifth with Mary. Heavy Rose or Scarlet Edge: Mr. C. Turner first, fourth, and fifth with Mrs. Payne, second with Royal Visit, and third with Mrs. Webb. Light Rose or Scarlet Edge: Mr. B. Simonite first with Mrs. Allcroft; Mr. S. Brown second and fourth with Mrs. Allcroft; Mr. C. Turner third with Dorothy and fifth with Elegant. Yellow Grounds: Mr. Turner first with Bullion, second with Flavius and Coronation. The premier picotee was adjudged to be the bloom of Mrs. Payne in Mr. C. Turner's first-prize twenty-four.

FANCY AND YELLOW GROUND FLOWERS.—The classes for these were well filled and formed an attractive feature. For twenty-four selfs and fancies Mr. C. Turner was first with splendid blooms of Lord Rosebery, Lady Rosebery, Jessica, George, Bridesmaid, Constance, Elegant, Comet, Matador, Hindoo, Dominic Sampson, Mrs. Matthews, Lucifer, Géant des Batailles, Novelty, Lady Stamford, Sultana, Fire Eater, and Mrs. Champneys; Mr. Dodwell, second, and Mr. H. Hooper third. The prizes for twelve were awarded to Master Stanley Dodwell, R. Gorton, Esq., Mr. H. Cattley, and Dr. Abercrombie, in the order of their names. For twelve yellow-ground picotees Mr. C. Turner was first with Lady Aitchison, Mrs. Hobbs, Miss Watson, Bullion, Gertrude Hammersley, Mr. Cavell, Flavius, and Ne Plus Ultra; Mr. H. Hooper and Mr. Cattley second and third respectively.

SPECIMEN PLANTS were staged by Mr. C. Turner only, who was awarded the first prize for fine examples, consisting of picotees and carnations in about equal numbers.

ROYAL HORTICULTURAL SOCIETY, AUGUST 3.

Prizes were offered for competition on Thursday last by Messrs. Sutton and Sons, of Reading, and Messrs. J. Carter and Co., of High Holborn. Messrs. Sutton's prizes were for two kinds of melons and two kinds of cucumbers introduced by the firm, two fruits of each to be shown. The competition was less spirited than for similar prizes in previous years, but some of the fruits staged were of excellent quality. The first prize was awarded to Mr. Goldsmith, Hollenden, Tonbridge, for exceedingly fine examples of Hero of Lockinge and Hero of Bath melons and Duke of Connaught and Marquis of Lorne cucumbers. Mr. Steggles, Hallow, Tonbridge, was second with Hero of Lockinge and Victory of Bristol melons and Sutton's Improved Telegraph and Duke of Connaught cucumbers. Messrs. Carter's prizes were for collections of tomatoes in pots, but there was no competition for them. The firm, however, staged a very large and remarkably good collection which produced a most effective appearance. The collection consists of about forty specimens admirably grown and carrying heavy crops

of well-ripened fruit. In the collection Dedham Favourite and Green Gage, two valuable varieties introduced by the Messrs. Cartor, are conspicuous, and the examples of Hathaway's Excelsior, Trophy, the Stamfordian, Vick's Criterion, Acme, Sim's Mammoth, Royal Cluster, Grape Shot, Nisbet's Victoria, and Earley's Defiance claim attention. The collection, which is arranged in the conservatory, will remain until Tuesday next.

The annual exhibition of the British Bee-keepers' Association was opened on Thursday; and is unquestionably the most successful it has yet held. Both quadrants are well filled with hives, slingers, and other appliances, bees and honey, and in the grounds is a large tent for giving practical lessons in driving bees. The show will continue until Tuesday.

Notes of Observation.

CLIANTHUS DAMPIERI.

By post we send you a few blooms of *Clanthus Dampieri*. We find no difficulty in growing and flowering this beautiful plant by treating it as a half-hardy annual, sowing the seed in April on a small hotbed and never disturbing it afterwards, unless it may be to thin out where necessary. By the end of May the lights may be left off altogether. We have no doubt it would also succeed admirably if sown in borders in the conservatory, provided good drainage and light rich soil be given it, and not disturbed after the seedlings are up.

Gloucester.

J. C. WHEELER AND SON.

BACCONIA CORDATA.

This thrives in a town garden, and when mixed with evergreen shrubs and phloxes on a cold border or bank it is extremely useful; although in its individual character it is a weedy, or at the best a picturesque plant. The fine style of leafage and the curious tawny tone of the flowers render it particularly distinct and interesting. There is a great clump near the rockery in the R. H. S. garden at Chiswick that attracts the attention of all visitors, many of whom inquire for its name, and of course imagine that it is a tender plant; but it is as hardy as any herbaceous plant we have and essentially picturesque if nothing more.

MOSES.

SINGLE DAHLIAS.

These are now so largely grown in pots that it is late in the day to recommend them as pot plants, but I have not yet seen any creditable plants in pots in private gardens, although in several public gardens they are abundant and splendid. But they have peculiar claims on the gardener and amateur because of their great decorative value on festival occasions. They, in fact, antedate the chrysanthemums, and are applicable to like uses in the conservatory and elsewhere. In any case where fine plants are required the named sorts should be grown, for miscellaneous seedlings show many second-rate flowers, and it is prudent to have none but such as are first-rate.

W. B.

ERYNGIUM AMETHYSTINUM.

This remarkable plant is now in flower in my broad border, and fills with delight all who behold it. Probably there is no example of elegant vegetation more worthy the attention of artists, and all designers of patterns, enamelling, and other elegancies in which fresh ideas are often wanting. Our workers in silver have, generally speaking, no acquaintance with plants; but I can imagine a man of taste and judgment making fortune and fame by jeweller's work through a careful study of this splendid plant. And it is by no means rare, although not to be seen in every garden; but it would have to be inquired for, because it does not proclaim itself by any bravery of colour, and perhaps needs an artistic eye for the appreciation of its unique beauty. It is much to be regretted that we cannot mix a little good gardening with what is called "technical education;" for the teachings of nature are the least sought after by those who are most in need of them for their own personal advantage.

W. B.

MULLEINS.

It is the fate of the great English mullein, *Verbascum thapsus*, to escape whole when the human weeding machine is at work. A man who will level a lot of noble teazles that are in nobody's way, and are an adornment to some odd corner, and who, perhaps, would cut a wild rose out of a thorn hedge as an intruder, such an one may be seen to spare a great mullein because there is something about its great woolly leaves that defies the would-be Vandal. It is not at all unusual to see on a richly-furnished rockery the gigantic flannel flower with its fine spike of yellow blooms, looking as handsome as any plant there. Not the less fine is the primrose-leaved mullein, *V. thapsiforme*, a rare plant of the quarry and gravel pit, and probably a variety of *V. thapsus*. The motb mullein, *V. blattaris*, and the white mullein, *V. lychnitis*, are also worth having; and if you can see beauty in these you will not fail to see it also in the dark mullein, *V. nigrum*. But the gem of the family is the lovely *V. phaniceum*, which has on several occasions of late been exhibited in collections of hardy flowers. This varies much in character and merit, and the inferior plants should be destroyed. To do these well they should be raised from seed every year as annuals or biennials. Not unselfed they take the matter into their own hands, and the result is many plants from self-sown seeds. I know of only one true perennial in the series, and that is *V. Chaixii*, a splendid plant with yellow flowers.

W. B.

RAMONDA PYRENAICA.

This sweet little thing has given me some amount of trouble, but now I am growing it almost too well. In my first ventures I allowed it too much light and too little water; but I happened to pot a few plants in peat and put them in pans with water about an inch deep, because I should be away from home for a few days, and I soon learned from the plants themselves that they liked it. Therefore at the next move I planted some in a moist peatborder that is somewhat shaded to suit a few choice ferns, and here they are thriving wonderfully. The object of this note therefore is to recommend shade and moist peat for *Ramonda pyrenaica*.

W. B.

VAN GEERT'S ICONOGRAPHY OF INDIAN AZALEAS, No. 10, contains portraits of *Regierungsrath von Eschwege*, which, in spite of its awful name, is a grand double azalea of an intensely brilliant crimson colour; *Noble Belgique*, a single flower of very fine quality, rosy pink, margined white; *Docteur de Nil*, a bold double red of the fiery sort.

The House, Garden, and Apiary.

VICTOR AND VANQUISHED.

As one who long hath fled with panting breath
Before his foe, bleeding and near to fall,
I turn and set my back against the wall,
And look thee in the face, triumphant Death.
I call for aid, and no one answereth;
I am alone with thee who conquerest all:
Yet mo thy threatening form doth not appal,
For thou art but a phantom and a wraith.
Wounded and weak, sword broken at the hilt,
With armour shattered and without a shield,
I stand unmoved: do with me what thou wilt:
I can resist no more, but will not yield.
This is no tournament where cowards tilt:
The vanquished here is victor of the field.

LONGFELLOW.

THE HOUSE.

PALMS and other plants with ornamental leafage employed in the decoration of the drawing room and other of the indoor apartments must be watered with care. They should have sufficient water to maintain the soil in a nice moist state and no more. The India-rubber plant is one of the first to suffer from an excess of moisture at the roots, and in all cases in which the pots are placed in water-tight receptacles occasionally examine them and empty the receptacles of any water that has accumulated in them, for if the pots stand in water for any length of time the roots will assuredly perish. It is advisable to carefully sponge the leaves of all plants employed for indoor decorations, once or twice a week to keep them free from dust, and to make amends in some degree for the atmospheric humidity so essential to their health of which they are deprived. We have now arrived at the turning point of the summer. Therefore care must be taken not to overwater fern cases, because, although an excess of water may now do but little harm, there will be such a reduction of evaporation that the excess may not be got rid of before the cool autumnal weather comes, and then perhaps some of the ferns will be killed by mildew above ground, and others may be killed by the rotting of the roots.

THE GARDEN.

BEDDING PLANTS should now be propagated for next year's supply, and the cultivator should determine from present effects and the aspects of new plants not yet used in quantities what will be required next year, so as to avoid crowding frames and pits with useless subjects, and to secure sufficient of those that will be required. The habit in some gardens of propagating everything is almost as bad as that in others of propagating nothing. As almost everything will strike now from young shoots, a good stock may be got up in time to harden off for the winter, except of *Calceolarias*, for which it is yet too early.

CAMELIAS must have constant attention. Many old plants will be found wanting water, and the best way to deal with them will be to plunge the pots to their rims in a tub of water for half an hour, to thoroughly soak the ball through. If allowed to continue very dry now that their buds are set, the buds will fall off. Young plants that have not quite filled their pots with roots must be only moderately watered.

CELERY is now all put out for culture in trenches, and must have abundance of water during dry weather. But there may still be left a quantity requiring removal, and it will be good economy to plant these out in the same way as winter greens from four to six inches apart, on the level ground, with or without manure, as may be convenient. For all culinary purposes this will be as useful in winter as celery from trenches, and come in usefully for soups, &c.

CHRYSANTHEMUMS require special attention now. Pompones to be topped for the last time; large-flowering kinds not to be stopped any more; all to have sticks and ties if needful; and plants intended for exhibition to have the surface mould removed from the pots, and a mulch of sheep's or deer's dung or fat half-rotten dung from a cucumber bed.

HYACINTHS.—The pretty little Roman hyacinth required for an early bloom will have to be potted shortly, and preparations must at once be made to secure plenty of good turfy compost in a sweet and friable condition.

PELAGONIUMS of the show and fancy kinds that have been cut down and have made new shoots an inch long must be repotted. Remove the outside of the ball and trim in the roots slightly, so as to get them into small pots. Those potted a month ago now want a shift.

STOVE.—Still maintain a brisk temperature, and give plenty of air, and use less shade than hitherto, to insure the wood of hard-wooded plants being thoroughly ripened. Shut up early in the afternoon. Encourage winter-flowering plants with weak liquid manure, and give less water to plants that have completed their growth. A large proportion of the orchids will have completed their growth for this season, and will now require more air and a fuller exposure to the light.

VINES for early forcing should now be thoroughly ripened, and all ventilators should be open night and day. Vines ripening crops to be kept rather dry, and with a free circulation of air. Vines in pots to be ripened off.

WINTER GREENS still in the seed beds to be plauted out as fast as the ground becomes vacant.

Sow Collards, Prickly Spinach, Turnips, and Radishes.

THE APIARY.

THE harvesting of the honey will constitute the work of most importance to the aparian just now, and it should certainly receive all the attention necessary to ensure successful storage. In taking the honey the most satisfactory course, provided the stocks are strong, will be to remove the stores from one half the number of hives and leave the remainder for stock, taking as a matter of course those hives that contain the finest honey. Before taking up the hives the bees must be united with the bees in the hives left for stock, an operation by no means difficult. To drive the bees from a hive filled with comb, blow a few puffs of tobacco smoke into the hive and then turn it bottom upwards, and immediately turn an empty one over it, and wrap a cloth of some kind round the junction to prevent the escape of the bees. Then proceed to beat the side of the bottom hive with the bands or pieces of wood, and in a very short

time the bees will begin to leave the combs and run up into the empty hive and in from fifteen to twenty minutes nearly, if not quite, all will have ascended. The next step is to unite the stock in the empty hive with a stock in a full one. The full hive must be turned upside down, and have a rather liberal quantity of sugar and water sprinkled over the comb, and then in ten or fifteen minutes shake the bees in the empty hive into it, and when this has been done give a second sprinkling of the syrup and place the hive upon the board. As a matter of course, one of the queens must be destroyed before the two stocks are united, and in the evening, just before sunset, is the best time for accomplishing the work. If all the hives are well filled, those in which it is intended to put additional stocks may have a portion of the honeycomb removed previously, and in very favourable seasons when the hives are filled by an early date the whole of the honey may be taken and the stocks be put into empty hives, two stocks in each, and the bees supplied plentifully with properly-prepared food until the hives are brought up to the proper weight for safe wintering.

ART IN JAPAN.

By C. FROUNDES. Read at a meeting of the Society of Arts.
(Continued from page 394.)

THE beautiful work made for the Japanese themselves would be submitted to a circle of admiring fellow-countrymen. The art collector would have around him friends who, like himself, appreciated the best efforts of their own people. This praise from compatriots of high position, men of refined tastes, good culture, and great influence, affected the art-worker in Japan as it would the artist of noble aspirations in any other country. Art objects were handed round the circle at such social re-unions, passed from hand to hand with due care and elaborate ceremony, duly and intelligently criticised, wiped with soft silk, and carefully returned to their silk-padded coverings, placed in packing-boxes, and restored to the care of the fireproof storehouse at once. Thus it is that these treasures have found their way to us in such a perfect state of preservation. It only remains for us to fully understand now what was the intent of the designer and artist.

The objects most prized in Old Japan were not the articles so commonly seen amongst us here, so profusely displayed in the windows of tea-dealers and mercers—not even the lacquer ware we so prize as old, and have to pay such high prices for.

It was, first of all, old swords, sword mountings, tobacco pipe and pouch mountings, pocket-hook mountings, beads, the buttons called "Nedzakies"—those quaint and curious bits of carving, many of which are gems; fans, with autographs and seals, sketches by personages of note, ancient and modern, old scrolls, albums of beautiful sketches, Chinese or Japanese poetry, written in any one of the many curious styles, fantastical, large and small, from characters each several inches square, to entire poems within the area of a superficial inch.

Such were some of the art objects that were the delight of the cultured people of feudal times in Old Japan. Some gathered shells, pebbles, or geological specimens; some affected botany; nearly all loved floriculture; while a few defied the Buddhist prohibition against the destruction of life, and collected insects. A few practised some genteel pursuit, which they learned through the Dutch. Amateur photography was one of the most recent of these hobbies. Every gentleman in Japan had a hobby, while the maiden and the matron boasted of their skill in some especial lady-like accomplishment—musical, poetical, or more practical and domestic.

The artist and man of letters of Old Japan, like his impecunious brother in other countries, was usually a living evidence of the truth of the old Japanese adage, that "when the rich are stingy, the scholars are destitute." But the really clever artist was, as I have already said, welcome everywhere, especially when guests were to be entertained.

Specialists would exhibit their skill, prefacing their feats with elaborate preparation, but most frequently executing them with the simplest means: *tours de force*, rapid splashes, darts, dashes, and sweeps of the brush, that were most puzzling, often until the final touch completed the design. A dragon was commenced by a vigorous splash, a dash; and a steady movement of the brush, with a regular backward movement, gave the exact idea of scales, and, when the ink was nearly expended, a few sweeps of the partially dry brush, and the clouds were depicted.

A single brushful of ink would be carried round and round in concentric rings, and a twirling sweep would then complete a sketch, like the grenade in a forage cap, which is the conventional emblem of the human soul, as it leaves the earthly tenement at death.

After the exhibition was concluded, the artist joined the circle, the cup passed round right merrily, ever replenished by the hands of youth and beauty gaily robed. Music and dancing were performed by professionals, and jest and poetry were often the burden of the discourse; and sometimes the guests and dancers would play forfeits, a game like the Italian *more* being most popular.

Skilled artisans were readily accorded personal interviews with the highest personages; and clever mechanics, foremen, and master tradesmen were most independent fellows in Old Japan.

The "Daiku San" (Master the Great Mechanic), as the carpenter and house-builder is called,* especially considers himself entitled to "give himself airs," and carries his head high. He is architect and contractor, generally sub-letting the details of the contract to the various branches of the trade.

There does not appear to have been any officially-recognized system of art education in Japan; the ancient bureau, that was subsequently (to A.D. 808) incorporated with the department of architecture and repairs of the palace, merely supplied sinecure positions for artists of eminence.

Artists served a kind of apprenticeship to distinguished teachers. Wealthy amateurs took lessons privately. Standard works of art were studied, while poetry and classical—as well as popular—literature were subjects with which it was necessary to have an intimate acquaintance. Many handbooks of art exist, some very ancient treatises have been reprinted, and several independent works teach by series of progressive lessons, founded on some ancient system of classification. The various branches of art are divided. First, there are progressive lessons, from

straight lines to curves; then broken lines, the combinations of lines and curves, and so on, gradually, until trees, branches, and foliage are correctly drawn. Leaves are dissected and shown in outline, and then filled in, both the upper and under sides, curved, and in various positions. Birds also are dissected; details of claw, beak, head, and plumage, all minutely traced, first separately, and then combined; the various positions—in flight and at rest, and fore-shortening—are all illustrated. The so-called natural elements, water at rest, the torrent and the stormy wave, wind and rain, each in its varying mood, are all accurately depicted.

This very important point appears to have escaped the notice of my predecessors, who do not seem to have known of this progressive art teaching, and I have already pointed out this matter to several writers on Japanese art and other subjects.

Thus it is that the Japanese artist is taught to represent sunshine and haze, winter's snow and summer's flowers, the vagueness of dark night, moonlight and its shadows, fleecy clouds and thunderstorms. Further on, combinations are dealt with, when lessons as to seasonable plants, and as to insects, birds, and other objects of animated and inanimate nature are given. Rules and instructions as to the proper groupings for the various seasons, and also the conventional and arbitrary couplets and triplets so commonly seen in Japanese design in lacquer, ceramic, and bronze work, are also provided.

The following combinations are most frequently met with in Japanese design:—

"Phoenix and Paulownia imperialis." This design is to be seen embroidered on the imperial robes, and on them only, but is frequently depicted on fans, screens, and hanging scrolls ("kakemono").

"Pine Tree and Stork." Both emblems of longevity, a common design, and most frequently used in the embroidery of robes presented to new-born babes, and on other articles, lacquer ware, &c., for festive occasions.

"Peony and Chinese Lion." The peony is a design usually sketched on large articles, such as screens at the entrance of temples ("tsui-tate") or on panels, ceilings, &c.

"Bamboo and Sparrow," both being of a mild and gentle nature, a design to be seen in embroidery, fans, screens, and household furniture.

"Equisetum (scouring rush) and Rabbit." It is supposed that there is an "usagi" (hare or rabbit) in the moon which scours it with the dried "Tokusa," a design found on a variety of articles.

"Willow and Marten (or swallow)." The willow waves in the breeze, the swallow flits to and fro; a favourite design for fans.

"Stag and Maple." Maple leaves turn red in autumn and the stag in autumn calls the doe. There is a play in the idea of the colour ("iro") of the leaf changing, and the love ("iro") of the deer; generally sketched in screens, &c.

"Lepedeza and Sleeping Wild Boar." The wild boar generally makes its bed in clusters of "hagi."

"Cherry and Pheasant." The *Prunus pseudo-cerasus*, cultivated solely for its bloom, is associated with the gorgeously-plumed pheasant; generally used in embroidery and coloured designs.

"Plum and Nightingale." The plum tree, called "the poets' favourite tree," in allusion to the verse composed in honour of Naniwa no Oji (afterwards Nin toku Ten O) by Oni (or Wa ni). The nightingale is fond of song or verse; one of the most frequent designs.

"Moon and Cuckoo." In allusion to Yorimasa and his verse when he slew Nuye; the design is usually a bird flying across the crescent moon.

"Rushes and Geese." Geese flying long journeys carry rushes in their beaks, and before resting on the water drop the rush, and then alight upon it; an allusion to the care to be taken in choosing a resting-place.

"Chrysanthemum and Fox." Hanzoku Tai-shi, prince royal, was bewitched by the nine-tailed fox, in the form of a lovely damsel. He made her his mistress. One day she fell asleep in a bed of chrysanthemums, resuming the normal shape of a fox. He shot at it with a bow, and hit it in the forehead. Noticing his mistress afterwards to have a wound on her temple, this led to the discovery of her being a fox.

"Bamboo and Tiger." Tigers feared the elephants, and therefore hid in the bamboo jungle. This design is often seen on screens.

"Peach Trees and Oxen." There is an old Chinese saying, "Turn the horse loose on the flower-covered mountain, and the ox into the peach orchard."

"A Dragon crossing the Summit of Fuji yama on the Clouds." Small snakes become dragons, and an abject mortal often becomes an exalted person, rising to a great height, and easily surmounting the greatest obstacles; an emblem of success in life.

"Long-armed Ape and the Moon." It sees the reflection of the moon in the water, and endeavours in vain to grasp it.

"The Mulberry and the Goat." Goats are fond of this plant, and its product, paper.

No mistakes are permitted as to seasons and the appropriate objects. Conventionalized ideas appear in the accepted form in many common designs and groupings, but the artists of Old Japan are above being led by any canon that does not permit of an appeal to nature's handbook of art, with the glory and charms of which they are ever surrounded. Theoretical to a fault, and systematic even in their love of variety, colour, and form, the Japanese artists, nevertheless, are no mere servile copyists of nature, like their neighbours the Chinese. They clothe nature with the full wealth of their ideal conceptions, and so confer upon it their own mental individuality.

Various schools of art have arisen, and for a time flourished, during the past ten or twelve centuries, of which even a mere enumeration cannot be attempted here. Foreign influence, supported by some leading patron of art, may for a time have kept up some peculiar or alien style. The popular desire was for broad and vigorous treatment, with the most marked disapproval of any retouching, and other cloaks for the numerous sins of omission and commission of the artist tyro, which were held to be reprehensibly inartistic.

We must learn what not to look for, and what not to expect, in such an art as this. I may destroy more than one fool's paradise when I say that observers will seek in vain for many attributes that we hold in the highest esteem. But, in doing this, I give more than I destroy if I succeed in pointing out that there is much to be learned that is worthy attention, although as yet enclosed in a sealed book to even those few artists who have already devoted their attention to Japanese design.

* Further information on these points will be found in the *Builder* for May, 1879, in articles on "Theatres," "Artisan of Japan, and His Work," "Constructive Art in Japan," &c.

Correspondence.

NATIONAL CARNATION AND PICOTEE SOCIETY.

It is in no captious spirit that I venture to offer a few remarks on the recent exhibition of the Southern Section of the National Carnation and Picotee Society at South Kensington, but with the hope that a little discussion may be advantageous. So far the society has been engaged in a work which must have the sympathy of those who have the interest of floriculture at heart, and it has done its work well; but its arrangements are not so perfect that they are not capable of some improvement. I do not allude to the details of the exhibition, for they were admirably carried out and evinced a great improvement upon those of any previous meeting, but to matters of, to my mind, greater importance. It is necessary in the interest of the society that some alteration should be made in the schedule to enable a greater number of cultivators to compete with some chance of taking a prize higher than the fourth.

At each of the exhibitions yet held by the society it has been possible for two or three exhibitors to take the principal awards in all the classes for carnations and picotees, with but two exceptions, as a reference to the prize-lists will show. The exceptions are the classes for six carnations and six picotees respectively. Every prize taken at the several exhibitions has been well deserved, and I make no complaint against any of the exhibitors. But it cannot be good for the society, neither can it be good for the cause, for exhibitors who have not spent the best part of a lifetime in the cultivation of these two classes of flowers to know that they have no chance of attaining a very high position in any but the comparatively insignificant classes for six. It is of the highest importance that the society should exercise an influence over the largest number of growers possible, and this can only be done by affording the several classes of cultivators an opportunity of competing on equal terms. To state the case clearly, the number of classes should be increased, and a restriction be placed upon the number in which any one grower is allowed to compete. The schedule of the late exhibition contained twelve classes—four for carnations, four for picotees, four for fancy flowers and pot specimens. The four classes for carnations were for twenty-four, twelve, six, and single blooms; and those for picotees were similarly arranged. Instead of four for each of these flowers there should in my opinion be six, arranged as follows:—

- A. 36 blooms, not less than 18 varieties.
- B. 24 blooms, not less than 12 varieties.
- C. 18 blooms, not less than 12 varieties.
- D. 12 blooms, distinct varieties.
- E. 6 blooms, distinct varieties.
- F. Single specimens (of the several classes).

* * Exhibitors in classes A and B not allowed to compete in C and D, and class E to be limited to exhibitors who have not taken a first prize at the exhibitions of the society. F open to all classes of exhibitors.

In this arrangement provisions are made for three distinct classes of growers, and if it be objected to on financial grounds, I would say that it would be a very easy matter to provide the prizes for the additional classes without any increase of the amount offered. The number of prizes in each class might, for example, be limited to four, and the first prizes be of the respective values of £3, £2, £1 10s., £1, 15s., and 5s. A saving of £6 may be effected by abolishing the class for plants which from the first have proved the least satisfactory part of the exhibitions. Specimens bearing a score or so of good flowers and neatly trained would form an attractive group, but it is well known that the flowers are judged on the same lines as the blooms in the boxes, and the growers, instead of aiming at the production of effective specimens, endeavour to obtain a few flowers of good quality, and accordingly limit the number of blooms to three, and dress them in the same manner as those in the stands. If the quality of the flowers is everything, and the appearance of the plant does not count, it may be asked, Why bring the plants when the blooms could be better shown on the stands? It certainly appears a waste of strength and money to convey a van-load of plants to the place of exhibition when the flowers with which they are furnished could be brought in a box that could be readily carried under the arm. If the plants are retained in the schedule the rules for judging them should be revised, and the use of cards strictly prohibited. It is difficult to imagine anything more objectionable in appearance, or more likely to excite ridicule, than an array of plants in large pots and bearing three flowers, each hacked up with an obnoxious card. I am not sure whether it is not time that cut blooms should be shown without cards, but I have no hesitation in strongly condemning their use on plants.

O. P. Q.

NEW HYBRID SILK MOTH.—Mr. Alfred Wailly, whose reports on silk-producing and other Bombyces reared by him have been published in this *Journal*, has submitted to the Council specimens of cocoons and moths of a new silkworm, which he has reared by the crossing of *Attacus (Antheraea) Roylei*, female, the Himalayan oak silkworm, with *Attacus (Antheraea) Pernyi*, male, the North China oak silkworm. The resulting hybrid is larger than either of the parents. Mr. Wailly writes that "the larvæ of the hybrids were reared with the greatest success in France, Germany, Austria, England, Scotland, and United States of North America, and everywhere splendid cocoons were obtained. This year (1882), in April and May, the moths of this hybrid emerged from the cocoons in equal proportions of male and female, all perfect insects, which paired with the greatest facility." He concludes by saying: "Contrary to what has taken place with the crossing of different species of silk-producing Bombyces, I have this time produced a new species, which is larger, stronger, and I think superior in every respect to the parent species, and susceptible of reproduction." Some notes on these hybrids were read before the Entomological Society on May 3, 1882, by Mr. W. F. Kirby.—*Society of Arts Journal*.

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "Sapo Carbonis Detergens" (as doctors prescribe) impressed on each tablet and wrapper, without which none is genuine.—[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

Replies to Queries.

Northumberland.—We cannot explain the case except by supposing the small of the whin is obnoxious to the insects. Your narrative is interesting.

Darwen.—Yes; it would pay to do as you propose, provided, of course, that the business was wisely managed. It all turns upon the management, and on that we cannot advise. It is impossible to learn a trade from a few words of advice in a newspaper.

G. N. S.—You appear to have the same species of onion that has been grown as a shallot at Chiswick, and that has to be resolved specifically some day or other. We cannot name it for you, and we do not doubt the judges did right in passing it over.

Yorkshire.—The bolting of celery in a dry season may be expected, but in this cool rainy season it is an untoward occurrence. Probably you sowed the seed too early, and allowed the young plants to be somewhat starved before they were put out. This is the only explanation we can offer.

Strawberries.—"Subscriber" may manure strawberries liberally without fear of doing wrong. Those that have proved unproductive on the well-manured land are probably too closely planted, that being the common error of inexperienced cultivators. However, on good strong land handsome crops of strawberries may sometimes be obtained without the help of manure, but never when the plants are crowded.

Comfrey.—C. C. C.—The prickly comfrey may be obtained from any respectable nurseryman or seedsman. In poor land comfrey should be planted eighteen inches apart, and on strong land at least two feet. In most cases horses and cattle take to it reluctantly, but when they become accustomed to it eat freely of it and thrive. The present season has been very favourable to comfrey: in many places the weight of the cut is enormous.

Names of Plants.—We have a larger lot than usual of plants to be named that no one can name, and that very few would look at. F. E. C.—1, *Clerodendron Balfouriana*; 2, *Hibiscus Cooperi*; 3, *Euphorbia jacinthiflora*; 4, *Tahernamontana coronaria*; 5, *Peperomia argyreaefolia*; 6, *Pleroma villosa*. A. B.—We cannot name your fuchsias. W. Taylor.—We cannot name your zonals. E. S.—*Pleroma villosa*. H. S. W.—2, *Gymnogramma ochracea*; 6, *Polypodium aureum*; 9, not determinable, the scrap sent being shrivelled up and without fruit; 10, *Selaginella rubricaulis*. The others have been named, and the memorandum mislaid. You shall have the names next week. R. Burton.—*Tetranthus littoralis*. R. R.—1, *Acer saccharinum*; 2, *A. platanoides*; 3, *A. lobatum*; 4, *Ulmus carpinifolia*.

Markets.

COVENT GARDEN.

FRUIT.

Apricots.....	per doz.	0s. 4d. to 1s. 0d.
Cherries.....	per lb.	0s. 3d. to 0s. 8d.
Currants.....	per sieve	3d. 0d. to 5s. 0d.
Figs.....	per doz.	3s. 0d. to 6s. 0d.
Gooseberries.....	per sieve	1s. 6d. to 3s. 0d.
Grapes.....	per lb.	1s. 0d. to 4s. 0d.
Lemons.....	per 100	5s. 0d. to 7s. 0d.
Melons.....	each	2s. 0d. to 3s. 0d.
Peaches.....	per doz.	6s. 0d. to 10s. 0d.
Pine-apples, Eng.....	per lb.	3s. 0d. to 4s. 0d.
Plums.....	per sieve	4s. 0d. to 5s. 0d.
Raspberries.....	per lb.	0s. 3d. to 0s. 6d.
Strawberries.....	per lb.	0s. 6d. to 1s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Beans, French.....	per lb. 0s. 4d. to 0s. 6d.
Beet.....	per doz. 1s. 0d. to 1s. 6d.
Cabbages.....	per doz. 0s. 9d. to 1s. 6d.
Carrots.....	per bunch 0s. 4d. to 0s. 6d.
Cauliflowers, Eng.....	per doz. 2s. 0d. to 4s. 0d.
Cucumbers.....	each 0s. 4d. to 0s. 9d.
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Lettuces, Cabbage, per dz.	0s. 6d. to 1s. 6d.
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Mushrooms.....	per basket 1s. 0d. to 3s. 0d.
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Parsley.....	per quart 1s. 0d. to 1s. 6d.
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Campanulas, per doz. bun.	4s. 6d. to 10s. 0d.
Carnations, per doz. blms.	1s. 0d. to 1s. 6d.
Cornflowers, per doz. bun.	2s. 0d. to 4s. 0d.
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Fuchsias.....	per doz. bun. 5s. 0d. to 6s. 0d.
Gardenias, per doz. blooms	2s. 6d. to 6s. 0d.
Gladioli.....	per doz. bun. 7s. 6d. to 10s. 0d.
Heliotropiums.....	sprays 0s. 6d. to 1s. 0d.
White Jasmine, doz. bun.	4s. 0d. to 7s. 0d.
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Liliums.....	per doz. blooms 1s. 6d. to 4s. 0d.
Marguerites, per doz. bun.	3s. 0d. to 5s. 0d.
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Pansies.....	per doz. 1s. 0d. to 2s. 6d.
Pelargoniums.....	per doz. 0s. 9d. to 1s. 0d.
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Barley, Grinding.....	"	20s. to 30s.
Malt, English.....	"	35s. to 50s.
Malt, Scotch.....	"	33s. to 43s.
Malt, old.....	"	28s. to 35s.
Malt, brown.....	"	30s. to 32s.
Oats, English.....	"	22s. to 30s.
Oats, Irish.....	"	22s. to 26s.
Oats, Scotch.....	"	22s. to 30s.
Rye.....	"	42s. to 45s.
Beans, English, Mazagan.....	"	36s. to 40s.
Beans, Tick.....	"	38s. to 44s.
Beans, Winter.....	"	34s. to 44s.
Peas, Grey.....	"	30s. to 36s.
Peas, Maple.....	"	40s. to 45s.
Peas, White.....	"	36s. to 44s.

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Jersey Kidneys.....	8s. 0d. to 9s. 0d.
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Cherbourg Rounds.....	7s. 0d. to 8s. 0d.
Flukes.....	8s. 0d. to 9s. 0d.

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B-eef, prime large.....	4s. 10d. to 5s. 4d.
Beef, middling.....	4s. 0d. to 4s. 8d.
Beef, inferior.....	3s. 0d. to 3s. 8d.
Mutton, prime.....	5s. 4d. to 6s. 4d.
Mutton, middling.....	4s. 4d. to 5s. 4d.
Mutton, inferior.....	3s. 6d. to 4s. 0d.
Veal.....	5s. 0d. to 5s. 4d.
Pork, small.....	4s. 4d. to 4s. 8d.
Pork, large.....	4s. 0d. to 4s. 4d.

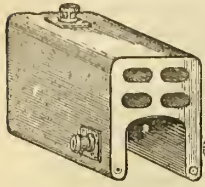
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" Hetton Lyons.....	15s. 0d.
" Lambton.....	17s. 0d.
" Original Hartlepool.....	17s. 6d.
" Wear.....	16s. 0d.
" Chilton Tees.....	15s. 6d.
" Thornley.....	16s. 6d.
" Tees.....	17s. 6d.

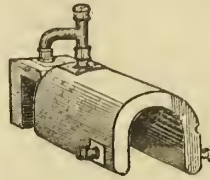
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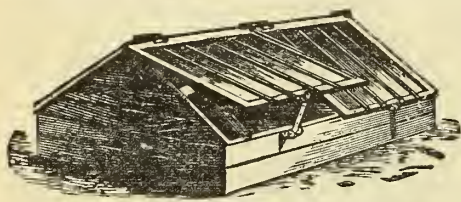
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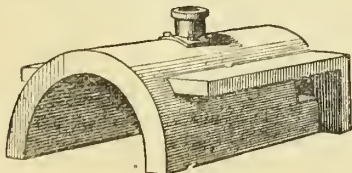
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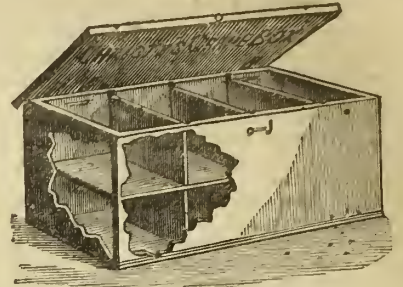
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	South ^a after Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.				
			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DFG.		
1882														
13	S	10th Sunday after Trinity.	4 44	4 39	7 25	4 27	6 43	1 35	1 55	11 0	11 20	62.6	Allamanda Cheloni, s.	Yellow. 1882
14	M	[13 • New Moon, 9h. 10m. afternoon.	4 45	4 28	7 23	5 33	7 5	2 13	2 30	11 33	11 55	62.5	Begonias, G.	Various. 225
15	Tu	Sir Walter Scott born, 1771.	4 46	4 17	7 21	6 37	7 26	2 18	3 5		0 13	62.4	Encharis amazonica, s.	White. 226
16	W	Gaslights first introduced, 1807.	4 47	4 5	7 19	7 40	7 44	3 18	3 33	0 30	0 43	62.3	Lilium speciosum, n.	Rose and White. 227
17	Th	Frederick the Great died, 1786.	4 49	3 53	7 17	8 46	8 5	3 50	4 5	0 58	1 15	62.1	Pentstemon barbatus, n.	Blue. 224
18	F	Beattie died, 1803.	4 51	3 40	7 15	9 50	8 25	4 20	4 37	1 30	1 45	62.0	Phloxes, n.	Various. 229
19	S	Earl Russell born, 1792.	4 52	3 27	7 13	10 56	8 50	4 50	5 5	2 2	2 15	61.8	Tropaeolum tuberosum, n.	Red and Yellow. 231

The Gardeners' Magazine.

SATURDAY, AUGUST 12, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

MONDAY, AUGUST 14, to WEDNESDAY, AUGUST 16.—EAST LONDON AMATEUR FLORICULTURAL SOCIETY.—Summer Exhibition.

TUESDAY, AUGUST 15.—CLAY CROSS HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, AUGUST 15.—WITNEY HORTICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, AUGUST 15, and WEDNESDAY, AUGUST 16.—PLYMOUTH HORTICULTURAL SOCIETY.—Summer Exhibition.

WEDNESDAY, AUGUST 16, and THURSDAY, AUGUST 17.—SHROPSHIRE HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, AUGUST 17.—BASINGSTOKE HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, AUGUST 17.—MAIDENHEAD HORTICULTURAL SOCIETY.—Annual Exhibition.

FRIDAY, AUGUST 18.—NATIONAL CARNATION AND PICOTEE SOCIETY.—Exhibition of Northern Section at Manchester.

SATURDAY, AUGUST 19.—SHAFTESBURY PARK (CLAPHAM) COTTAGE GARDEN IMPROVEMENT SOCIETY.—Annual Exhibition.

THE FRAMING OF A SCHEDULE IS A DELICATE TASK, needing the aid sometimes of the lawyer, the grammarian, the botanist, the geographer, and the very practical and prophetically-inspired horticulturist. These parties are not always all at hand to help; and cases may occur in which none of them are near enough to be useful when the schedule-making is in process. However, there is one good general adviser at command, whose name is Common Sense, and for all ordinary purposes his advice will be sufficient.

The first requirement of Common Sense is that the schedule should tend directly to the production of a good exhibition of the kind proposed, whatever that may be: whatever in a scheme of prizes and regulations appears likely to limit the exhibition as to quantity, or to determine its tone below a certain level of quality, should be carefully considered more than once or twice. It is the experience of many men who have seen much of exhibitions that it is a work of years to ensure a thoroughly good schedule, and this is particularly the case in respect of special as distinct from general and all-round affairs.

A secondary requirement is to hit the happy mean between an abundance of prizes, to attract many exhibitors, and such a lowering of their value that they shall not be worth competing for. If there are not a few "good" prizes as they are called, then good exhibits are not to be expected or hoped for. The giants are not to be fed on the same mincemeat as may satisfy the dwarfs; they want large joints, and will carefully avoid a scanty table. Those who are known as "leading exhibitors" are too well seasoned in prize-taking to care for trifles or to value empty honours. On the other hand, it is, in most cases, a mistake to make a schedule expressly for the big men, or to study them overmuch. If we care about the cause more than the persons, we shall take care to secure as many as possible of the smaller exhibitors who would not enter the lists for the larger prizes. It is in making further provision for the whole body in a fair and just way that the chief difficulty arises. We want not only a large supply of the best material, but we want also a reasonable amount of second-rate material, for the beginners can only learn how to reach the top of the steps by trying their skill and strength on those nearest the floor. A certain number of importan

No. 902, NEW SERIES.—VOL. XXV.

prizes will generally ensure to an exhibition a good tone, and a considerable number of smaller prizes will bring in many exhibitors who will illustrate what is doing in the world at large, and carry into that world from the exhibition a stimulating and improving influence.

A common danger to be guarded against is the opening of too many doors for the large exhibitor, who may thereby be enabled to swallow an undue proportion of the prizes, to the prejudice—we may even say to the extinction—of the smaller men. Various expedients are resorted to for the prevention of this. But where common sense prevails it will always be easy to discover which of the many doors should be closed against the large exhibitor in favour of those who can only compete in the smaller classes. At the last general meeting of the National Auricula Society a proposal was made to exclude from some of the smaller classes exhibitors who had entered in the larger classes. Opinions were much divided on the matter, but the proposal was adopted, and an exhibition has been held under the altered condition. The resolution, and the policy it was founded on, can be justified now by the record of events. The last exhibition was the best that has been held; the great men were great as usual; but many new exhibitors appeared, and very much of the interest of the affair turned on the relative excellence of the minor features.

In the distribution of prizes a plan that is nearly, if not quite, perfect has been attained by the National Rose Society. Here the happy mean is illustrated by the extent of the contributions and the high quality they rise to in a majority of the classes. But this admirable schedule represents experiments and experiences dating from the first rose show in 1858. The Pelargonium Society differs in constitution from some other special societies in limiting the right of exhibiting to its members only, but the schedule is guarded where needful to ensure the widest possible dispersion of the prizes. In the classes for cut blooms, as well as in the classes for varieties not in commerce, there are places made for two or three grades of exhibitors, so that the big fish may not incontinently swallow the little ones.

The time is at hand for the revision of schedules and regulations for the exhibitions of next year. Having noted that in some few cases useful and thriving societies cherish defective schedules, we have penned these remarks as gentle reminders, hoping those who see need for amendment in their plans of operation will take to better ways at once, with a view to augment the usefulness of their honourable labours.

A TREATISE ON THE LARCH, by Mr. C. Y. MICHIE, has recently been published by Messrs. Blackwood and Sons, and will become one of the requisites of the forester's and gardener's library.* After we have passed a poor preface and a tiresome first chapter, we find Mr. Michie happy with his subject, and capable, as he should be, of affording us much valuable information and sound practical advice. The larch is a new-comer, and has scarcely as yet obtained a proper footing in these islands. But it has such peculiar claims to reasonable treatment that there has long been wanting just such a book as the one now before us, in which the whole subject is handled with caution by a man thoroughly familiar with the facts and of sound judgment as to matters of question and probability. The larch comes into money early; it is adapted for a vast variety of uses; it is greatly in demand for mine props and railway sleepers; it is well adapted for the purposes of the shipwright, the furniture manufacturer, the rustic carpenter, and for the builder; but the last-named consumer of timber does not often use it, because the price is generally beyond his figure. Mr. Michie is bold enough to declare that "if an edict were passed forbidding the growth of all but one species of tree in this country there is no manner of doubt but that one would be the larch." The roots of trees are often of such little value that when timber is felled they are left in the ground to rot away in their own time, or if grubbed out do not of themselves pay for the grubbing. But it is otherwise with the larch, the root of which is as valuable as the stem, and in the case of well-grown trees the roots are conspicuous features as affording knees and crooks of high quality.

* "The Larch: a Practical Treatise on its Culture and General Management," By Christopher Young Michie, Forester, Cullen House. (William Blackwood and Sons.)

The cultivation of the larch is a subject that has long needed to be overhauled by a competent person. There have been so many failures, and these contrast so strikingly with the successes, that it was always evident to parties interested that a line should be drawn between them in way calculated to serve as a guide in the future. If the line is not drawn in this book it is not the fault of Mr. Michie. He has not trusted to his own experiences solely; indeed, in respect of such a subject, no wise man would do so. He presents us with a capital *résumé* of the experiences and observations of others, and the right way to grow larch appears to be clearly demonstrated. It requires a penetrable soil of at least a few inches in depth, whether of loam or sand or clay, because in its early stages it is a somewhat tender rooting tree, but when it obtains a hold the hard rock will nourish it if constantly moist, but never swampy. The diseased larches—that is to say, those afflicted with fungus—are invariably found on swampy land, and very often the stagnant moisture below is assisted in destructiveness by a damp cloudy sky above; for the larch loves sunshine and a clear air and a dry soil, but to be roasted either above or below is not to its liking at all. The larch disease is like the potato disease, and perhaps every other disease—the consequence of bad conditions. The fungologists and the microscopists may tell us all about it as regards the symptoms and visible agencies, but this kind of knowledge is of little practical value. If you put the tree in a swamp it will perhaps grow rapidly and make a certain amount of spongy timber, and then the fungus will come to eat it up. It is just what happens with potatoes, orchids, coffee trees, and silkworms: bad conditions tend to bad results, and disorganized organisms are devoured by fungi, that in the scheme of nature exist for devouring purposes to clear from the ground the plethoric, gouty, and flesh-proud individuals. We must be in no haste to blame proprietors who have planted larch unwisely and have paid the penalty of their folly. It is enough that they have paid the penalty, for nothing short of a miracle could prevent that. But it must be borne in mind that the larch has been in this country less perhaps—certainly not more—than three hundred years, and consequently we are not rich in traditions of its cultivation. People who live on the froth of the world are apt to think everything may be settled in the lifetime of a man, or even in the lapse of a moon; but those who look into the solid substance of things know but too well how much, even in physical science, we depend upon empiricism and tradition. We ought not to do so, of course, but then “every human heart is human,” and every human mind is minding its own business and allowing other things to slide.

Mr. Michie is very matter of fact, and that is one of the special merits of his book. And he is matter of fact when he yields to the sentimental persuasions of his subject. Look at Chapter XXII., and learn that he appreciates the beauty of the larch, which some few folks are weak enough to regard as a perfect darling of a tree. We must confess that we would as soon see a fine larch as any tree in the world, except perhaps a beech untouched by teeth, knife, or saw. “When rosy plumelets tuft the larch” we know that the seasons are revolving in the old way, and that there is a prospect of bread for another year. The noblest and oldest larches in Great Britain are those at Dunkeld. “The two oldest and largest, variously stated as planted in 1736 and 1738, are growing in the old flower garden near the Cathedral, and though from their extreme height the top branches periodically show signs of decay, they yet again and again revive, and at the present day are so healthy and growing that to all appearance they may outlive the youngest person. The largest in 1831 was estimated to contain 350 cubic feet of timber, and now it is estimated to contain altogether of measurable timber about 480 cubic feet, and the other tree about 50 feet less. In 1831 the largest (at four feet from the ground) girthed 12 feet, and the other at the same height girthed 11 feet. In 1867, at the same height, I measured the largest tree, and found it girthed 16 feet at three feet from the ground, and on measuring it the other day I found the largest one 22½ feet at one foot from the ground; 17½ feet at two feet from the ground, and 16 feet 3 inches at three feet from the ground; extreme height 100 feet. Girth of the other tree, 13½ feet at five feet from the ground, and about the same height and equally healthy.”

Mr. Michie is careful to announce that he makes no pretensions to literature, and his clumsy preface is just on a level with the passage quoted above, where he says, “at the same height [four feet] I measured, &c., and found it, &c., at three feet.” These small blemishes might be most easily removed, although as regards the practical purport of the book they are of small consequence. For the present at all events we are thankful for a capital treatise on the larch, and advise all who have any interest in the subject, whether as proprietors, foresters, botanists, or artists, to secure the work quickly, and then go forth to see the fine trees that are described by Mr. Michie in his very interesting twenty-second chapter.

POLLUTION OF RIVERS.—The Belgian Academy of Sciences offers a prize of 3,000 francs for the best essay on the pollution of rivers and the destruction of fish. The essay should be sent to the secretary before October 1, 1884.

THE LATE MR. MECCHI.—The Rev. F. J. R. Laurence, M.A., rector of Tiptree, Essex, and rural dean, in the *City Press* of Wednesday, appeals to the friends of the late Mr. Mecchi, in the earnest hope of being successful in raising a sufficient sum by subscription to perpetuate the memory of a man so well known and so generally appreciated in the social as well as the agricultural world.

THE BOTANICAL SOCIETY OF BRANDENBURG is, it appears, to be greatly extended. A conference for the purpose of founding upon it a new society, to be called the German Botanical Society, is to meet at Eisenach on September 16, at which the most distinguished botanists of Germany intend to be present. Professor Haeckel will lecture before this association “On the Interpretation of Nature by Darwin, Goethe, and Lamarck.”

THE LONDON PARKS have been very gay for some time past, but they are now at their very best. We have again and again heard how very much superior to the effect produced would be a display of hardy plants. It is time, we think, that this was put to the proof, and the people who hazard the assertion and repeat it with evident faith in its soundness should be permitted, and indeed invited, to demonstrate its truth.

PENTSTEMONS FROM SWANLEY make a brave show on our table. Mr. Cannell told us some time since that he could almost equal the gloxinias with some of them, and he was almost right. A few of the flowers are very gloxinia-like in size and form and colouring, but their range of variation is considerable, and we are quite content to have such splendid pentstemons and to have good gloxinias also. It is evident that Swanley is fast becoming the floral centre of the terrestrial globe, and it is a grave question if the universe will suffer it.

THE NEW ROCKERY AT KEW is rapidly acquiring the characteristics of a “feature.” It may be expected that from March to May next year it will be peculiarly attractive, but at the present time it is sufficiently gay with colour and interesting in other respects, for the variety of its occupants, as to be worthy the special attention of the lovers of hardy plants. Any of our readers who for one moment only may be perplexed as to where to spend a happy day may be advised to close the account with Kew, and thus make an end of the perplexity.

THE FLORAL COMMITTEE had sufficient occupation on Monday last, but the Fruit and Scientific Committees had a sort of half-holiday. There were many more contributions than any one expected. Messrs. James Carter and Co. filled one side of the vestibule with petunias and the other side with tomatoes. Mr. Ware sent up a great lot of single dahlias and phloxes; Messrs. Veitch and Sons sent flowering shrubs. The bee show being still continued, made the day a busy and pleasant one for the few who were there.

THE ENCLOSURE OF MITCHAM COMMON being threatened, the “general public” took the case in hand, and, for the present certainly, the enclosure is deferred. A portion of the common at Beddington Corner, which has hitherto been used as a cricket and recreation ground, has recently been taken for building. A corrugated iron office was put up, but on the following night a determined attack was made upon it, and it was entirely wrecked. A strong feeling exists in the neighbourhood against the enclosure of the land, and those who intend to enclose will have to fight for it in the field and in the court.

GENERAL HORTICULTURAL COMPANY.—In the Chancery Division on Saturday the petition for the winding up of the company, which had stood over for three months, on the ground that there were probabilities of the successful continuance and resuscitation [of the company, was again considered. The creditors of the company have now agreed to allow the petition to stand over till November on the same terms as before, and an order to this effect was accordingly made. Mr. Buckley appeared for the petitioner; and Mr. Crossley, Q.C., and Mr. Gazdar, Mr. Whitehorne, Q.C., Mr. Seward Brice, Mr. Charles Browne, and Mr. Bramwell Davis for the company and creditors.

A NEW THERMOMETER.—M. Michelson has brought before the French Physical Society a new form of thermometer capable of measuring the most delicate changes of temperature. The *Athenæum* informs us that the principle of the bimetallic thermometers is adopted, but ebonite is used instead of one of the metals. This hard indiarubber is ten times more dilatable than platinum, and a spring composed of platinum on one side, and ebonite on the other will curve with the slightest addition of heat. At the extremity of the spring is fixed a glass stem, which touches a light mirror suspended by a silk fibre. By every change in the curve the mirror is moved, and a ray of light reflected from the surface moves up or down the divisions of a scale. M. Michelson hopes to be able to measure the thousandth of a Centigrade degree.

BANK HOLIDAY was characterized by brilliant weather, for the summer commenced three days before, and the surprise of sunshine and warmth gave peculiar zest to outdoor enjoyments. The railways bore the chief burden of the day, and it was a surprise to thousands in the southern counties, not only to see the harvest in progress, but many broad acres in stubble, as though this might be an early rather than a late season. London probably exceeded all other English towns in the earnestness with which it gave its mind to holiday, and the river Thames was in favour as a highway for pleasure seekers. At South Kensington Museum the visitors numbered 16,284; at Bethnal Green Museum, 4,030; at Kew Gardens, 74,000; Crystal Palace, 44,764; Zoological Gardens, 23,477; Horticultural Society's Gardens, nearly 10,000.

CRYSTAL PALACE.—It is with immense pleasure we learn from official statements that the affairs of the Crystal Palace, Sydenham, have greatly improved. The report of the directors states that, comparing the receipts of the corresponding six months last year, there is an increase of £18,991 6s. 1d. Comparing the expenditure with the corresponding period last year, there is a diminution of £3,354l. 17s. 10d. The number of visitors during the first six months have been—Season-ticket holders, 692,118; paid admissions, 703,087; total, 1,395,205, which is considerably in excess of the largest number that have attended the palace in any half-year since the opening. The recent electric exhibition was of the most interesting description. The third of the series of international exhibitions will combine electricity and gas. It is intended to open it in October next, and it will probably remain open till Easter week, 1883. The last section of the flat roof is now being restored, and when that is completed there will not be a single portion of the original flat roof on the palace. The large expenditure on the building has made it much stronger, and in the very severe gale on April 29 the building suffered very little. It is particularly worthy of note, we think, that in the half-year in which the visitors exceeded in number that of any previous half-year, there was no tight roping, no wild beasts, and no wanton trafficking in flesh and blood, which some people consider essential to success in the management of such a place.

THE MANUFACTURE OF WINE IN FRANCE.—In his annual report upon the trade and commerce of La Rochelle, Mr. Vice-Consul Sadler gives some instructive figures bearing upon the wine production of France. For the last two years the quantity of wine imported into France, principally from Spain and Italy, has been nearly three times that of the exports; but it is not only from foreign states, but by the fabrication of wine from dried raisins, and a new system of producing a second and third quality of wine from the skins of the grapes, that merchants and growers seek to provide the complement which the vineyards of the country have been unable to yield. It is calculated, says Mr. Sadler, that 2,300,000 hectolitres of wine are now annually made in France from dried raisins. The mode of fabrication is by crushing about 65 lbs. to 75 lbs. of Smyrna or Cyprus raisins in 22 or 24 gallons of water, heated to 85 degrees. This is left to ferment from twelve to twenty days, according to temperature, when a white wine is produced with an alcoholic strength of 7 to 9 degrees. It is also estimated that 2,130,000 hectolitres of inferior wine were last year made from the skins of grapes in the following manner:—After the wine is drawn from the grapes a quantity of water, equal to the volume of wine run off, is poured on the skins before they are put under the press. To every 22 gallons of water, heated to 85 degrees, about 35 lbs. of sugar is added, and sometimes a little tartaric acid. The fermentation goes on from 8 to 12 days, and the wine obtained has from 8 to 12 degrees of strength, according to the natural richness of the grape. By these means Mr. Sadler estimates that 4,450,000 hectolitres of wine, or 97,943,000 gallons, have been supplied, bringing the wine production of France in 1881 to 38,590,000 hectolitres, or 849,353,000 gallons.

THE COMMON MUSHROOM AND ITS POISON.—Professor Ponfick, of Breslau, has lately made experiments on the common mushroom, of which the following are the practical results:—All common mushrooms are poisonous, but cooking deprives them in a greater or lesser degree of their poisonous qualities. The repeated washing with cold water which they usually undergo to clean them takes away a portion of the poison, and boiling does the rest; but the water in which they have been boiled is highly poisonous, and should always be carefully got rid of. Experiments made on dogs showed that if a dog ate one per cent. of its own weight of raw mushrooms it fell sick, but recovered; if it ate one and a half per cent. the poison had a more violent but not fatal effect, and if it ate two per cent. it was inevitably fatal. The water in which mushrooms had been boiled was far more poisonous than even the raw mushrooms; while the mushrooms thus boiled could be taken without hurt to the amount of ten per cent. of the weight of the dog's body. Washing with cold water does not remove all the poison, so that mushrooms thus prepared were poisonous when taken in larger quantities. Dried mushrooms are still dangerous for from twelve to twenty days, and also the water in which they have been boiled. They require to be dried for at least a whole month, and are only really safe after four months' drying. As Professor Ponfick does not speak from the pulpit we are free to question the truth of his statements. That some fungi are poisonous is of course admitted, but that all mushrooms are poisonous, and the water in which they are boiled more dangerous than the mushrooms themselves, does appear like a blunder of the first degree, because fresh mushrooms are often added to soups and gravies, and the people who partake of these are not only none the worse, but very much the better for the savoury nourishment. Experience does certainly suggest that Professor Ponfick has discovered a mare's nest.

THE ROYAL AGRICULTURAL SOCIETY.—The Duke of Richmond and Gordon, K.G., presided yesterday at a meeting of the Royal Agricultural Society, held at its rooms in Hanover Square, W. There were also present the Earl of Feversham, the Earl Powis, the Earl of Ravensworth, Viscount Esmyn, M.P., Lord Vernon, Hon. W. Egerton, M.P., Sir Massey Lopes, M.P., Sir Watkin W. Wynne, M.P., Sir Brandreth Gibbs, Mr. James Howard, M.P., Colonel Kingscott, M.P., and others. One governor and thirty-four new members were elected. Lord Vernon announced that the trials of hay and corn driers at Reading had now been carried far enough to enable the judges to reduce the number of competing fans from seven to three:—viz., the fans of Mr. Coultas, Mr. C. D. Phillips, and Messrs. R. A. Lister and Co., all of which were driven by steam. The judges proposed to try these fans upon the produce of forty acres of barley which had been secured for that purpose at Twyford, about three miles from Reading.

Calls at Nurseries.

MESSRS. DICKSONS AND CO.'S PILRIG PARK NURSERIES, EDINBURGH.

THIS old-established firm, whose offices and seed warehouse occupy an important position in Waterloo Place, have several nurseries of considerable extent, and within a convenient distance of the city of Edinburgh; but those at Pilrig Park form the head-quarters, and should first have the attention of visitors. In those will be found excellent collections of stove and greenhouse plants, great breadths of hardy florists' flowers, an extensive collection of herbaceous plants, and a vast assemblage of ornamental trees and shrubs. The Pilrig Park nurseries are not difficult of access, for they are within a mile or so of the Post Office, and can be readily reached by almost any of the roads diverging from that point in a north-easterly direction. It is in fact a short walk only, and the visitor without the aid of cab or other vehicle may make the journey, have a run through the houses and grounds, and return in from one and a half to two hours. A longer time than this may be spent in the nurseries with advantage, and it matters not in what class of plants the visitor is interested, he will find Mr. James Grieve, the able and courteous manager, an excellent guide.

As the business is of a general character, and a very large trade is done in cut flowers and decorative plants, the plant houses contain thoroughly representative collections of stove and greenhouse plants. These are well able to afford entertainment to those who are in any way interested in ornamental plants requiring the protection of glass. A short distance from the plant structures and to the north of them is the nursery, in which the ornamental trees and shrubs are grown, and the visitors will do well to take note of the remarkably tasteful manner in which the banks of the lake in the nursery are planted. The lake is of rather large size, with a tastefully-planted island in the centre, and is surrounded with banks, having a sharp slope of thirty or forty feet, and forming as perfect an amphitheatre as could be imagined. These banks are clothed with evergreen and deciduous trees and shrubs, and as they include a considerable number with variegated and coloured leafage the effect is so striking as to produce an impression not quickly effaced.

Much attention has for many years past been paid at Pilrig Park to the cultivation of the choice kinds of hardy herbaceous plants, and in the quarters to the south of the greenhouses, stoves, and ferneries there is a well-selected collection in pots, and planted out according to the requirements of the respective kinds. The rockery is well worthy of attention; although not constructed with any greater pretensions than to provide accommodation for plants requiring a position somewhat above the general level, it presents a very tasteful appearance, and is very different to the majority of so-called rockeries met with in travelling about the country. It is in fact the style of rockery best suited to the private garden in which it is desired to cultivate a collection of alpine, and will doubtless be found as inexpensive as it is pleasing. Of the specimens in bloom or coming into flower, special mention must be made of those of *Anthemis tinctoria* and *Veronica Hendersoni*, two of the finest of the occupants of the herbaceous border flowering at the end of the summer. The first-mentioned, known also as the Ox-eye Chamomile, is a very attractive composite with large yellow flowers of a similar shape and size to those of *Chrysanthemum segetum*, and is very effective in the border and in specimen form when grown as at Pilrig Park. It is occasionally found growing wild in the north of England and in the south-east of Scotland, but doubtless as a garden escape. The plant attains a height of about two feet, has elegantly pinnatifid leaves, and the flowers are about an inch and a half in diameter, and the disc and ray florets are of a rich golden yellow. The veronica, which is known also as *V. subsessilis*, attains a height ranging from eighteen inches to two feet, and produces dense much-branched spikes of flowers of the richest possible shade of purple-blue. It is one of the finest of the late-flowering herbaceous species, and deserves the heartiest recommendation.

For many years past much attention has been given to the various classes of hardy florists' flowers by the Messrs. Dicksons, who have attained much success both as raisers and cultivators, and the collections of show and fancy pansies, violas, phloxes, pentstemons, potentillas, and kindred subjects, form a feature of great interest and importance. Especially deserving of attention are the show and fancy pansies, with which the firm have been particularly successful, because of the large number of new flowers represented. The show flowers introduced this spring are highly meritorious, and the names and a brief indication of their colours and characters will be useful to cultivators. New Pansies are five in number. Dr. Gray is a light blue self of splendid form and substance. Mrs. William Richardson takes high rank amongst white-ground flowers, the blooms are large and of good substance, and have a violet blotch and sharply-defined purple belt. Mrs. Oswald, a beautiful primrose self, with solid bronze blotch, the flowers large, stout and smooth. Pilrig King, a yellow-ground flower of high-class quality, the flowers of full size, the ground deep yellow, the blotch solid and of a deep mulberry, the belt bright orange. Pilrig Gem, dark self, is one of the most important of the series, as proved by the fact that at the exhibition of the Scottish Pansy Society last year it obtained a first-class certificate, and was awarded the first prize as the best show pansy in the exhibition; the flowers are of the largest size and of grand substance, and the colour is a very rich shade of purple-maroon. The new Fancy Pansies distributed in the spring of the current year also form an important group, the following amongst them being particularly fine:—Edith, a beautiful lemon-yellow self, with deep mulberry blotches. Happy Thought, an attractive flower, the ground rich claret, with large violet blotches. Louise, lower petals mulberry with broad belt of yellow, upper petals yellow suffused with lake at the margin; a large and showy flower. Mrs. J. Thomson, violet-purple, with well-defined lemon-yellow margin. Miss M. Nicol, lower petals bronzy maroon with yellow margin, upper petals carmine shading to yellow. Mrs. M. H. Miller, bright carmine, with mulberry blotches on the lower petals, and a well-defined yellow margin. Mrs. A. Borrowman, purple edged with white, distinct and attractive in colour, and of fine form.

The bedding violas and pansies form a special feature of themselves, and the new varieties of this year include several important additions to the list. The following were made note of as possessing special merit: Ajax, a dwarf free and continuous blooming variety producing light blue flowers; Alba odorata, a white variety remarkable for its freedom of blooming and the odour of its flowers; Criterion, a robust variety of compact habit, the flowers of a rich violet colour; Hector, a fine light blue variety; Illuminator, rosy purple, very distinct and effective; Indiana, pure white with fine erect habit, the flowers of medium size and borne on rather long and very stout stalks. Of the

older kinds: Adonis, bluish purple; Beauty, satiny white; Griever, yellow; Pioneer, creamy white with violet blotches; Rufus, rosy purple, and Triumph, mauve with violet blotches and purple shading, are well deserving of the most widely-extended culture. About twenty thousand seedlings are raised by Messrs. Dicksons and Co. annually, and their opinion as to the leading points in estimating the value of violas and pansies for bedding purposes possesses much weight. They say, "The qualities that go to constitute a good bedding viola are: First, a dwarf dense habit of growth, with the flowers thrown well above the foliage; second, that they bloom freely and continuously either during the spring and summer, or during the summer and autumn; third, that the flowers be of good size, but especially of good texture, in order that they may bear well either extremes of drought or wet; fourth, the most desirable shades of colour are those that are clear and well defined, so that they may come out well at a distance. Mixed or fancy colours, though they may be dotted individually in a miscellaneous border are worthless for massing." The following directions for their cultivation are given by the firm:—"They will grow in any common garden soil, but to ensure their blooming throughout the season a little attention is requisite in the planting of them. If they are wanted to bloom early in spring they ought to be planted in September or October, but for summer and autumn blooming they may be planted any time during February, March, or April—the earlier the better—whenever the soil is in good condition for working. Previous to planting, the ground should be deeply dug, giving a liberal allowance of good old farmyard manure. It is of great importance to plant deep—say, within an inch of the top of the plant—as this induces every eye under the surface to send up shoots, and thus form fine bushy plants. This method also places the roots beyond the influence of summer drought, and thus ensures a much longer season of bloom. Another important advantage it possesses is that it obviates the necessity of watering during summer, which is only productive of harm, from caking the surface of the soil and rendering the plants liable to "scald" and damp off at the neck. They can be easily propagated, either by cuttings put in a cold frame or shady border in autumn, or by dividing the plants when they have finished blooming in autumn, and planting them as already directed."

Show and decorative pinks are quite at home at Pilrig Park, judging from the healthy appearance of the plants and the freedom with which they bloom. It was satisfactory to see a good collection of the laced or show varieties, which have had so little attention paid to them of late years, and to observe that additions are steadily being made to the lists. The following are splendid exhibition flowers: Duke of Edinburgh, pure white, with light rose lacing, the flowers large, with petals of great breadth; Malcolm Dunn, pure white, with heavy lacing of maroon, very constant, and with strong constitution. The new border pinks comprised Mrs. Grieve, pink, with maroon lacing and fringed petals; Pilrig Park, white, the petals marked with a small crimson blotch, and edged with white; Snowball, pure white, with elegantly-fringed petals; and Tom Welsh, pale pink laced with crimson, the petals nicely fringed. It may be mentioned that the foregoing border pinks are neat and compact in habit and free in flowering, and are of much value for the decoration of the mixed border and supplying cut flowers.

RODWELL HALL, TROWBRIDGE,

THE RESIDENCE OF J. GOLDSMITH, ESQ.

THIS charming residence, which is neither very large nor very small, is situated about a mile from the centre of the town of Trowbridge, on the Devizes road. We had heard much of the distinct phase of gardening to be seen at Rodwell Hall, which made us anxious to see for ourselves whether report justified all that had been said in its favour. We were more than satisfied; we were delighted. It is both agreeable and instructive to find a garden with distinct and peculiar features that belong to few others. Such is the case at Rodwell Hall, for, although accustomed to see many strange gardens in the course of the year, the phase of outdoor gardening to be seen here presents a new feature altogether. The place is rich in grotto-work of a very substantial character. But that is not all, for there are other features belonging to the place deserving of notice.

The house is reached by a neatly-kept carriage entrance, bounded on the left hand with a fine belt of choice trees and shrubs, and on the right is a line of fine Cedrus deodara, and other suitable conifers in specimen form. A large breadth of well-kept lawn stretches away from the house, but at this point the eye takes in so many pleasing features that it is difficult to know which to describe first. Taking the nearest objects, we have two flower-beds festooned with ivy. These beds are star-shaped, with an edging of stone; at each corner of the star variegated ivy is planted, and brought over the bed to an upright in the centre, so that the points of the star meet in one common centre. The festoons are kept about three feet above the surface of the beds, which are planted with choice bedders gay with flowers. There is no better way of describing these beds than to say they represent two huge baskets of flowers with many handles, and the several parts of the design are perfect. The ivy was in perfect order from the base to the point in the centre. Altogether these baskets are a very unique feature.

The weeping trees call for special notice. There are several of these distributed about the grounds, and they are judiciously placed, and are kept in capital order. The specimen of weeping elm which here occupies a position at one end of the lawn is such a fine example that it strikes the visitor at once with surprise. There are several specimens of the weeping willow about the margin of the lawn. These have clear stems of about seven feet, and the branches have been so regularly trained and extended that each forms a perfect tent, with just room enough left open on one side for a person to walk in. When once the visitor is inside he is screened all round, and the shade of the branches affords a cosy retreat, with space enough for two or three chairs and a small table. Mr. Pym, the gardener, kindly explained how they were kept in such good condition. It is done by pruning in any stray branches during the winter and training over any shoots that are required to maintain the shape of the tree.

There are some large beds of roses recently planted on the lawn that promise well to increase the interest of this part of the grounds. A large number of bedding plants is required to fill up the beds and borders, but owing to the lateness of the season they had not made a very satisfactory progress, as the position is high and exposed to cold winds.

The most striking feature, however, is the grotto work opposite the front door. Across a rather large space of lawn stands the principal grotto,

built with perforated stone peculiar to that part of Wiltshire. The main feature of this piece of work is in the form of a summer house, substantially built and very tastefully arranged. A good portion of the front is open, the main portion being somewhat raised. The interior is splendidly fitted up with seats and tables and the gas laid on, to enable the building to be lighted up on special occasions; a large reflector is fixed in the interior, and a number of various coloured lamps are suspended along the front of the building, which when lighted must present a very remarkable appearance. Passing down a few steps, we see immediately in front, and forming a part of the grotto, a small ornamental pond and fountain, the whole being surrounded with miniature hills and dales which are freely planted with ferns, flowering plants, and creepers, and such trees and shrubs as are suitable to the position. In the arrangements here a more than an ordinary degree of taste has been displayed, and every care has been taken that all the surroundings should be in character. There are two or three other pieces of grotto work about the grounds, but as they all partake of the same character, it is not necessary to refer to them in detail further than to say they offer quiet and agreeable retreats. In fact, the grounds abound in quiet nooks and secluded spots that offer persuasions to rest and leisure. The conservatory is attached to the mansion on the south-west side: it is a beautifully-designed and elaborate structure. It is less remarkable for its dimensions than for the tasteful manner in which the interior is arranged, and the fine effect of the flowering and other plants which it contains. The exterior outline of the conservatory is a central span, with a wing on each side. As you step from the rooms of the house into the conservatory a raised walk runs the whole length of the house, which enables the visitor to look down over a great portion of the interior. On the right hand, on the back and end wall, is a well-arranged piece of miniature rockwork, tastefully planted with ferns and suitable creepers, over which flows a trickling stream of water. On the left hand are some splendid cases containing luxuriant plants of the filmy fern, *Todea superba*. Descending a few steps, the main body of the house is reached. On the right and left, on a bed of soil, are some fine palms and tree ferns. In front of these borders is the principal walk, running the whole length of the house, and between the walk and the front is a trellis work, which is gay with flowers suitable to the season. The interior of the roof is gracefully festooned with creepers of such kinds as *tacsonias*, *lapagerias*, &c. In the centre is a fountain and a small ornamental pond.

Fruit receives here considerable attention. There is a large space devoted to hardy fruit culture separate from the kitchen, where there is now a fair crop of apples on some few trees, and a sufficiency of gooseberries and currants. The kitchen garden is about one acre in extent. Bounding the walks in the kitchen garden are apple and pear trees trained to wires. On some of the trees there is a fair sprinkling of fruit. Dwarf peas are principally grown, the favourite sorts being G. F. Wilson and Yorkshire Hero. On the principal wall is a fine peach-house 160 feet long, and 10 feet wide. Tomatoes and tea-roses are grown in the front, and peach and nectarine trees on the back wall. The trees are in fine health, and bearing a fair crop of fruit. There are various plant houses devoted to the growth of flowers to supply the conservatory. We made special note of a fine batch of tea-scented roses in pots, a good collection of Indian azaleas, a selection of exotic ferns and begonias, and a large quantity (for a private place) of amaryllis. On the rafters of a span roof house is a fine vigorous plant of *Maréchal Niel* rose that flowers abundantly. Tomatoes are grown largely, as they are required all the year round. At one corner of the kitchen garden is the gardener's cottage, a roomy and pleasant structure, and adjoining it an excellent fruit room. Every part of the garden bore evidence of a painstaking and practical directing mind. J. C. C.

THE POTATO CROP.

WHEN looking through the *Gardeners' Magazine*, July 1, I made note of Mr. McKinlay's report that he had failed to find any trace of disease in his district. It is quite different here. The disease was seen in these parts the first week in June, but in a slight degree. The third week in June all the early kinds in field and garden were badly affected, and the first week in July the haulm of all the first and second earlies was blackened and dead. But we find but few diseased tubers; neither do I hear that anywhere in the district around the tubers are much affected. But the crop is entirely crippled through the cessation of leaf action before the tubers had attained their prime, and of course the quality on the whole is poor. Later sorts have suffered more than ever I have seen them before so early in the season. As is generally the case, the disease has taken its worst effects in drifts. Messrs. Sutton and Sons sent me down 4 lbs. of each of the seven new sorts they brought out this season, of Mr. Fenn's raising. I planted them on a strip of ground with about twelve sorts of two-year-old seedlings intermixed with them, so as to have a chance to compare them one with the other. But the disease struck right across them just when they were in full growth; and now, after being confined indoors for eighteen days, through an accident, I have come out to find that with the exception of four of my seedlings there is not a green leaf left on them. What the effect on the tubers will be has yet to be proved. It is a happy thing to know this is not the case all through the country. When at Reading the 14th of last month I was out early in the morning, and took a walk round the suburbs of the town. I was pleased to see the potatoes healthy, with hardly a spot of disease to be seen. And we found the same thing later in the day when looking over the many sorts that were growing in Messrs. Suttons' trial grounds. When I told them how different the case was with us, Mr. A. Sutton told me he was sorry to say they had heard the same report from Wiltshire as I was giving them from this district. Nevertheless, amidst the general destruction we have some few sorts standing out bravely against the enemy. *Magnum Bonum* has suffered more in the haulm than it has before in this neighbourhood. The seedlings that I sent you samples of in the winter are bolder their own well; No. 2 in particular is growing and blooming freely. *Reading Hero*, too, is standing out very distinct. I have about a thousand different seedlings planted that I raised last year, and this will be a testing season for them. The haulm of some of them has gone down; others are holding on and quietly ripening. Of course I have but a few roots of each of these. And they are planted in the part of my ground where the disease swept across most severely. That perhaps is no misfortune, as it is likely to cause some of them to be dropped at once that would have to be dropped in after years, and thus save time and trouble. We have had a week of splendid weather, and we are carting peas to-day, and harvesting is getting into full swing in all directions around us.

New Farm, Christchurch.

JAMES CLARK.

MR. B. S. WILLIAMS, F.R.H.S., F.L.S., ETC.

The subject of this notice is known to most of our readers as a striking example of industry and steadfast application to a difficult pursuit. With the fewest opportunities, yet with opportunities of exactly the right sort, however few, he has attained to complete and brilliant success as a practical horticulturist. A certain amount of scholastic training is an advantage to a man in any and every honourable walk in life, and especially in horticulture, because of its technicalities and the immense range of its subsidiary subjects. Mr. B. S. Williams has not been so fortunate as to have had any training such as could be called scholastic, but he has made his mark as a cultivator, as an author, as a man of business, and a man of the world, without it. But his opportunities were golden, because he began life in a garden, and by sticking to gardening he has made a name and a fame of which many might be envious.

Benjamin Samuel Williams, fourth son of James Williams, of Hoddesdon, was born on the 2nd of March, 1824. Leaving school at the age of fourteen, he entered the celebrated garden of Mr. John Warner, at Hoddesdon, where his father has been employed upwards of sixty-five years, and is still—at eighty-six years of age—in the same service, and in the enjoyment of good health. At seventeen years of age the younger Williams left the garden to take another situation, in which he continued for the space of six years. At the age of twenty he entered the lists as an exhibitor. His first floral love was the pansy, in behalf of which he made many a long journey, both to see and to obtain the best flowers. He then took up the ranunculus, and became an exhibitor of these; then grew many other kinds of flowers to cut from for exhibition. With the aid of a few frames, and with no greenhouse, he contrived to show collections of twenty-four bunches of cut blooms in March and April against those who had command of stoves and greenhouses, and secured a good share of the honours. By means of fermenting materials he forced rhododendrons and azaleas and heliotropes, verbenas, and other kinds of plants in a cucumber frame; and when these were passed he secured a fine bloom of halsams with the same rude machinery. His next venture was to compete with vegetables and hardy fruits at the Hoddesdon shows, and again divided honours with men who had the best of means for first-class practice. The intention to succeed was with him a constant stimulus to thought and action, and what was wanted in glass and other appliances he made amends for by early rising, and close application, and a careful study of the minutest details. His employer having given up gardening, he went into the service of Messrs. A. Paul and Sons, of Cheshunt, for a few months, where, as a matter of course, there was plenty to exercise a young man's mind as well as his hands.

Having in view another move, he went back to the garden of Mr. John Warner, and was once more under the direction of his father, looking after the fruit and kitchen gardens, in which he took great interest. Afterwards Mr. C. B. Warner required someone to look after his orchids, and he was engaged for this business. There were then but few hooks obtainable on the subject of orchid culture, and the young man greatly needed information on many points that he knew not how to obtain. It was this anxious desire for knowledge of his work that put him in mind to prepare a notebook of his own, and then followed systematic note-making as the result of observation of the habits and requirements of orchids. Thus, by practice in the garden, and occasional inspection of other collections, he acquired a minute familiarity with these plants, having the advantage of beginning early, when the mind eagerly seizes and keeps every scrap of information obtainable at first hand. He was soon enabled to exhibit orchids at Chiswick and Regent's Park, and, as often happens when things are well done, the collection was continually augmenting, and the winning of prizes encouraged the employer to add to the extent of glass. It was resolved now to enter in the great class for twenty orchids, but Mr. C. B. Warner thought the risk too great. However, he consented, and the confident young gardener put up his collection and won the first prize in the class, to the astonishment of the men who knew how limited was his collection and his experience of the cultivation. The winning score were plants he had closely studied from his first care of them, and he learned a lesson of some value in the discovery that single plants make the best specimens, as also that exhibiting does not injure the plants if they are rightly managed.

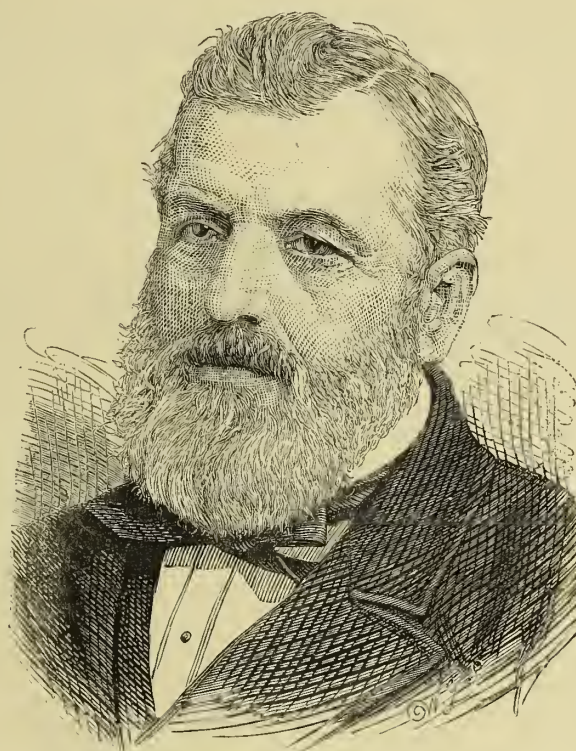
Becoming thus a master of the subject, he was employed by Dr. Lindley to contribute to the *Gardeners' Chronicle* a series of papers on "Orchids for the Million." They were then too expensive a class of plants to obtain general attention; but the young writer foresaw that they would not only become general favourites as they were better understood, but he grown in many gardens from which at that time they were excluded. And he has seen his expectations fulfilled, and has in a very great degree contributed, by his own persuasion and example, to bring these plants within the grasp of many who, in his early days, dared not to have touched them. The papers referred to were commenced in May, 1851, and were continued for some time from week to week. Thus was laid the foundation of the most useful book on the subject; for having been enlarged and revised, the papers were republished by Messrs. Chapman and Hall as the "Orchid Grower's Manual," in the year 1852. Dr. Lindley was of opinion that such a book would never pay, and he was nearly, but not quite, correct. Some years passed before an edition of a thousand copies was disposed of; but a second edition was called for, and a third, and a fourth, and now the fifth edition is running its course, more rapidly than any of its predecessors; for orchid growers have increased more than even the enthusiastic B. S. W. anticipated. In a letter he says, "We

now sell as many copies of the book in one year as we used to do in ten years."

We follow our friend again as exhibitor of Mr. C. B. Warner's plants at Regent's Park, Chiswick, and the Crystal Palace, until he wanted larger space for his energies, when he left the honourable service and went into business for himself. Looking around in the book world, he saw that there was the same need of a book on ferns as there had been for a book on orchids. Having exhibited ferns with the most complete success as representing a well-grown collection, he was well prepared for producing such a book as it appeared to him was wanted, and the result of cogitation and labour was the "Select Ferns and Lycopods," which, like the *Orchid Manual*, has passed through several editions.

Mr. Williams commenced business in the Seven Sisters Road, Holloway, on the north of London, in the year 1856, and some five or six years thereafter removed to his present position, then a rural district, but now entirely built over, and the centre of a scene of constant bustle. The Victoria and Paradise Nurseries, Upper Holloway, where our friend has been located some twenty years, comprises no less than forty glass-houses, all stocked with valuable vegetation in the best of keeping, amongst which orchids and first-class stove and greenhouse plants may be said to take the lead, although the trade carried on is of the most universal and comprehensive character. Few men in our time have become so widely known, and known only to be respected; and fewer still, perhaps, have so doggedly persevered, both in advancing in a well-chosen way, and in securing and keeping the confidence of all whose esteem is worth having. To speak of the prizes Mr. Williams has won would be merely to remind our readers of matters they cannot forget, because the reports for some thirty-five years past have shown his name in connexion with honours that all might covet.

The other books we should mention in this sketch are the "Choice Stove and Greenhouse Plants," "Select Orchidaceous Plants," and the "Orchid Album." The last-named work is now in course of publication, one volume being just completed.



MR. BENJAMIN SAMUEL WILLIAMS, F.L.S., F.R.H.S., &c.

GARDENING IN EGYPT UNDER THE PHARAOHS.

THE following sketch appears in the Rev. F. Barham Zincke's "Egypt of the Pharaohs and of the Khedive" (London, 1873), a book which should be in everybody's hands at the present moment, as it suggests more exact ideas of the aspect of the country and of the modes of thought of the people, past and present, than any work with which we are acquainted:—

"That horticulture was a favourite occupation among the ancient Egyptians is shown abundantly by their sculptures and paintings. Representations of gardens are so common that we may infer that no residence of any pretensions was considered complete without them. We even see that rare and interesting plants, brought from Asia and Ethiopia, each with a hall of earth about the roots carefully secured with matting, formed at times part of the royal trihue. The very lotus, which may be regarded as among flowers the symbol of Pharaonic Egypt, is supposed to have been an importation from India. In this matter, as in every other respect, the country has sadly retrograded.

"Their style of gardening was stiff and formal. Straight lines were much affected; angles did not displease. Basins or ponds of water were *de rigueur*. Every plant or tree was carefully trimmed and trained. It could not have been otherwise. This was all settled for them by the aspects of the Egyptian nation, the character of their religion, and their general manners and customs. As is the case among modern Orientals, flowers were not so much valued for their form and colour as for their odour. The European of to-day, as he looks on the painted or sculptured representations of Egyptian gardens three or four thousand years ago, at which date his own ancestors were living in caves, from which their ancestors had expelled races of animals now extinct, finds that, notwithstanding the barbarism of his ancestors and the recentness of his civilization, there have come to be reproduced in himself ideas and sentiments which were giving grace and finish to the highly-organized society which had been established then—no one knows for how long a period—on the banks of the Nile. At all events, he beholds in these Egyptian gardens a curious instance of an instructive similarity between the two; for he sees that the Egyptian of that day, just like the Englishman of to-day, took pleasure in watching and controlling the life and growth of plants; in tending them because they tasked and were dependent on his thought and care; in making them minister to a refined and refining taste for the beautiful, and in creating by their aid, within the limits in such matters assigned to man, a kind of artificial nature.

"Of course, all subtropical and many tropical trees and plants do well here, if only they can be regularly supplied with water. I never saw more interesting gardens, on so small a scale, than those of Signor Cecolani at Alexandria, and of the American Consul at Port Said. The same may be said of the gardens of the Viceroy at his Gezera Palace.* In them you will find the plants we keep in stove-houses doing well in the open air, and many of them in flower at Christmas or soon after. In the first mentioned of their gardens I saw very beautiful specimens of the Norfolk Island pine, about thirty feet high, growing luxuriantly. There was also a species of solanum, which, if I knew its Christian name, I would recommend to the attention of those who are endeavouring to produce in their English gardens something of a subtropical effect. It was about ten feet high, and so regularly filled up with branches as to have a perfectly

* At Boolak, near Cairo.

symmetrical and somewhat dome-like form. Its leaves were large, rough, and prickly. At the extremity of each twig or lesser branch was a large branching spike of purple flowers. The individual flowers in the spikes of flowers were about the size of the flowers of its relation, the common potato, and similar in shape. It was a most effective shrub. I never saw one more so.

"It is generally supposed amongst us that our English gardens are quite unvalued. They may be in the thought, care, and money bestowed on them; but in variety of interest they are very inferior to Egyptian gardens. They may contain all the plants we consider most beautiful and most worthy of artificial heat, which, too, may be grouped with bamboos, palms, Indian figs, bananas, cactuses, daturas, poinsettias growing nine or ten feet high, and many other plants and trees one would go some way to see growing with the freedom they exhibit in this bright winterless clime, in which the transparent sunlight is never the mere mocking garb of a withering Liebig-extract of cast wind."

SPECIMEN GLOXINIAS.

TAKING the plants of specimen gloxinias one usually sees at horticultural exhibitions as representing the average condition in which they are presented to view, it must be admitted that there is ample room for improvement. Good plants are the exception; indifferent specimens the rule. Occasionally one meets with some thoroughly good plants, large in size, well grown, finely flowered; foliage vigorous, healthy, and clean; flowers large, handsome in shape, and of fine substance—plants that do honour to the show and credit to the exhibitor—but they are exceptional, not usual. The usual plants are small, thin in the leaf, faded, and affected with red spider, small and thin in the flowers, and generally unsatisfactory. This is what judges at flower shows frequently have to contemplate.

A short time since we saw at Messrs. Sutton and Sons' London Road florists' seed grounds at Reading some specimen gloxinias of large size and finely bloomed, and on asking for information as to how these superb plants had been brought to this fine condition of development, we were told in general terms that there is really but little difficulty and no mystery about growing gloxinias; that they can be brought to a high state of development under various modes of treatment, in most curious positions, both as to light and heat, and nearly in all sorts of soil; but, our informant went on to state, the richer the soil the better will be the development of the plants. On inquiring what constituted the best compost for this beautiful flower, we were told good loam and leaf-soil in equal proportions, adding sufficient fibrous peat and a little silver sand, so that the mixture should not become sticky for lack of something to give it porosity; that the roots should be potted as lightly as it is possible to put the soil into the pots, placing the root each time it is repotted a little deeper in the soil, but never allowing the crown to be covered entirely by it, or submerged with water when it is applied. It would seem that when a tuber is potted it first of all throws out roots at the base, then, as it is repotted a little deeper, it throws out roots at the sides and near to the crown. There is positive danger in overpotting and overwatering until root action has set in, and the danger is made apparent by the appearance of the foliage, which becomes yellow and sickly-looking.

Starting, then, with the assumption that the cultivator has raised from seed and bloomed some good varieties, which he is desirous of growing on into a large size another season, he should be very careful to properly mature the roots as the foliage gradually dies away, taking care to give water with attention and sparingly, as the plants require less moisture almost daily. Roots that are well matured and carefully wintered will be certain to start well into growth in early spring; hence the necessity for carefully maturing a collection. Another important point in the successful cultivation of the gloxiana is to entirely free the roots from the soil in which they have been growing when they are repotted. It is not well to delay repotting too long, as it will be found that when this is delayed till late in the season the roots will be injured by maggots, and this injury might have been prevented had the roots been examined sooner. It should be mentioned that in wintering gloxinias it is unwise to put them near hot-water pipes or flues, as the proximity to heat will cause the bulbs to shrivel up; and it is equally injurious to place them under a plant stage, where drip can fall upon the pots, as much injury is done to them in this way. The best plan is to winter the roots in a place where they can be examined at intervals, and their condition ascertained. The practice at Reading is—as soon as the leaves are off the plants, and the skin of the roots thoroughly firm, they are knocked out of the soil and taken to the potting bench. Previous to this a compost is prepared, made up of peat, dry cocoanut-fibre, and white pine sawdust; and this is put into pots or boxes, or any suitable receptacle, and kept in a temperature of not less than 56 deg. until potting time. The bulbs

might remain here for three months without taking injury. The roots are examined every fortnight after the first month or five weeks, and the stronger-growing sorts, which are generally those of purple colours, will be the first to show signs of growth. The roots will not all start into growth at the same time, as this depends on their constitution, and to some extent how they flowered the last season. Those, then, which break into growth first are taken to a melon or a cucumber bed, and laid on the surface of it; or on the surface of pans filled with a good light soil of a fibrous nature; but no attempt is made to bury them. They soon begin to root, and they are then gently sprinkled. Much depends on the atmosphere available, as it should be borne in mind that the gloxinia is a great lover of warmth and moisture when growing, but not when flowering; and it is these which give that fine appearance in the foliage so dear to the grower. But warmth and moisture operate to injure the flowers, by making them thin, and this is the cause of the remark that the gloxinia does not last a long time in flower. In the case of the fine specimens at Reading, the plants are cooled down and hardened off to endure a cool treatment. It is found by experience that a dry temperature is absolutely necessary to bring out fully the brilliant hues which characterize some of the flowers. The best plan, no doubt, is to keep the plants in heat (taking care that they do not become drawn) until the flower buds are formed in the hearts, and then to gradually harden the plants off.

With respect to shade and light, the gloxinia during the winter thrives best in a light position with plenty of humidity about it, but it never likes to have the sun directly shining on it or drip falling on its foliage, although to have the finest of growth as much moisture should be provided in the house or pits in which the plants are growing as the time of the year will allow, and if this moisture is maintained it will be found that the plants require but little watering at the roots, and on no account should the plants be sprinkled overhead. It will be found each morning, if the right moisture has been maintained, that each leaf will sparkle with little drops of moisture at the points of it. This moisture is obtained by carefully regulating the atmosphere, and the latter ought not to be allowed to rise or fall suddenly; and the stand on which the plants are growing is best covered with some material that holds moisture and prevents anything like a drought around the roots. The appearance of the plants and texture of the leaves are a good guide to the grower, and no rule can be laid down as to when to apply and when to withhold water.

The last shift must not be given too late: it should be done as soon as the flower buds can be seen, and when the last shift is given the maintenance of the fine appearance characteristic of a good specimen is then only a question of management. It is at this stage that great care is necessary, and with this vouchsafed there should be no difficulty in producing something highly satisfactory in every respect.

It is found that the gloxinia does best on a stage covered with slabs of common slate, and then overlaid with half an inch or so of coal, coke, or cinder ashes, which, if possible, should be sifted near one size, and have all the dust taken out of them, so that they

will not clog together when saturated with wet. The ashes act in the way of keeping distant from the plant such pests as worms and insects, through their possessing no nourishment, and in a dry state they are a little irritating to them to crawl over.

When a specimen plant is throwing up for bloom it will be found that placing it on an inverted flower-pot will steady its growth and allow free air and development in all its parts, and it will thus grow on evenly. When the plants are so elevated water can be given much more freely, and on alternate days a little clarified manure-water is found of great advantage. Nearly any kind of liquid manure, provided it be freely diluted, suits the gloxinia; but solid manure should be very sparingly applied. As the blooms rise above the leaves the plants should be kept trimmed round so as to form a circular mass of flowers, not drawn to a point. A north house is almost indispensable to harden off the plants in a proper manner, and experience shows that the flowers gain massiveness and colour best under a dense shade on a bright day. If only a pit can be used for the plants they should be kept near the glass, and double shading must be put on during the middle of the day, or thrips and red spider will accumulate, as also the common rust, which is mainly brought on for want of nourishment and moisture in the atmosphere. If any of these once gain a footing on the plants it is very difficult indeed to dislodge them, and their impaired growth soon shows the effect of their presence.

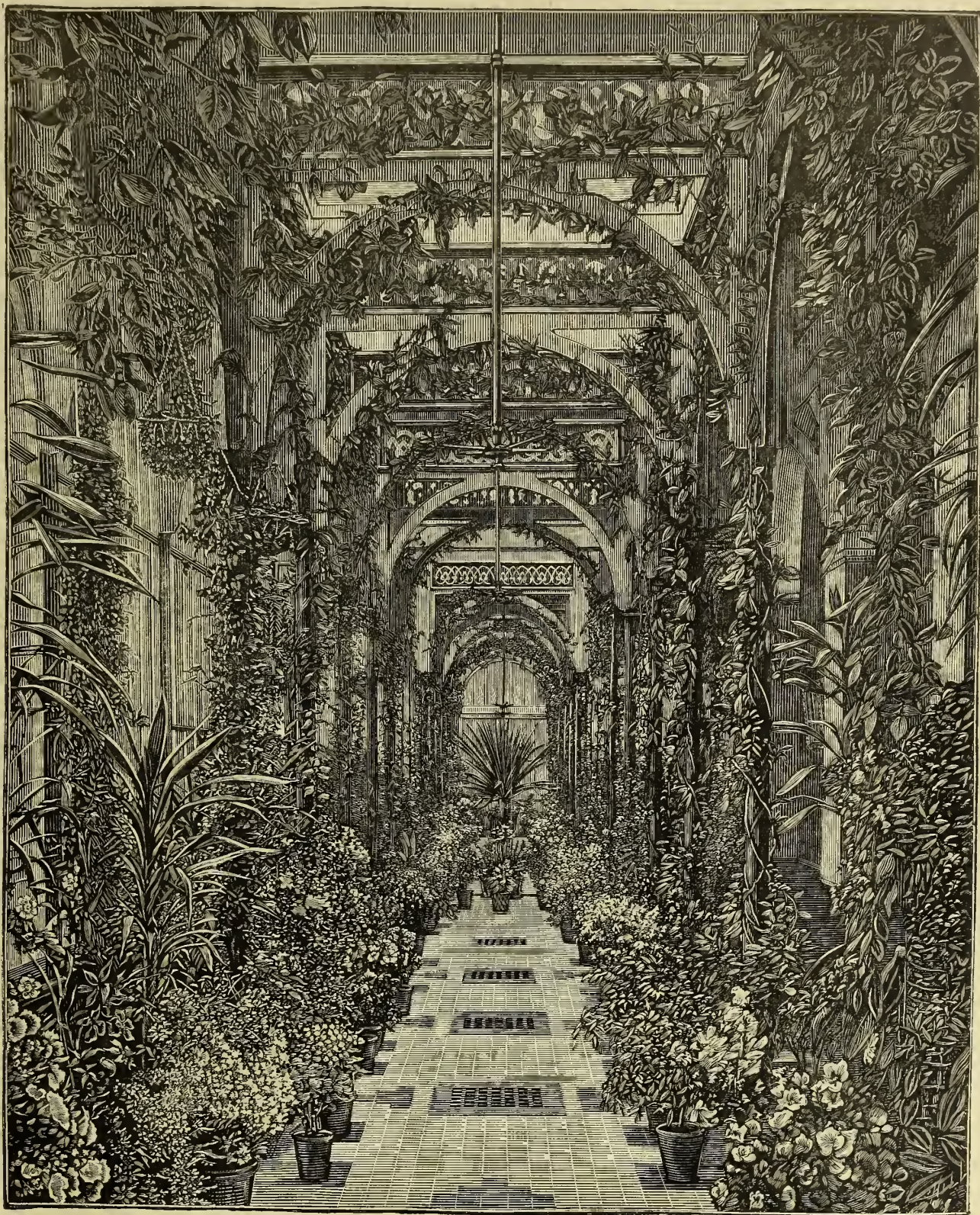
In all cases the soil used for gloxinias should be mixed some days before using, and especially is this of importance in all cases when the plants are shifted in early spring. When the house in which

they are growing is large enough to admit of a potting board being placed in it a material advantage is gained, because the plants can be kept in the same temperature, and there is no danger of any check through bringing them out of a warm into a colder atmosphere.

It is in this way very fine specimen gloxinias are and can be grown. They are worth growing well, especially when required for exhibition purposes. Fine specimen gloxinias, worthy of their name, always tell in the exhibition, and command a large share of public admiration. They are among the most attractive of exhibition plants; while, as

A CORRIDOR CONSERVATORY.

It is not unusual to meet with entrance halls and corridors and other glass-covered approaches planted with climbing plants, and occasionally some other more substantial forms of vegetation. But it is not often we see the thing well done, and a good example is therefore worthy of special attention. The common failing is that, the place being narrow and cold and draughty, very few plants will live in it, and hence its appearance is thin and poor, as if designed by a niggard.



CORRIDOR ATTACHED TO THE RESIDENCE OF C. C. COLLARD, ESQ., WIVELISCOMBE, SOMERSET.

decorative subjects, the better they are grown the more suitable are they for this purpose, and, indeed, more acceptable in every respect.

SEMPER AUGUSTUS.

TEA CULTIVATION IN NEW ZEALAND.—Some time since the Acclimatization Society of New Zealand invited Mr. Reid, a gentleman connected with the cultivation of tea in India, to make experiments with tea plants grown in the gardens of the society at Auckland. Mr. Reid did so, and has lately made his report, which is eminently satisfactory, and shows that the plant can be most successfully cultivated in that district.

The plant grower will always tell us that such a place, if planted at all, should be arranged as any other plant house, subject of course to the kind of vegetation employed in the furnishing. Cool-house plants are as a rule far better suited to such places than plants of more tender constitution, and, generally speaking, plants of large growth and enduring character are to be preferred. An excellent example of the right mode of procedure is before us in the representation, reduced from a photograph, of a corridor conservatory attached to the residence of C. C. Collard, Esq., Abbotsfield, Wiveliscombe, Somerset. This corridor opens into the middle of the conservatory, and at the time of my visit was gay with flowers, more especially those of the

creepers, which form a considerable proportion of the vegetation. The floor is laid with Minton's tiles, the prevailing colour of which is white. This enhances the sparkling brightness of the scene and assists the effect of the various rich colours of the leaves and flowers.

J. C. C.

ABSORPTION OF METALLIC POISONS BY PLANTS.

SINCE J. Glanvil, in *Philosophical Transactions* for 1688, first discoursed of the injurious effects of the lead-smeltings among the Mendips, the action of metallic poisons on vegetation has been frequently treated by botanists and toxicologists, with not a little diversity of opinion. Amongst recent writers, Liebig, we know, held that plants absorb all matters present in solution in the soil, without any process of selection, just as a sponge imbibes water. This view has been confirmed by the researches of Freytag, published at Bonn about twelve years ago. Freytag detected zinc and copper in the foliage of oaks and birches, and found that when carbonate of zinc was introduced in soils it was absorbed and deposited in leaves, stems, and seeds of rye, wheat, and maize raised thereon. Many plants growing near zinc mines are known to absorb considerable quantities of zinc oxide, and in two well-known instances new varieties are supposed to have been thus produced: these are *Thlaspi alpestre* v. *calaminaris* and *Viola tricolor* v. *calaminaris*, the latter of which some regard as a distinct species. Subsequent experiments in the Botanic Garden at Erlangen gave, however, negative results; and the experiments with Paris green, recorded in the *Report of U. S. Commission of Agriculture*, 1875, controvert Freytag's views. To throw further light on the subject, a series of experiments was carried out last spring in Alleghany Park. The object of these, we learn from the *Journal of the Franklin Institute of Philadelphia*, was to ascertain whether plants experience any injurious effects from the presence of metallic compounds in the soil, and whether they actually absorb such matters through their roots. The time chosen for the experiments was the early spring, when the greenhouses in the park were filled with bedding plants in vigorous growth. The subjects selected were geraniums, coleus, ageratums, achyranthes, and pansies, there being thousands more of these plants, all equally advanced, on the shelves, so that a full and fair comparison could be made between the plants grown in poisoned soil and those raised under normal conditions. The metallic compounds employed were the carbonates of zinc, copper, and lead, and an arseniate of lime. The plants were potted in the usual way, and with every care, a given weight of one or other metallic compound having been previously mixed with the soil for each pot. A record was kept of the growth of each for eleven weeks, at the end of which time (June 10) the plants were cut down close to the surface of the soil and the portions so removed carefully analyzed. The first lot were ageratums, grown in soil containing $\frac{1}{2}$ per cent. of white lead. They matured and produced flowers as early as the most forward in ordinary soil. The roots were very healthy and abundant. The only noticeable effect was a yellow tinge on the leaves. Analysis showed the presence of small quantities of lead in the tissues of the plants. The second lot consisted of geraniums in soil containing $\frac{1}{2}$ per cent. of carbonate of zinc. Their growth was in every respect normal. The plants flowered and made roots abundantly. Analysis, conducted as in the preceding case, showed the presence of considerable quantities of zinc in the plants. The third lot were achyranthes, in soil containing $\frac{1}{2}$ per cent. of carbonate of copper. The effects were not at first visible. But as the plants matured the leaves darkened, and it was then found that the copper had killed the old roots and checked the growth of new. These plants had lived on air alone. Their ashes contained very small quantities of copper. The fourth lot were coleus, in soil containing $\frac{1}{2}$ per cent. of arseniate of lime. Here, and in the other cases where arsenic was used, the effects were more prompt. In a few days the plants began to languish, and in the course of a fortnight all had died outright. The fifth lot also consisted of coleus, in soil containing only half the above proportion of arseniate of lime. In this case the effects were proportionately less marked, but the vitality of the plants was greatly reduced, and in the end the roots were all killed. In each case arsenic was found with the ashes. The sixth lot consisted of pansies, in soil containing $\frac{1}{2}$ per cent. carbonate of zinc. The plants enjoyed perfect health and vigour, and made abundance of roots. Analysis revealed the presence in them of considerable quantities of zinc. Further and more extended experiments are necessary before any general laws respecting the absorption of metallic poisons by plants and the effects thereof can be formulated, but those above described appear to justify the following conclusions:—1. That healthy plants grown under favourable conditions may absorb through their roots small quantities of lead, copper, zinc, and arsenic. 2. That lead and zinc may enter the tissues in this way without disturbing the growth, nutrition, or functions of the plant. 3. That copper and arsenic compounds exert a more directly poisonous influence, tending, when present in large quantity, to check the formation of roots and either to kill the plant or so far reduce its vitality as to interfere with its nutrition and growth. In the case of heavy metals it appears possible that under certain circumstances their oxides may become deposited in the plant tissues; but as to the exact process by which this is accomplished authorities differ. Some, as Freytag, suppose that plants absorb all matters presented to them in solution indiscriminately through their numberless rootlets, but that the injurious effects of poisons thus imbibed only become manifest when a certain degree of concentration is reached. Others suppose that plants have the faculty of rejecting injurious substances, and that the metallic substances detected by analysis are the result of external deposition. The probabilities appear to be in favour of Freytag's view. It is of course possible in such a case that soil impregnated with poisonous matter may yield poisoned crops year after year, without the degree of concentration requisite to entire arrest of growth being attained in any one season.

GREAT COMPANIES AND TRADING FIRMS obtain special attention in *Colburn's New Monthly Magazine*. Quite lately this work gave a history of Price's Patent Candle Company, with a portrait of Mr. G. F. Wilson. In the issue for March of the present year is an account of Messrs. Waite, Nash, and Huggins, seed merchants, of Southwark Street. In the issue for the month of July of this year are lengthy notices of Messrs. Paul and Son's nurseries, Waltham Cross; Messrs. Rodgers, of Sheffield; the Jablochkoff Electric Light Company, and the curious trade of Mr. Jamrach, the noted dealer in lions, tigers, elephants, and other live stuff.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

COLEWORTS.

As the early summer crops are now coming off the ground, it may be well to remind the owner of the small garden of the extreme value of present planting. Planted now they grow with great rapidity, and yield during the winter and spring a liberal supply, in proportion to the space occupied, of most acceptable greens. The amateur can purchase at a comparatively cheap rate strong plants, if a sowing at the proper time was neglected, and these should be put about a foot apart each way. Excepting quarters that have been occupied by crops of early potatoes, the ground should be dug over to the ordinary depth; but soil from which potatoes have been dug will be sufficiently loose. Care should be taken to plant them firmly, and if the weather happens to be dry at the time the plants are put out well water them in. Beyond this they will not require the assistance of the watering-pot, and the only other attention necessary is to hoe over the space between the rows as soon as the weeds begin to make their appearance. It is important to do the hoeing as soon as necessary, for if the weeds are left until they have made considerable progress the autumn rains will probably increase the difficulty of destroying them.

EARTHING UP CELERY.

Although earthing up celery is a very simple matter, amateurs sometimes fail to ensure results so satisfactory as could be wished, in consequence of their not understanding the principles on which the work should be done, and a brief reference to the matter at the present moment may perhaps be of some service. In earthing up celery it is important to bear in mind that the placing of soil about the plants or "earthing up," as the practice is technically called, materially checks the growth, and that when the operation is done too early the full size will not be attained. Late crops must be earthed up before there is any risk of severe frost; but in the case of the early crops the cultivator can regulate the earthing up by the time the celery is required for the table. A period of five or six weeks is required for the blanching process, and the earth required for blanching purposes should be put about the plants in two or three operations. In doing this the chief points are to break down the soil from the sides of the trenches as fine as possible, and to exercise the requisite degree of care to prevent its finding its way into the centre of the plant. The work will be much facilitated, and the risk of injury to the plants reduced, by drawing the stalks rather loosely together, and then securing them with a piece of bast, which, it may be added, can remain, as it will soon decay. When the soil about the roots is at all dry when it is intended to commence earthing up, a good watering will be of immense assistance previous to breaking the soil down from the sides of the trench.

ENDIVE AND LETTUCE.

It is now time to make sowings to stand over the winter for spring use. There are no better endives than the Green Curled and the Round-leaved Batavian; and the most useful lettuces are the Brown Bath Cos and the Hardy Hammersmith. In the south and west of England the sowing of lettuce may be deferred for ten days or so. Both lettuce and endive in seed beds should be planted out as soon as possible, and, if it can be conveniently done, plant on a sheltered border, and where protecting materials of a rough-and-ready description can be readily applied.

MUSHROOMS.

It may be mentioned, for the information of those amateurs who have a shed and a supply of short stable manure at command, that this is a very good time for preparing for mushrooms. Beds made up at this season are as a rule productive, and with ordinary good management yield an ample return. Any outhouse or shed that has a good roof, and can be made moderately close, will answer admirably for a bed made up at the present time. Sufficient short manure, horse droppings, and loam to make a bed from eighteen inches to two feet in thickness, and not less than three feet in width, will be required. The bed may be of greater length and width, but if much smaller than the dimensions given will hardly pay for the making. The manure should be sweet, and, with the loam, be moderately dry, and the proportions should be about one part of loam to three of manure. In forming the bed the materials must be beaten firm with the back of the spade, and the spawn be inserted when the temperature is between 70 deg. and 75 deg. The spawn should be broken up into pieces of about the size of a walnut, and be inserted about six inches apart each way. In a few days after this has been done, spread about half an inch of fine soil over the surface, and cover with refuse hay. The bed must be maintained in a nice moist state, and an occasional sprinkling of water will suffice.

SPRING CAULIFLOWERS.

There is now no time to be lost in raising a stock of plants for standing the winter and furnishing supplies early in the year following. The Walcheren and Early London are the two best kinds to sow now, and there is no difference in their value. The seed should be sown in the open and when large enough be planted under hand glasses or in cold frames. As it is important to have them as hardy as possible, they should be freely exposed until frost occurs. If the plants are much crowded in the seed bed when they first make their appearance a little thinning will be beneficial. From three to four inches apart is a good distance at which to put them in the frames and under hand-glasses. A few may be planted at the foot of a south wall or fence, and be afforded protection in frosty weather, but no dependence can be placed upon plants that are not sheltered by glass.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, August 8.

THE contributions to the meeting on Tuesday were more numerous than usual, and sufficed to fill the council room and two broad tables extending nearly the whole length of the vestibule. Chief amongst the collections submitted to the respective committees were those of petunias and tomatoes in pots from Messrs. J. Carter and Co., fruit trees in pots from Messrs. James Veitch and Sons, gladioli from Messrs. Kelway and Son, and dahlias from Messrs. H. Cannell and Sons and Mr. T. S. Ware. Messrs. J. Carter and Co., High Holborn, exhibited a collection of seedling petunias, for which they were accorded a vote of thanks, a compliment well deserved. The collection consisted of about five hundred exceedingly well-grown plants in five-inch pots, and bearing flowers remarkable for their high quality and rich colouring. In addition to Mrs. Dunnett, which had a first-class certificate conferred upon it, the following selected double varieties were particularly noteworthy: Mrs. Hathorn, deep purple, the flowers very large and of superb quality; Mrs. Sharman, white tinted rose and blotched purple, a very attractively-coloured high-class variety, with elegantly-fringed petals; Iris, white veined lavender-blue, a very distinct and beautiful flower; Elaine, pure white, beautifully fringed; Hugh Stewart, purple, with narrow white margin; Cetewayo, purple and white, distinct and very attractive; Auriculæflora, a very distinct and attractive single variety, the flowers rather large, rich purple veined with black, and with broad green margin, as sharply defined as in a green-edged auricula.

From Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, came a large and most interesting collection of single dahlias, and an attractive display of phloxes. The dahlias included White Queen, a very fine pure white; Lutea grandiflora, rich yellow, one of the finest of its colour; Mauve Queen, light mauve, a pleasing shade of colour; Union Jack, red and white striped; Pentagon, black-maroon, small and useful; Rob Roy, brilliant scarlet, very fine in its colouring; Ascalon, glowing crimson shading to rose at the edge of the florets, and Francis Fell, deep rose. The phloxes comprised many of the finest varieties in cultivation. Mr. Ware contributed also a stand of blooms of Carnation Gloire de Nancy, a pure white flower of large size and good quality with the fragrance of the old crimson clove. A vote of thanks was accorded to Mr. Ware. A like compliment was paid to Messrs. H. Cannell and Sons, Swanley, for excellent stands of show, fancy, and single dahlias, and several attractive bouquets of salpiglossis.

From Mr. W. Howard, Southgate, came an attractive collection of border carnations, in which the self flowers were particularly good. Mr. Barron sent from Chiswick a stand of blooms of Chiswick Red carnation, a brilliant scarlet flower of good size and shape but devoid of fragrance. Mr. H. G. Smith, 17A, Coal Yard, Drury Lane, W.C., again exhibited Mary Morris carnation, a very free and beautiful border variety, producing large sweetly-scented flowers of a rich rosy pink colour.

The gladioli from Messrs. Kelway and Sons, Langport, comprised about sixty magnificent spikes, and produced a very striking display, and the new varieties included in the collection afforded much interest to cultivators. Achimenes and tydeas were represented by a goodly number of excellent examples from Chiswick, which served to show how useful these two classes of plants are for decorative purposes at this season of the year. Orchids were but few in number, and included a good specimen of *Phalenopsis violacea*, and an example of the beautiful *Odontoglossum biconense album*, which has a pure white labellum, from Messrs. J. Veitch and Sons.

The General Horticultural Company, Anerley, staged good specimens of *Nepenthes Hookeræ** and *N. superba*, and *Caladium Frederick C. Bause*, a very distinct variety of dwarf growth; the leaves of medium size, bright red with green margin, and so glossy as to have a varnished appearance. Balsams were contributed in excellent condition by Mr. F. Smith, Sen., West Dulwich, who was accorded a vote of thanks. The plants were dwarf in growth and densely furnished with large flowers of superb quality. Mr. J. King, Rowsham, near Aylesbury, exhibited the following coleus, all of which are of great promise:—Admiral Seymour, a handsome variety, the leaves large and smooth, and of a deep bronzy colour with bright red centre; Miss Wetherall, an attractive variety with serrated leaves, the ground deep bronze, the centre carmine-red, and the edge yellowish green; Lord Charles Beresford, a striking variety, the leaves of large size, and of a bright rosy carmine colour, with broad bronzy margin; desirable for its hardy constitution. Messrs. J. Laing and Co., Forest Hill, exhibited several new tuberous begonias, the most important being Dr. Masters, a robust variety of compact habit, bearing large circular flowers of a rich crimson-scarlet colour, and presenting a striking contrast to the variety sent out some years since under the same name.

One of the most interesting contributions to the meeting was formed by the three boxes of hardy flowers from Messrs. J. Veitch and Sons, who were accorded a vote of thanks. The collection consisted chiefly of flowers of hardy shrubs, amongst which the most noteworthy were those of *Pavia macrostachya*, *Ceanothus Arnoldi*, a pleasing pink variety; *C. azureus grandiflorus*, *Spiræa callosa*, *S. callosa pumila alba*, *S. palmata elegans*, a pale pink variety of the most pleasing appearance; and *Clematis coccinea*, the latter deeper in colour than it has been hitherto seen at the exhibitions.

Messrs. J. Veitch and Sons' fruit trees in pots were arranged to form a group on either side of the entrance to the council room, where they had a very attractive and interesting appearance. The trees were mostly large, and carrying large crops of excellent fruit; and amongst them may be mentioned as particularly good *Beurré Musqué* and *Beurré Bachelier* pears literally loaded with fruit; Pine-apple, Humboldt, Lord Napier, and Pitmaston Orange nectarines; Royal George and Stirling Castle peaches, and Red Quarrenden apple. Messrs. Veitch had also a collection of apples, chiefly early varieties, and comprising good samples of Lord Suffield, Red Astrachan, Kentish Codlin, and Duchess of Oldenburgh. A silver Knightian medal was awarded the firm for their fruit trees. Messrs. J. Carter and Co. were awarded a bronze medal for their collection of tomatoes, to which reference was made in our last issue.

Mr. Gilbert, Burghley, submitted to the committee twelve excellent dishes of potatoes, and Mr. Eckford, gardener to Dr. Sankey, Borecatton Park, Shrewsbury, sent several varieties of peas, which appeared to be of great promise. Amongst the new melons was one from Messrs. James Dickson and

Co., 108, Eastgate Street, Chester, raised from seed received from Morocco; the fruit was long in form, with thick firm flesh of a bright green colour and good flavour.

The following First-class Certificates were awarded

To Messrs. J. Carter and Co. for *Godelia Satin Rose*.—A very beautiful variety, the flowers large and of brilliant carmine-red colour, shading to rosy pink at the edge.

Petunia Mrs. Dunnett.—A superb double form, the flowers very large, full, and of fine shape; the ground white, some petals tinted rose, others blotched with purple.

To Messrs. F. W. and H. Stansfield, Todmorden, for *Scolopendrium vulgare crispum multifidum*.—A form differing from the variety *crispum* in the fronds being forked at the top.

Polypodium vulgare cornubiense Fowleri.—A dwarf form of *cornubiense* of great beauty.

Lastrea montana coronans.—A handsome variety, the tips of the fronds and pinnae elegantly crested.

To Messrs. Kelway and Son, for the undermentioned gladioli:—*Bono*.—Crimson-scarlet, tinted with violet on the lower petals; the flowers large and arranged in stout spikes.

James McIntosh.—Orange-scarlet, with crimson-purple blotch on lower petals; flowers and spike of large size.

A. F. Barron.—Soft scarlet; a pleasing flower of good quality.

Ala.—Deep rose with light centre; flowers large and fine, forming a massive spike.

To Mr. Ballantyne, gardener to Baron Schröder, The Dell, Egham, for *Phalenopsis violacea Schröderi*.—A beautiful and distinct variety; the sepals and petals deep rose, the labellum crimson.

To Mr. Eckford for *Sweet Pea Bronze Prince*.—An exceedingly beautiful and very distinct variety; the flowers large, the upper petals bright bronze, the lower petals deep rich violet-purple.

To Messrs. J. Veitch and Sons for *Fig Negro Largo*.—A valuable variety sent out by the firm some years since, and now enjoying a high degree of popularity; the tree is of free growth and very productive; the fruits are large, pyriform, and marked with longitudinal ribs; the flesh bright red, very juicy, and richly flavoured.

WEST OF SCOTLAND PANSY SOCIETY.

The third annual exhibition was held on the 26th ult., in the City Hall, Glasgow. There was a large display of show and fancy pansies, pinks, and roses. Pansies, of course, formed the major portion of the exhibition, and the blooms shown were of very fine colour and growth, including several new varieties. Among the pansies sent forward by nurseriesmen, those from Messrs. W. Paul and Son, Paisley, secured the first place in two classes, as also the same firm's pinks, which were large admirably-grown flowers. In the nurserymen's class for roses Messrs. A. Dickson and Sons, Newtonards, and Mr. Hugh Dickson, Belfast, won the leading prizes with magnificent blooms. The following are the principal awards:—

PANSIES.

Open to Nurserymen.—Twenty-four show pansies, distinct varieties: first (timepiece) William Paul and Son, Crossflat Nurseries, Paisley, with grand specimens of *D. Malcolm*, *Artemis*, *Peter Lyle* (seedling), *James Clelland* (seedling), *W. Shearer*, dark self; *Mrs. Galloway*, *Mrs. Dobbie*, white self; *Golden Queen*, yellow self; *R. Pollock*, *D. Robertson*, *Baillie Cochran*, *R. Donaldson*, *Try Me O* (seedling), yellow grounds; *Fair Maid*, *Mrs. D. Wallace*, *Mrs. Muir*, *Mrs. J. G. Paul* (seedling), *Tickler*, *Jeannie Grieve*, *Sweetness* (seedling), white grounds, and four seedlings. Second *J. Sutherland*, *Victoria Nursery*, *Lenzie*; third, *W. Dickson*, *Ladyburn Nursery*, *Paisley*. Twenty-four fancy pansies, distinct varieties: first (silver medal) William Paul and Son with brilliantly coloured flowers of great size and substance, *H. L. Blacklaw*, *Mrs. H. Hunter*, *James Gardner*, *Catherine Agnes*, *Thalia*, *Livadia*, *William Windle*, *Sir P. K. Murray*, *R. Goodwin*, *Tom McComb*, *Mrs. Jamieson*, *John Taylor*, *Mrs. Russell*, *Earl Beaconsfield*, *Schoolmaster*, *Hecla*, *Sultana*, *R. K. Mitchell*, *William Stewart*, and five seedlings; Second *William Dickson*; third *J. Sutherland*.

Open to Gardeners.—Twenty-four show pansies, distinct varieties, first (silver medal) Hugh Stewart, Ayre, with *J. P. Barbour*, *R. Black*, *Rev. J. Morrison*, *Golden Circle*, *Mrs. Dobbie*, *Silverlight*, self; *Miss Band*, *Miss Ritchie*, *Fair Maid*, white grounds; *W. Robin*, *A. Cameron*, *D. M'Hutchinson*, *Baillie Cochran*, yellow grounds, and several seedlings; second *D. Findlay*, *Campsie*; third *R. Stewart*, *Lenzie*. Twenty-four fancy pansies, distinct varieties: first (silver medal) *R. Stewart* with large blooms of *Mrs. E. H. Wood*, *Mrs. Findlay*, *Mrs. Jamieson*, *Hecla*, *Countess of Home*, *Mrs. Scott Plummer*, *W. McIntosh*, *Mrs. Russell*, *W. Windle*, *Ringleader*, *Jane A. Martin*, *Catherine Agnes*, *G. Nettleship*, *Beaconsfield*, *Mr. J. Watt*, *Hugh Paton*, *Mrs. Taylor*, and seedlings; second *D. Findlay*; third *A. Duncan*, *Paisley*.

Open to Amateurs.—Eighteen show pansies, distinct varieties: first (silver medal) *D. Malcolm*, *Kirkintilloch*, with beautiful blooms of *Alexander Watt*, *Rev. J. Morrison*, *Crosshill Gem*, *Mrs. Cadzow*, *Gomer*, *Mrs. Dobbie*, *Mrs. Muir*, *Mrs. Ritchie*, *Mrs. Arthur*, *Miss Ritchie*, *Robert Burns*, *J. B. Robertson*, and several seedlings; second *John Stewart*, *Campsie*; third *J. S. Ritchie*, *Denny*. Eighteen fancy pansies, distinct varieties: first (silver medal) *D. Malcolm* with well grown examples of *Mrs. Forrester*, *Catherine Agnes*, *Mrs. Jamieson*, *A. Stephen*, *Master Dan*, *R. Goodwin*, *Mrs. Russell*, *Earl Beaconsfield*, *Sir P. K. Murray*, *Ringleader*, *Mrs. J. Stewart*, *Perfection*, *Mrs. E. H. Wood*, *Lady Falmouth*, *D. Wallace*, and three seedlings; second *John Stewart*; third *J. Black*, *East Calder*.

Open to All.—Twenty-four show Pansies, distinct varieties: first (silver medal) *William Storrie*, *Lenzie*, conspicuous blooms were *J. P. Barbour*, *J. Dalziel*, *A. Watt*, *D. Malcolm*, *G. McMillan*, *W. Crockett*, *Snowball*, *Mrs. Cadzow*, *Mrs. Ritchie*, *Mrs. D. Wallace*, *Miss Ritchie*, *Captain Spiers*, *Jeannie Grieve*, *R. Pollock*, *Mary McComb*; second *William Paul* and Son. Twenty-four fancy pansies, distinct varieties: first (silver medal) *William Storrie* with grand flowers of *W. McIntosh*, *James Reid*, *Catherine Agnes*, *A. Stephen*, *Mrs. Scott Plummer*, *Mrs. Barrie*, *Mrs. Kidd*, *R. Goodwin*, *Mrs. Taylor*, *Earl Beaconsfield*, *Mrs. McTaggart*, *Luck's All*, *Mrs. Jamieson*, *J. C. Murray*, *L. V. Heathcote*, *G. H. Gill*, *Mrs. Main* (seedling), *Bob Montgomery* (seedling), *Mrs. Storrie* (seedling), *R. Cowan*, *Perfection*, *Mrs. E. H. Wood*, *W. Cuthbertson*, and *W. Dickson*; second *John Stewart*; third *A. Duncan*.

* The Floral Committee objected to the name of this *nepenthes*, as calculated to mislead cultivators, and suggested that it might with more propriety be named "*Lady Hooker*."

PINKS.

Nurserymen.—Twenty-four pinks, distinct varieties: first William Paul, and Son with beautifully-laced flowers of William Paul, William Murray David Saunders, Premier, W. Bruce, Dr. Masters, Henry Cannell, Col. Holms, Emmeline, Bertram, Egeria, Nelly, Modesty, Emily, Captivation, W. Kilgour (seedling), and eight unnamed seedlings; second William Dickson; third Dicksons and Co., Pilrig Nurseries, Edinburgh.

Open to Gardeners and Amateurs.—Twelve pinks, distinct varieties: first A. Duncan with W. Murray, W. Paul, Bertram, Tottie, Modesty, Enid, Mrs. G. Dickson, Dr. McLean, Ada Louise, W. Bruce, Egeria, Teaser; second John Stewart; third T. M'Crorie, Kilbarchan.

Open to Amateurs.—Twelve pinks, distinct: first William McIntosh, Glasgow, with William Paul, Oimara, Adela, Ada Louise, W. Edmiston, J. Carswell, Kittiwake, John Facer, Fireman, Mary Auberton, John Ball, Bertram; second A. Borrowman, Glasgow; third E. Dalglish, Glasgow.

ROSES.

Nurserymen.—Forty-eight blooms, distinct varieties: first H. Dickson, Belfast, with large magnificent flowers of Paul Neron, Marguerite de St. Amand, Oxonian, Mme. E. Verdier, Sultan of Zanzibar, Elie Morel, Constantin, Fretiakoff, Albert Paye, Mme. C. Wood, Comtesse de Serenye, Duchess of Bedford, Princess Mary of Cambridge, C. de Rambaud, Mme. Nachury, Alfred Colomb, La France, Etienne Levet, Prince of Wales, Mrs. Harry Turner, Lælia, Marie Baumann, Captain Christy, Charles Darwin, Mme. Montet, Auguste Rigotard, Mlle. E. Verdier, Duke of Teck, Baroness Rothschild, A. K. Williams, Reine Blanche, Auguste Buchner, Lady Sheffield, Sénateur Vaisse, Mme. Marie Verdier, Duke of Edinburgh, Pride of Waltham, Marquise de Castellane, Countess of Oxford, Mme. Vidot, Mme. C. Crapelet, Souvenir d'un Ami, Général Jacqueminot, Belle Lyonnaise, Louise Van Houtte, Mlle. C. Soupert, Horace Vernet, Peach Blossom, and Duc de Rohan; second Alex. Dickson and Sons, Newtonards. Twenty-four blooms, distinct varieties: first A. Dickson and Sons, who, in addition to several of those named above, had grand specimens of Helen Paul, Dr. Andry, Wilhelm Koëlle, Harrison Weir, J. S. Mill, Mme. Marie Finger, Guillaume Guillemot, Marquis of Salisbury, May Quennell, Mrs. Baker, Mme. Rivers, Duchesse de Valombrosa, and Marie Baumann (awarded the best rose in the exhibition); second H. Dickson; third William Montgomery, Cardross.

Gardeners.—Twelve blooms, distinct varieties: first William Parlange, Row, with finely-grown flowers of La France, Lord Macaulay, Beauty of Waltham, Marie Baumann, Sénateur Vaisse, Général Jacqueminot, Mlle. E. Verdier, Jean Liabaud, Etienne Levet, Baroness Rothschild, Mons. E. Y. Teas, and Paul Neron; second John McColl, Row; third John Stewart, Camisle.

Amateurs.—Twelve blooms, distinct varieties: first D. Wallace, Rothesay, with nice blooms of Edouard Morren, Millar Hays, Captain Christy, Marie Baumann, Thyra Hammerich, Reynolds Hole, Sénateur Vaisse, Beauty of Waltham, Madame Caillat, Maurice Bernardin, Mrs. Veitch, and Alfred Colomb; second D. Black, Blairmore; third John Kidd, Rothesay.

Gardeners and Amateurs.—Twelve blooms, tea or noisette roses, distinct varieties: first A. H. Gray, Dunkeld, with superb specimens of Catherine Mermet, Marie Guillot, Triomphe de Rennes, Souvenir d'un Ami, Cheshunt Hybrid, Gloire de Dijon, Madame C. Kuster, Marie Van Houtte, Rubens, Comtesse Ovaroff, Madame Lambard, and Alba rosea; second W. Parlange. Twelve hardy herbaceous flowers, distinct: first (silver medal) P. Sinclair, Campsie, with large specimens of Campanula coronata, Linaria purpurea, Actea spicata, Stenactis speciosa, Achillea serrata, Alstroemeria aurea, Potentilla W. Rollisson, Coreopsis lanceolata, Lychnis chalcedonica fl. pl., Gaillardia Admiration, Mimulus cardinalis, and Lychnis dioica alba fl. pl.; second D. Findlay; third J. Stewart.

BECKENHAM AND ALEXANDRA HORTICULTURAL SOCIETY,
AUGUST 7.

The annual exhibition of this useful and flourishing society was held in the grounds of the Rectory, Beckenham, on Monday, and proved the most successful of the many excellent shows held in the district. Special encouragement is afforded to cottage gardeners, and the two spacious tents devoted to the productions of this class of cultivators were filled to repletion, and both plants and vegetables were of great excellence, the potatoes being particularly good. The competition was also more spirited in the division set apart for amateurs and gardeners than on any previous occasion, and the collections generally were of a higher degree of merit. The weather was delightful, and the attendance of visitors most satisfactory.

The groups of plants arranged for effect formed a strong and very pleasing feature, as in the class were some five or six competitors. Especially good were the arrangements of Mr. Reed, Elm Lodge, Beckenham; Mr. Steer, Penge; Mr. Pascoe, Beckenham, and Mr. Darsley, Beckenham. Ferns were represented by excellent collections from Mr. Steer, Mr. Ridgwell, and Mr. Reed, who were awarded the prizes in the order of their names. In the class for a specimen plant the prizes were awarded to Mr. Pascoe, Mr. Ridgwell, and Mr. Reed, all of whom staged ferns of great excellence. Coleus included a remarkably fine collection from Mr. Darsley, which consisted of specimens large in size and brilliantly coloured. A fine collection of six plants in bloom was contributed by Mr. Steer, who had a well-flowered example of *Cattleya Dowiana*; Mr. Steer, second, staging amongst other things a good specimen of *Cattleya crispa*; Mr. Ridgwell third. *Caladiums* in collections of six were staged in grand condition by Mr. Reed, Mr. Pascoe, and Mr. Steer, who were first, second, and third respectively. *Fuchsias* were considerably above the average, and the best examples were staged by Mr. J. Wright, Mr. Reed, and Mr. Steer. In the class for six fine-foliage plants the prizes were awarded to Mr. Reed, Mr. Ridgwell, and Mr. Pascoe, all of whom exhibited remarkably well. Tuberous begonias were produced in splendid style, the plants neat in growth and well flowered, the principal exhibitors were Mr. J. Wright, Mr. Spredbury, and Mr. S. Turner. Balsams were staged by Messrs. Turner and Steer; and cockscombs by Messrs. Darsley, Reed, and Steer. The leading prizetakers in the classes for gloxinias and achimenes were Mr. Steer and Mr. Reed. Plants suitable for the decoration of the dinner table were staged in capital condition by Mr. Pascoe, Mr. Reed, and Mr. Poffley, the majority of the examples being of a suitable size and well coloured.

There was a good display of cut flowers, and the most successful exhibitors in the several classes were Mr. Abery, Mr. Ridgwell, Mr. Poffley, Mr. Reed, and Mr. Darsley.

Fruit was staged in capital style, and proved as usual very attractive to the visitors. Mr. Wright and Mr. Mackintosh were first for black and white grapes respectively, and Messrs. Steer, Turner, and Reed exhibited well in

the grape classes. Mr. Reed and Mr. Poffley were successful in taking the first and second prizes for collections of fruit.

The competition in the classes for vegetables was exceedingly good, the successful exhibitors already mentioned taking an active part in the competition in the several classes. For a collection of vegetables Mr. Reed was first, Mr. Tabery second, and Mr. Wright third, and the most successful of collections of potatoes were Mr. Townsend's and Mr. Tabery's.

The most successful of the exhibitors in the cottagers' classes for plants were Messrs. Horlock, Headley, Lovel, and Davis; and in the classes for potatoes, for which liberal prizes were given by Peter McKinlay, Esq., and Messrs. Sutton and Sons, the most successful of the exhibitors were Mr. Powers and Mr. Headley.

The arrangements, under the direction of Mr. Rogers, the indefatigable secretary, were eminently satisfactory; and the judges were Mr. P. McKinlay, Mr. Shirley Hibberd, Mr. John Laing, Mr. Poffley, and Mr. George Gordon.

EAST BARNET VALLEY SOCIETY.

This society, which has been formed chiefly for the encouragement of cottage gardening in the district, held its first exhibition under the most auspicious circumstances. The show was held in the grounds of Greenhill Park, the residence of the Rev. G. Twentymen, and the results fully justified the labours of the promoters. There was a good competition in most of the classes, and plants, flowers, fruits, and vegetables were presented in admirable condition by gardeners, amateurs, and cottagers.

There were also numerous miscellaneous contributions of great merit. For example, Messrs. W. Paul and Son, of Waltham Cross, exhibited a large and excellent collection of cut roses. Messrs. W. Cutbush and Son, Highgate and Barnet, contributed a fine group of plants; and Mr. W. Howard, of Southgate, staged a very tastefully-arranged and attractive group, comprising palms, pandanads, ferns, and carnations. F. Bevan, Esq., sent a splendid collection of vegetables, which were much admired by both judges and visitors, the former much regretting that they had not an opportunity of expressing a formal opinion on the productions. Messrs. Appleby, of East Barnet and King's Cross, exhibited an attractive collection of plants and a charming display of bouquets and baskets of flowers; these attracted much attention, and much disappointment was felt by the visitors that no card giving the names of the exhibitors was attached. Mr. S. Parker also sent a large and fine collection of plants, which added much to the attractions of the show.

The classes for plants in which prizes were offered were mostly well filled, and the collections generally were remarkably good. In the open class for a group of plants Mr. Tuisley was first with a capital arrangement, and Mr. Widley and Mr. Wright were second with groups of a most meritorious character. An extra prize was awarded to Mr. Hall. In the gardeners' class for six fine-foliage plants Mr. Wright occupied the post of honour, with Mr. Widley second. There was a good competition for a collection of six ferns, and the prizes were awarded to Mr. Widley, Mr. Wright, and Mr. Hall. The premier award for a single specimen was made in favour of Mr. Hunter. Mr. Wright was successful in taking the leading prizes for zonal pelargoniums and fuchsias. The finest begonias were those staged by Mr. Tuisley, who occupied the first place in the class for six. Excellent cockscombs were shown by Mr. Day and Mr. Holland, who were first and second respectively. Coleus were staged in considerable numbers, and the majority of the specimens were well coloured. The successful exhibitors of these free-growing subjects were Mr. Hunter, Mr. Wright, and Mr. Day. The first prizes for twelve greenhouse plants and collections of British ferns were awarded to Mr. Tuisley, who exhibited remarkably well in these classes.

There was a very satisfactory and attractive display of fruit. In the class for two bunches of white grapes Mr. Widley was first, and in the corresponding class for black grapes the premier award was made in favour of Mr. Wright. Peaches included fine dishes from Mr. Hunter, Mr. Widley, and Mr. Wright, who were awarded the prizes in the order of their names. Mr. Widley was successful in taking the first prize for a collection of dessert fruits and a similar award for a collection of hardy fruits. The first prizes for melons and raspberries were awarded to Mr. Day.

Cut flowers were generally of excellent quality and contributed their share to the attractions of the show. Very beautiful were the table decorations exhibited by Miss Hasluck, who was awarded the first prize in the class specially provided for ladies. Mr. Hall contributed a very beautiful hand bouquet and Mr. Wright staged two good boxes of roses in the classes for twenty-four and six, the first prize in each case being awarded. Mr. Bentley was first for six bunches of cut flowers.

There was a spirited competition in most of the classes for vegetables, and the quality of most of the productions was very satisfactory. For a collection of twelve and six Mr. Wright was first, with Mr. Widley second, in the first mentioned of the two classes, and Mr. Day second in the other. Mr. Widley was first for a collection of potatoes, and Mr. Hunter first for a brace of cucumbers. Mr. Biddlecombe was awarded the first prize for a dish of peas. The cottagers' vegetables were particularly good.

Replies to Queries.

Doyenné du Comice Pear.—T. R. J.—Your pot trees are insufficiently fed, and it is too late now to save the crop. The rusty marks on the skin will generally be found on pears that grow slowly in consequence of insufficient sustenance at the roots.

F. W.—You will do well to sow White Tripoli onion, prickly spinaoh, Brown Cos and Hammersmith lettuce, Rosette colewort, and Six Weeks turnips. The sooner these are in the better. The other subjects in your list should not be sown now; it is too late.

Clematis.—E. W.—Your clematis probably has exhausted all the available supplies of nourishment, and is now suffering through the sudden rise of temperature with strong solar light. The sample sent suggests that the border needs renewing or refreshing. We have seen (and reported on) many instances of Clematis Jackmanii running out through exhaustion.

Douglas Pine.—J. C.—In the books it is stated that the Douglas pine attains a height of 150 feet, which is far below the truth. The famous tree at Dropmore, raised from seed sown by Mr. Frost in the year 1827, is already nearly 120 feet high. The Douglas flag-staff at Kew is 159 feet in length, whereof a length of 12 feet is hidden in a brick well. The Douglas flag-staff at Wimbledon is 153 feet total length. The age of the Kew specimen is estimated to be about 250 years.

The House, Garden, and Home Farm.

BY THE SEASIDE.

RUN in, glad waves, scooped in transparent shells,
Which catch soft lights of emerald ere they break;
Let the small ripple fret the sand, and make
The faintest chime of music, such as dwells
Far down within the sea-conch's murmuring cells,
While, hovering o'er the spray, the white birds wet
Their wings, and shouting fishers draw the net
To land, and far sails glitter on the swells.
'Tis bliss to rest, the while these soft blue skies
Breathe over earth their benison of peace,
To feel those lowly forms enchant the eyes,
And grow into the mind by slow degrees,
Till breathless as a woodland pool, it lies
And sleeps above its sleeping images.

JAMES DRUMMOND BURNS.

THE HOUSE.

AMONGST the flowers now available for indoor decorations are the single and pomponé Dahlias, which afford a remarkable diversity of colour, are elegant in appearance, and stand well in a cut state. The yellow, the scarlet, and the white single dahlias are especially attractive when judiciously arranged with fern fronds of a rather bold character, and are as useful for dressing épergnes for the dinner table as for filling vases in the drawing room. In the pompones we have many beautiful shades of rose, lilac, and purple, and these can be turned to good account in combination with the colours mentioned in connexion with the single flowers. We allude to these dahlias now to enable those of our readers who may be interested in providing a supply of cut flowers during the latter part of the summer and in the autumn to make their acquaintance, and determine how far they are suited to their requirements.

THE GARDEN.

CELERY to be earthed up after heavy rain for a good watering; and with care, so that the mould does not find its way to the hearts.

GREENHOUSES to be cleared out and cleansed, and if needful repaired and painted, and made ready for re-stocking. All woodwork and brickwork should be scrubbed, and the latter washed with hot lime, and all holes stopped with cement. This process will clear away vermin, and do much to prevent mildew and other plagues in winter. If painting and glazing are not done at once the house may have to be re-stocked before the effluvium consequent on the operation has been dissipated, and injury to the plants may be the result.

HERBACEOUS PLANTS of many kinds may be divided now. All the low-growing tufted plants, such as *Aubrietia purpurea*, *Arabis*, &c., may be parted, so that each little tuft has a few fibres; if shaded and kept watered for a week they will soon make new roots, and form nice tufts to remove from the reserve ground to the borders and beds in early spring. It is not too late to put in cuttings of *Iberis sempervirens*, one of the best of the white spring flowers.

MUSHROOMS may be raised in plenty in old frames or at the back of a shed. Collect a good heap of short dung that has not been fermented, spread it out, and turn twice at intervals of a week; then add turfy loam in the proportion of one-sixth, and make up the bed eighteen inches deep, beating it down well as the work proceeds. Let it remain till there is a brisk heat, then insert the spawn in pieces of the size of an egg about four inches apart, and cover the bed with two inches of fine loam or rotted turf.

ORCHID HOUSE will need some revision, to separate plants that are going to rest from those that are still actively growing. Encourage growth in young specimens recently potted, but as the growth of any orchid appears to be completed gradually withhold water, and remove it to a cooler part of the house.

PEACHES and NECTARINES under glass should now be fully exposed night and day by removal of the lights, if it can be conveniently done. Thin out the young wood of the season, to promote the ripening of all the good shoots that have been laid in. The borders in which the trees are planted may be allowed to become comparatively dry with advantage.

PINES in a growing state to have a moist air and a steady bottom-heat. Shut up early, and at the same time sprinkle the bed: this will greatly help any fruit now swelling. The bottom-heat for pines must not be less than 90 degree.

Sow Collards, Red Dutch and Sugar-loaf Cabbage, Endive, Hammer-smith Lettuce, Salad Onions, Golden and Normandy Cress, Flanders Spinach, and Stone Surnip.

SPINACH.—Round-seeded sown at once will yield a nice supply to vary the produce of the season. Sow also Flanders, to stand the winter.

STOVE PLANTS must be prepared betimes for the winter by gradually withholding water from such as have completed their growth, and exposing as much as possible to air and sunshine all hard-wooded plants, that the growth of the season may be completely ripened.

STRAWBERRIES to fruit next year should be planted at once, and the surplus runners finally removed from the old plants. Those rooted in small pots will require a shift without delay: repot them *firm*, in a sound loamy compost, and keep well watered.

VINES from which the fruit has been cut will be better if exposed as advised above for peaches. Open all the ventilators night and day, and slightly reduce the number of the laterals.

THE HOME FARM.

WE have no such fodder plant as *Trifolium incarnatum* when hay and Italian rye and other good things run short, and fodder is always a great subject during and following a season of heat and drought. Whoever can foresee a scarcity of feed next spring will do well to sow *Trifolium* now as soon as possible, to catch what remains of the growing time. To be forewarned is to be forearmed, so "they say;" but often the forewarning falls far behind the demand for well-fed goslings from the middle of next month, the strongest of the birds must be selected and have special attention in the matter of feeding to ensure their being in good condition when wanted for the table. There is perhaps no better food for goslings to be killed in a month or so hence than oats, crushed or whole, and if they have the run of the fields it will not be

necessary to give them any other. But those kept in enclosed yards should have also moderate supplies of green food and oat or bean meal mixed with skim milk. Scraps from the kitchen, if sweet, may be utilized, but kitchen refuse in a sour state and house wash should not be employed for feeding purposes at this stage. Ducks also should be fed in much the same manner as advised for geese, and it may be added that they should have access to a sufficiency of water. We direct attention to the matter at the present moment because it is too much the practice to insufficiently feed both ducks and geese until within a short time of their being required for the table, and then to supply them most liberally with foods of a highly fattening character. In consequence, they invariably lack the delicate juiciness characteristic of those liberally supplied with nutritious food from the first.

The Household.

A FEAST OF FUNGI.

IN the issue of the Magazine for September 16, 1876, the various modes of cooking mushrooms are treated in detail. That paper may now be supplemented with some seasonable remarks on other esculent fungi, of which several valuable kinds are available for those who can, maugre all prejudice, appreciate a good thing. The prejudice, it must be confessed, is a difficulty experienced by many who are incapable of bigotry or mere narrowness, and arises out of the common fear of injury to health by the eating of poison. It is a fact, however, that a vast amount of wholesome and delicious food is lost through this prejudice, and those who are wise will learn to distinguish between fungi that are wholesome and such as are deleterious or only "suspicious." Between the wholesome and toothsome fungi that everybody ought to know how to gather, cook, and eat, and the fungi that are decidedly objectionable there is a borderland peopled by fungi that may be regarded as proper subjects for experiment. Now, it is intended in the notes that follow to keep clear of the dangerous and the experimental, and to make mention of those only that may be eaten with perfect safety, and that for the most part are easily distinguished when met with. To the townsfolk, who depend upon the greengrocer for mushrooms and the grocer for ketchup, these notes will be of little use, but the occupant of a country house may be advised to give attention to them. We have many times obtained from our own gardens and grass lands many of the finest edible fungi in addition to the far-famed Mushroom (*Agaricus campestris*), and in a country ramble at this season of the year it is altogether likely that one who has eyes and a little knowledge may obtain a good dinner and aids to dinner for weeks to come; for while some of the edible fungi must be consumed while fresh, there are others suitable for drying and that may be put away in the store to be used at any other time in soups, ragoûts, and other dishes.

THE FAIRY-RING MUSHROOM, *Agaricus prunulus*, is one of the very best, easily found, and scarcely to be mistaken. As it appears only in the spring, it is not now in season; but spring will soon return, and many who now read these notes will perhaps remember when they again see the creamy round-headed fairy-ring fungi that they are wholesome, delicate, and of great value to a cook who is not the slave of prejudice. They may be cut up and dried in an airy shed, and may then be threaded and stewed away. While fresh they may be put into gravies and beef tea, or added to a ragoût, or baked in a brisk oven with slices of thin bacon and pepper and salt. Dr. Badham, in his "Esculent Funguses," says, "It is the most savoury fungus with which I am acquainted;" and he adds a note on Sterbeck's White Mustard, which may be eaten with this and other fungi: "Bruise in a mortar some sweet almonds with a little water, then add salt, pepper, and a little lemon juice; rub together till the whole is of the consistence of common mustard."

THE PARASOL MUSHROOM, *Agaricus procerus*, is easily distinguished by its long stem, wide parasol-shaped top, and snake-like markings on the stem. But perhaps the most striking character is the shaggy brown leather appearance of the pileus or cap, which may be likened to a parasol ornamented with brown trimmings on a cream-coloured ground. This may be cooked in a variety of ways, one of the best being to fry it in oil with fine herbs. It is also available for making ketchup.

THE BROWN BOLETUS, *Boletus edulis*, is, like many other of the good fungi, easily distinguished. The stem is always thick and solid, at first white, afterwards fawn colour and reticulated. The cap is nearly flat, smooth, with a thick margin; the colour light or dark brown or bronze; the under surface nearly flat, and showing a slight depression near the stalk, this under side being at first white, afterwards olive-green; the whole substance firm, the flesh white and unchanging. Berkeley says, "The large size, truly netted stem, smooth pileus (or cap), and agreeable nutty flavour easily distinguish this species."

It may be cooked in every imaginable manner added to a ragoût or to beef-tea it enriches the gravy and improves the flavour; in a fricassee with lean ham, or fried in oil with herbs, or roasted with onions and butter, it is one of the finest edible fungi in the world. Badham proposes thus to make boletus soup:—"Having dried some in an oven, soak them in tepid water, thickening with toasted bread, till the whole be of the consistence of a *purée*, then rub through a sieve, throw in some stewed boletuses, boil together, and serve with the usual condiments."

BOLETUS SOUP.

I have made a better boletus soup than Badham provides for, but I had at the time a large supply of the fresh fungi gathered on the borders of a pine wood. I threw a lot into some strong beef stock that had not been in any way flavoured. While they were stewing

I mixed in a basin a little flour, ketchup, and Worcester sauce, adding a very little grated nutmeg, red pepper, and a rather liberal allowance of salt. I then prepared a few of the best boletuses that I had reserved for the purpose by cutting them into pieces about the size of a shilling. The waste I threw into the pot, and with it a clove of garlic. After a quarter of an hour's simmering the soup was strained, and the thickening and the pieces were added, and it was again boiled for five minutes, and served with croquets of buttered toast. Almost any of the edible fungi may be made into soup in the same manner.

THE HORSE MUSHROOM, *Agaricus exquisitus*, is not in high repute, but it is truly grand in quality, and one of the very best for broiling. As it grows to a weight of five or six pounds, and has even been met with weighing fourteen pounds, it generally offers a substantial meal as well as a treat. Two friends lately brought me half a one. They had been rambling over some grass land near Harrow and found an immense mushroom. They carried it to an inn and had half of it served with a steak for their dinner, and they declared it was a right royal dinner. The half they gave to me I steeped in oil for an hour, then fried it with a little minced garlic and parsley, with the addition of pepper and salt, and served it with a lemon. It gave great delight, but there was more than four of us could eat with toasted bacon and kidneys, and what was left improved a ragout the next day. This great mushroom is called "white cups" in the markets, and is sold for making ketchup, which is a very good use to put it to.

THE ORANGE-MILK OR MUSSEL MUSHROOM, *Agaricus deliciosus*, grows in pine woods, and when met with is usually very abundant. It will repay the fungus hunter to make its acquaintance, and to be able at any time to distinguish it from *Agaricus torminosus*, which in many points resembles it, but is a most undesirable species. The stem is short, the pileus or cap flattish, ringed, the colour dull brownish orange, and the gills are of the same colour. The flesh is firm, well-flavoured, and thoroughly wholesome. The one it nearly resembles, and which is to be avoided, may be distinguished by definite signs. The true *A. deliciosus* is full of red orange milk, which turns green on exposure to the air, and the whole plant turns green when bruised. But the other and obnoxious kind has white juice, which does not change at all. Therefore the casual name, "orange-milk mushroom," will always serve as a guide to it, and the other name will suggest that in flavour it somewhat resembles mussels. It may be cooked as described for other kinds, but it is best fried or baked in butter.

THE CHAMPIGNON OR SCOTCH BONNETS, *Agaricus oreades*, is very plentiful in the autumn on heaths and dry pastures, and often occurs in rings. The writer of this was accustomed to secure a store every year from a spot on Hampstead Heath where it grew in such abundance that it was a purely mechanical business to gather a peck or two. They were dried by spreading them out in the sun, and were then stored away for use in soups and gravies. We have had them in store three or four years in paper bags, and they have never become mildewed, and have scarcely lost any of their delicious nutty flavour. It is important to be able to distinguish this agaric, and it is also very easy. The stem is slender, glossy, and hollow, pinkish, or yellowish brown; the pileus the same colour as the stem, one to two inches broad; very tender when moist, but when dry firm, and indeed of a leathery consistence. Though a most valuable little mushroom, it is not well adapted for cooking as a dish, but it may be fried in oil or butter. In any case, whether put into gravy or fried, it should have very little cooking, or the flavour will be dissipated.

THE MOREL, *Morchella esculenta*, is a fungus people read of, as they do of truffles, and of which too often they are equally ignorant of as matters of fact. The morel is much used in first-class cookery, and purchased at high prices by persons who might often find it in abundance in their own orchards. For several years I had a supply in the early part of the summer from a common garden border consisting of the commonest clay soil. They appeared in one spot only for some six or seven years in succession, and then we saw no more. It is easily recognized, and indeed, once seen and known as the morel, it can never be forgotten or mistaken. The stem is short and slightly swollen, the pileus conical and regularly reticulated with a sort of honeycomb pattern, the colours grey and dull olive or dingy brown. It is hollow both in the pileus and the stem.

The fame of the morel is illustrated by the elaborate directions for dressing it that may be found in French and Italian cookery books. They require to be carefully cleansed and made quite dry, in whatever way they are to be cooked. I have only stewed them, and they were always so much enjoyed that, as my supply was never abundant, I did not care to try any other method. They were put into strong gravy with a liberal allowance of salt and pepper and kept simmering for half an hour. Then some freshly-chopped parsley and minced lean ham and a little thickening were added, and all boiled up together for a few minutes. A large buttered toast was then put into a hot dish and the stew turned out upon it. Badham recommends binding them with the yokes of eggs, and some other methods, which appear very tempting. One of these is as follows: "Divide them across, put them on the fire with some parsley, shallot, chervil, burnet, tarragon, chives, a little salt, and two spoonfuls of fine oil. Stew till the juice runs out; then thicken with a little flour; serve with bread crumbs and a squeeze of lemon."

THE OX-TONGUE OR LIVER FUNGUS, *Fistulina hepatica*, is well known to observers who ramble in the country, and is generally spurned by them as quite unlikely to be worth eating. But it is a very good thing, and its appearance need not trouble one. It is commonly found on the oak tree; it has no distinct stem, but spreads out like a mass of flesh, at first resembling a tongue, afterwards becoming larger and darker so as to resemble a liver. It frequently grows to

an immense size, and the larger the better when wanted for gravy. But when young it makes a capital grill if put on a clear and not fierce fire, and carefully buttered while cooking. It may also be stewed with herbs and a few kidneys. When very large, however, it is best to stew it down, and having secured the gravy throw the flesh away. I once had it fried with thin slices of bacon, and it was excellent.

THE PUFF-BALLS, *Lycoperdon plumbeum* and *L. bovista*, are well known as occurring in abundance on chalk downs. They are spherical, white, or creamy grey. The great puff-ball, *L. giganteum*, a very handsome and singular fungus, is not considered edible. The small ones that come in crowds in dry places are, however, first-rate if young and fresh, and the best way to cook them is to slice them and fry them in oil with egg and bread crumbs. They may also be stewed in rich white sauce for a few minutes. When old or stale they are useless.

X. Y. Z.

Law.

ENCLOSING A VILLAGE GREEN.

At Hampstead Police Court, Robert Williams was charged, before Messrs. Smith, Marshall, and Loch, with having unlawfully destroyed a fence at West-end Green, the property of Francis Thomas Fowle, builder, of Caxton Road, Shepherd's Bush. Mr. Atherley Jones, barrister, prosecuted; and Mr. S. Price, solicitor, of Walbrook, acting for a committee of residents at West Hampstead, defended. The "fence" was a hoarding placed around the greater part of West-end Green, Hampstead. Mr. Jones, in opening the case for the prosecution, said the summons was taken out under the 25th section of the 24th and 25th Vict., cap. 97, for unlawfully and maliciously breaking down a fence. The plot of land on which the fence stood had apparently been for some years in the possession of Mr. John Culverhouse, the freeholder. Some short time ago this land was sold to Mr. Fowle, the complainant. Mr. Fowle, intending to commence building operations, surrounded the land with a fence. On the night of the 17th ult., at half-past nine, some hundreds of men, armed with large hammers, broke down the whole of this fence, and took the fence into the centre of the land and set fire to it. Mr. Francis Thomas Fowle, the complainant, deposed to having entered into a contract with Mr. Culverhouse to purchase this land from him for £850. The damage done by the destruction and burning of the fence amounted to £40. Splaine, 253 S, deposed to seeing 100 or 150 men armed with crowbars, &c., emerge from the road leading to Mr. Potter's factory, and demolish the fence, defendant being one of them. Mr. Price contended that this had been a village green from time immemorial, and that the men were justified in breaking down the fence. Seven years ago Mr. Culverhouse put up a fence and that was destroyed, and he never took any proceedings in regard to it. A writ had just been issued at the suit of the Attorney-General against Mr. Fowle to uphold the right of the villagers to the green. Three witnesses, aged respectively seventy-four, sixty-seven, and fifty-two, who had known the green all their lives, were called to prove that it had always been used as a recreation place by the villagers. The Bench dismissed the summons, after a long hearing, on the ground that a *prima facie* claim of right had been made out, over which they had no jurisdiction. Four other summonses were withdrawn, as governed by this decision, and the remaining three were adjourned, as it was alleged those defendants took part in the burning. Costs for loss of time by the five first-mentioned defendants were allowed.

Literature.

Serial works received from Messrs. Ward and Lock comprise continuing parts of the following:—Dr. Adam Clarke's *Commentary on the Holy Bible*, part 16; *Amateur Work*, part 9; *Scientific Recreations*, part 11; *Universal Instructor*, part 22; *Land, Sea, and Sky*, part 10; Haydn's *Dictionary of Dates*, part 11; *Epochs and Episodes of History*, part 9; Beeton's *Dictionary of Science, Art, and Literature*, part 10; *Holy Thoughts on Holy Things*, part 11; Rollin's *Ancient History*, part 10; *Household Medicine*, part 10; Hallam's *Literature of Europe*, part 11; Beeton's *Book of Poetry*, part 21; *History of the World*, part 10; *Family Altar*, part 16; *Sylvia's Home Journal* for August.

D'Israeli's *Miscellanies of Literature* is in course of publication by Messrs. Ward and Lock, in the same style as the "Curiosities of Literature" just completed. This famous work of the elder D'Israeli will now be at the command of all who would possess it. It is to be completed in ten parts, at 6d. each.

Botanical Paper.—J. R.—Experienced plant hunters are not very particular what sort of paper they use in drying plants, except occasionally when troublesome subjects have to be dealt with: when a special paper is required there is nothing so good as Newman's botanical paper, which for many years was sold by the late Mr. E. Newman, at No. 9, Devonshire Street, Bishopsgate, at from 10d. to 1s. 8d. per quire. Whether it is still procurable we cannot say, but probably any stationer who understands his business could supply it. Common blotting paper answers very well for drying plants, and grocer's thick sugar paper is in favour with many.

The *Welcome* for August is a great sixpennyworth, comprising 64 quarto pages, and about thirty effective illustrations. On the front page is a bit of bird life from the pencil of Harrison Weir, and as fresh as the life itself. Amongst the portraits occur those of Dr. Grindrod, Berthold Auerbach, Rev. P. B. Power, Hadji Bilal, Mr. E. C. Delavan, and certain Maori and Nubian notables.

Familiar Wild Flowers, by F. F. HULME, and *Familiar Garden Flowers*, by SHIRLEY HIBBERD (Cassell), continue their course side by side in a merry sort of way. The pictures are veritable portraits, and Mr. Hulme is winning, as he deserves, a better reward in public approbation than a crown of gold or a State secure. But we must keep in mind that the exquisite finish of these pictures depends much on the spirit in which, as printers and publishers, Messrs. Cassell accomplish their part of the work. These two books will make acceptable presents for young people, and will be valued as table books, chiefly because of Mr. Hulme's drawings.

Notes of Observation.

VIOLA ARDWELL GEM.

FORMING part of the splendid display of violas in the nursery of Messrs. H. Cannell and Sons, at the time of the visit of the Belgian horticulturists to Swanley, was one under the name of Ardwell Gem, which attracted a considerable share of attention. This variety does not appear to be very well known, certainly not so well as its merits deserve, for it is very distinct in colour, and one of the most free and continuous flowering violas we have. It is free and compact in growth, and the flowers, which are produced in great abundance, are of medium size and of a pleasing cream or light straw colour. At Swanley it was very conspicuous amongst the light flowers, and at the present time there are some magnificent bands of it in the Prince's Gardens, Edinburgh, which show how well suited it is for flower garden decoration in districts in which the violas do well during the summer. In the upper garden, between the Waverley Market and the Scott monument, there is a broad ribbon border, of which this viola forms a part, and of the five or six classes of flowering plants employed in forming the ribbon not one could approach it in effectiveness. In fact, up to the end of July not one of the other subjects, which included zonal pelargoniums, verbenas, and violas, had flowered satisfactorily. There are also several large festoons of it in the gardens on the western side of the Scott monument. There are not many districts in England in which the violas make really satisfactory summer bedders, but they do exceedingly well in Scotland, usually continuing in bloom until quite the end of the season. In all parts of England they are, however, of much value for the mixed border, as they can be depended upon to produce a splendid display of colour until quite the end of June in the seasons most unfavourable to them, and in a well-arranged border there are other plants to maintain its attractiveness when the violas give out.

GEORGE GORDON.

RAPID FLOWERING OF GLOXINIAS.

On page 383 there appeared a paragraph under the heading of "Gloxinias at Reading," in which it was stated that fine plants carrying several flowers could be had in bloom from seed in six months. It is now our purpose to set forth more fully in detail how this can be accomplished. At Reading it is the practice to sow seed on the 1st of January, which is starting to work at the earliest possible time in the year. A good free light compost is made up of loam and leaf-mould in the proportion of about four-fifths of the whole, the remaining fifth being fibry peat and silver sand. The seed is sown on the surface: after the pots, being well drained, are filled with soil, and the seed sown thinly on the surface, for it is very small, and gently pressed into the soil. The pots are then placed in a gentle bottom heat, and the seed soon germinates. The best temperature is one of about 65 deg. to 70 deg. by day. The propagating bed at Reading is in a small span-roofed house about four or five feet from the glass, and this appears to be the best position for the effectual germination of the seeds. About the end of February the seed pots are gone over, and the strongest plants are selected and pricked off into pots. It is worthy of note that the strongest and earliest plants, when they flower, invariably produce purple blossoms, and as a rule plants yielding flowers of this colour are strong growers. A grower should not therefore depend on the strongest and earliest plants for any particular purpose, as they are certain to lack variety. In March the forwardest plants are potted singly into thumbs (72-sized pots), doing this very lightly, and placing the roots only just under the soil, so that when the plants begin to spread their leaves they may not touch the surface. When the weather is at all favourable the young plants are occasionally sprinkled overhead. At the end of April another shift is made into large 60-sized pots, and at the end of May into 32-sized pots, and they come into flower in June, and even earlier. So far, we have dealt only with the more advanced of the plants. Successional batches are similarly treated, and in this way a good succession can be had. What is done on a large scale at Reading can be done also on a small scale; and with care, and by the exercise of forethought, it is possible to have plants in flower and in good condition for a considerable portion of the early and late summer months. Indeed, by sowing good seed twice a year—say, in January and again at the end of April—it would not be very difficult to have gloxinias in flower during a good portion of the year. But it is useless to sow indifferent seed. It is true that fine strains of gloxinias are now pretty general, but care should be exercised in obtaining only that which is worth growing. The gardener generally has so much to do in a short time that he cannot afford to waste his time in raising and growing on that which is little better than rubbish. Let him secure good seed at the outset, and follow the directions herein laid down, and he can scarcely fail to produce something that will satisfy his eye and gladden his heart.

SEMPER AUGUSTUS.

CAMPANULA TURBINATA.

Seeing this figured in "Familiar Garden Flowers" reminds me of its immense merit as a rockery and border plant. It is sportive, and hence there are many varieties, of which it may be said that they are all good. But I must confess I prefer the original dwarf typical plant above all the varieties, for as we get away from this neat compact style we get into a weedy way and obtain variety at the cost of quality. It is the bane of the Weedists that as they set at nought the teachings of the Florists, they pay the penalty in being tempted to prefer the worst to the best varieties of plants. Hence I find inferior varieties of all kinds of hardy plants coming into favour, and Campanula turbinata is a special case in point. It is a capital plant to grow, and may be raised from seed to any extent. If the hardy men would throw out bad varieties as the florists do, they would enhance their own joy and that of other people.

NEW SARRACENIAS AT CHELSEA.

Hardly less interesting than the collection of nepenthes in the Chelsea nurseries of Messrs. J. Veitch and Sons is that of sarracenias. To the amateur with no structure at his command for plants requiring a high temperature for their successful cultivation the sarracenias are the most important, for many of the kinds are so hardy that they can be well grown in a cold frame, and none are so tender that they cannot be had in perfection in an ordinary greenhouse. At Chelsea the collection is remarkable for the excellent condition of the whole of the plants, and the great beauty of the new kinds which have a place in it. There were three novelties that particularly struck my attention the other day, and these were *S. melanorrhoda*, a very beautiful hybrid raised from a cross effected between *N. Stevensi* and *S. purpurea*: it has large and handsome pitchers of a bright red colour; *S. formosa*, a charming hybrid between *S. psittacina* and *S. variolaris*, in which the characteristics of its two parents are admirably blended, and *S. Courti*, a

handsome hybrid between *S. purpurea* and *S. psittacina*, with bright red pitchers of very distinct form. Amongst other insectivorous plants at Chelsea that are particularly worthy of notice are the numerous fine specimens of *Cephalotus follicularis*, better known as the New Holland pitcher plant, and the *Droseras*, which are grown with great success.

VISITOR.

INDIGOFERA FLORIBUNDA.

Trained to the end wall of one of the buildings which skirt the principal walk through the Chelsea nurseries is a very large specimen of *Indigofera floribunda*, which has been flowering splendidly for some time past. This attractive leguminous shrub is not much known, although it has long been in cultivation, and is very attractive when flowering as freely as in this instance. The growth is vigorous without being coarse, the leaves are elegantly pinnate, and the flowers are borne in good clusters and of a rich purple colour. *Indigofera floribunda* is not sufficiently hardy in constitution to be grown in the open shrubbery, excepting in warm sheltered spots, and this has doubtless prevented its coming into general cultivation. It, however, thrives admirably in some of the western counties, forming specimens of the most splendid description, and it is evident that in the neighbourhood of London it can be grown with success against a wall, in company with such comparatively tender subjects as *Escallonia macrantha*. It is far more beautiful than the better known *Indigofera decora*, which is considered by the majority of plant growers to be good enough to deserve a place in the greenhouse.

VISITOR.

Markets.

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Lemons.....	per 100	5s. 0d. „ 7s. 0d.
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Plums.....	per ½ sieve	4s. 0d. „ 5s. 0d.
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Cabbages.....	per bunch 0s. 9d. „ 1s. 6d.
Carrots.....	per bunch 0s. 4d. „ 0s. 6d.
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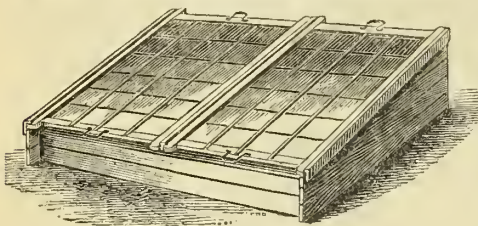
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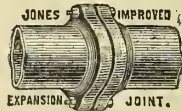
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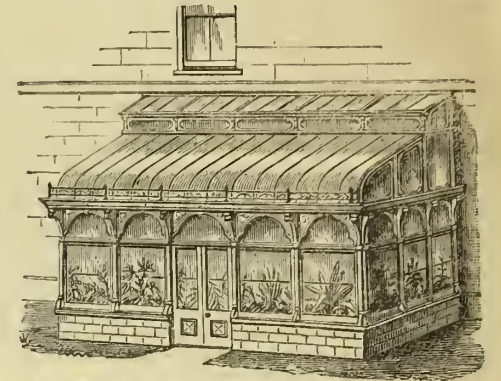
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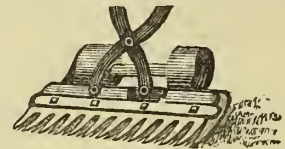
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			Rises.	Souths after Noon.	Sets.	Rises. After.	Sets. After.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882		
20	S	11th Sunday after Trinity.	4 53	3 13	7 11	—	9 18	5 22	5 37	2 30	2 47	61·6	Agapanthus umbellatus albus, G.	White.	232
21	M	Blackcock Shooting begins.	4 55	2 58	7 9	1 5	9 53	5 55	6 17	3 2	3 20	61·5	Alliameda nobilis, S.	Yellow.	233
22	Tu	First Quarter, 0h. 55m. morning.	4 57	2 43	7 7	2 7	10 35	6 38	7 2	3 42	4 3	61·4	Ixora Colei, S.	White.	234
23	W	Sir W. Herschel died, 1822.	4 59	2 28	7 5	3 5	11 29	7 31	8 2	4 27	4 56	61·3	Ixora Prince of Orange, S.	Orange-red.	235
24	Th	St. Bartholomew.	5 1	2 12	7 3	3 57	Morn.	8 40	9 25	5 27	6 5	61·2	Lilium speciosum punctatum, H. Rose & Whit.		236
25	F	David Hume died, 1776.	5 2	1 56	7 1	4 41	0 34	10 10	10 50	6 50	7 35	61·0	Nerine cornu-eans, G.	Scarlet.	237
26	S	Louis Philippe died, 1850.	5 3	1 40	6 59	5 18	1 45	11 28	—	8 15	8 53	60·9	Tacsonia Van Volxemi	Crimson.	238

The Gardeners' Magazine.

SATURDAY, AUGUST 19, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, AUGUST 22.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.

WEDNESDAY, AUGUST 23.—BURTON-ON-TRENT HORTICULTURAL SOCIETY. — Second Summer Exhibition.

THURSDAY, AUGUST 24.—READING HORTICULTURAL SOCIETY.—Autumn Exhibition

THE ORCHARD AND GARDEN CROPS of the present year are of a mixed character, scarcely satisfactory as a whole, and very unsatisfactory in some particulars. It will be seen that our correspondents agree with more than usual minuteness on some leading points, and this agreement may be attributed to a fact which has affected them in a nearly equal degree. The great gale of April 29 must be charged with having in a most conclusive manner blown our hopes away. We may reasonably assume, from the general character of the season and the present appearance of the trees, that this would have proved a great year for fruit had the trees been spared that dreadful trial. It might have been less productive of pears than is proper to a good season, but of apples, plums, and cherries, there would have been, we think, abundant crops, save for the blow inflicted at the opening of the season. As regards apples this view is strengthened by the behaviour of the smaller bush and cordon trees, for in many instances these are strikingly dotted with fruit, and they contrast strangely and pleasantly with the standard and pyramid trees that may happen to be round about them, whereon there is not only no fruit, but a very poor leafage. As regards pears we doubt if the crop would have been satisfactory had the trees been spared the shock that has so materially marred the major portion of the whole fruit crop. The fact is, even as the case now stands, the pear crop is in a very different plight to the apple crop. In the most favoured districts the apple trees are for the most part absolutely barren, but the pear trees are not so; there is a sprinkling of fruit, and a few sorts, such as Louise Bonne, are bearing fairly well. But the fruitful trees declare that this was not to be a year for pears, because the fruits are small and in many cases objectionably russeted, or we may say indurated, and we fear they will prove as deficient of quality as they are of size and colour. Plums are in many instances a good crop, but this is not a plum season, and the markets will depend very much on importations. Moreover, the remark made on the quality of pears applies to plums, which are for the most part wanting in size, colour, and flavour. And no wonder, for the summer commenced so late as the 4th of August, previous to which there had been two months of cool, and sometimes cold showery weather. Cherries follow the rest of the hardy fruits: the crop is partial, the quality is not remarkable, and the best crops are in places where the gale of April 29 proved the least destructive. There are plenty of Morellos as usual, and considering the culinary value of this variety and its constancy of production, we must again recommend those who can use the fruit advantageously to plant sufficient trees, for it is one of the most profitable fruits in our gardens.

Wall fruits, comprising apricots, peaches, and nectarines, are by no means abundant, although in many instances there was ample promise of a crop. The cool weather of June and July will prob-

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ably account for the poverty of the walls, for the gale distressed the wall trees but little. The crops grown under glass are for the most part satisfactory, and they teach us once again how important is the employment of glass in the production of these fruits. It is pretty clear, we think, to those whose observations extend over a considerable run of years, that the climate does not improve in favour of first-class wall fruits; or, indeed, in favour of any fruits, save perhaps bramble berries and bilberry whorts.

The last remark might suggest that the small fruits have fared well, and to speak of them as a whole we may say they have, for where they are most largely grown the crops have been heavy, and have in some degree made amends for the many failures of large fruits. But there are exceptions even to this, the brightest part of the story; for while strawberries have been plentiful they have been wanting in flavour, and the earlier crops of bush fruits were in the same unhappy case. All things considered, however, the small fruits have accomplished much to the credit of the season, which is not utterly fruitless, but is very far indeed from proving itself a season to be remembered with joyfulness.

The gardener has enough to contend with in the cultivation of the fruits required by the household, but he has, or should have, some peculiar aids to help him against his enemies. The commercial fruit grower cannot avail himself of the gardener's appliances, and therefore, to ensure a crop, or do the best possible that way, he must look to certainty of bearing first of all, and make the question of quality quite a secondary consideration. And even then he commits his interests to innumerable risks, and his labour is at the disposal of the unforeseen and the unexpected. The gale of April 29 was an event none could foresee and none could guard against, but beyond all doubt it did in the orchard and the garden pretty well determine the fortunes of the year. It cannot be prudent to persuade farmers to take to fruit culture as a means of averting agricultural distress. The risks are too many, and in good seasons the profits are too small, and the agriculturist may therefore be advised to observe and reflect ere committing himself in any serious degree to this branch of rural enterprise.

The nuts suffered with the apples and pears from the gale that came upon the eve of May Day. There was a great promise of nuts previous to that event, but the promise has not been fulfilled. The good crops illustrate the subject in detail, for they occur in sheltered nooks and on sheltered trees, and in effect they seem to say, "Happiness consists in evils we have escaped." The loss of the filbert crop is a serious matter in some quarters of the isle; and we may say the same of walnuts, which in Surrey rank almost equal in importance to the smaller nuts in Kent. But while a few highly-rented lands are thus impoverished by the lack of customary produce, the loss of the acorn and beech nut crops must be regarded as a national calamity. To be sure, we get a little away from the orchard and the garden when looking for these nuts, but their deficiency is in the main due to the same causes that have cut off our supplies of apples, and pears, and plums. A great crop of oak and beech nuts is of immense advantage in strictly rural districts, and if we bewail the losses of the orchardists we must not forget that the cottagers and small farmers are also deprived of a customary addition to their means of life. Happily the oaks have in great part recovered from the deplorable condition they were in during the early part of the summer, the cool moist weather, that damaged wheat and potatoes, and the meagre fruit crops, having been immensely beneficial to these, and, indeed, all large trees.

The vegetable and root crops are more generally even, both in quantity and quality, than the fruits and nuts. In respect of all quick-growing summer vegetables there can be no cause for complaint, and of the kinds that come late in the season there is an abundance. Root crops are likely to prove satisfactory in the general bulk, but disease has very much diminished the total of the early potato crop, and the late crop is in many places considerably injured. But this, like the last season, is one in which the aggregate of production is likely to compensate for particular losses and exceptional defects. We quite expect to find prices ruling low in the potato markets, and that we may again be enabled to spare of our crop for export, as we did last year, although at present we do not know of any distant market that is likely to bid for our produce. But it is early yet to report upon potatoes, and in justice to our readers we shall defer any systematic treatment of that part of the subject for the present.

"THE FERN WORLD," by Mr. Francis George Heath, author of "Autumnal Leaves," has just reached its seventh edition.

MILE END AND STEPNEY FLORICULTURAL SOCIETY.—The exhibition will be held in Mr. Lusby's Summer and Winter Palace on Monday and Tuesday next. The judges are desired to be ready for work at one p.m. on Monday.

NEUBERT'S "DEUTSCHES GARTEN-MAGAZIN" for the present month contains a good figure of the gaunt and curious *Primula cashmeriana Roylei*. It is a plant of strong growth, bearing on a full stout stem a head of small purple flowers so closely packed as to resemble a head of scabious. A report on the severe winter of 1879-80 contains many particulars of interest.

THE WHITE CLOVE "GLOIRE DE NANCY" is making a brave show in the Halo Farm Nurseries, Tottenham. The flowers are pure white, richly fragrant, and are produced in great profusion. Growers of hardy plants appreciate white cloves, but market growers and persons who require large quantities of flowers for decorative purposes have yet, for the most part, to become acquainted with the useful qualities of this fine variety.

A NEW PUBLIC PARK FOR BRISTOL.—Twenty acres of valuable land have been presented by Sir Greville Smyth to the city of Bristol for the purpose of a people's park. The ground is situated in Bedminster, one of the most populous parishes of the city, where a public recreation ground has long been desired. The Corporation at its meeting yesterday unanimously voted the thanks of the Council to Sir Greville Smyth for his generous gift.

WAITE, BURNELL, AND CO.—At the London Bankruptcy Court, on Monday, the failure was announced of J. Thompson Burnell, of 228, Upper Thames Street, E.C., and Paris, agricultural implement merchant, carrying on business under the firm of Waite, Burnell, and Co., the liabilities being stated at £50,000. The first meeting is to be held at the Cannon Street Hotel, London, on the 10th of August, at two o'clock. Mr. James Girdlestone, 3, Albany Courtyard, W., is the solicitor to the petition.

THE INTERNATIONAL FISHERIES EXHIBITION will be a great affair. The general plan and regulations are set forth in a huge document of eight folio pages, and the lists of vice-presidents and general committee include almost everybody above the rank of stable-boy. All the fishing men are included, of course, and a considerable number, we suspect, of men who scarcely know the difference between a fish and a fish-kettle. Notwithstanding this, it will be a great affair, as the men who know how to do it will have free scope.

AN EXPANDING TRELLIS for training plants has been introduced by Messrs. Dick Radelyffe and Co., who are deservedly noted for ingenuities of this kind. The figure shows the form of it, and the



jointed construction explains the mode of expansion. These trellises are made of walnut wood and need no painting, a point of importance in favour of good taste.

PURE WATER MAY BE OBTAINED from water chemically impure, as also from sea water, by the agency of solar heat. Captain Nares, R.N., describes the water supply of large towns in Peru as obtainable in this way. It is accomplished by means of a series of low glass frames, very similar to cucumber frames, fitted with suitable pipes for leading the impure water into the frames, and others to convey away to the fresh water receiver the condensation that collects under and rolls down the inclined glass. Rainless districts are necessarily cloudless. In the latitude of about 22 degrees the sun is sufficiently powerful to condense, by its unconcentrated rays, one gallon of water per day from every square yard of glass exposed; this, of course, can be multiplied to any extent, and if a large supply is required all that is necessary is to provide the ordinary means for distributing the fresh water. In cases of emergencies, if salt or other impure water is obtainable, the glass from an ordinary window frame can readily be utilized to supply sufficient fresh water for drinking purposes. With a sheet of glass and an ordinary packing case cut down, he says, I obtained lately, when in the Bahamas, a quart of the purest water daily by condensing salt water.

THE MOSQUITOES HAVE ARRIVED, and they are buzzing in the newspapers. The big gooseberry is ripe, but is not buzzing, but many will buzz who attempt to swallow it. The Ministerial whitebait dinner has been eaten, and that may be regarded as the opening of the silly season when, the penny-a-liners being hard up, molehills are described as mountains, and every commonplace little gnat becomes a vampire. It is some compensation for the cost of the expedition to Egypt that it will furnish food for the insatiable maw of the daily Press, which, it appears, must have an unending succession of startling sensations for announcement by the tin trumpet. When the mosquitoes come the case appears desperate; but they have come, and a boy has been bitten!

THE BRITISH ASSOCIATION.—The meeting to be held at Southampton will extend from Wednesday, the 23rd inst., to Thursday, the 31st. The first general meeting will be held at the Victoria Skating Rink, when Sir John Lubbock will resign the chair to Dr. C. W. Siemens, and the president-elect will give his inaugural address. On Thursday evening there will be a soiree in the Hartley Institution, at the invitation of the Local Executive Committee; on Friday a "Discourse on the Tides," by Sir William Thomson, M.A., in the Skating Rink; on Monday evening a discourse on "Pelagic Life," by Mr. H. N. Moseley, M.A., at the Skating Rink; on Tuesday evening a soiree at the Hartley Institution, on the invitation of the Mayor and Corporation; and on Wednesday afternoon the concluding general meeting at the Skating Rink. The several sections will meet daily at eleven o'clock in the morning from Thursday to Tuesday, both inclusive, in various public buildings. On Saturday afternoon, the 26th, there will be five half-day excursions to various places of interest in the neighbourhood, including one to Broadlands and Romsey, where Lord Mount-Temple will entertain the visitors, and another to Netley Abbey and Hospital, where a garden party is to be given by the Surgeon-General and officers of the Army Medical Department. On Thursday, the 31st, four whole-day excursions are arranged, some on water and some on land. The Queen has assented to an application for the members of the association to visit Osborne after her departure for Scotland, which will probably be about the 25th inst.

ROYAL BOTANIC SOCIETY OF LONDON.—The forty-third anniversary meeting of this society was held on the 10th inst., at the house of the society, in the Gardens, Regent's Park, Dr. H. A. Pitman in the chair. The annual reports from the council and auditor gave a very satisfactory account of the finances of the society, the receipts of the year having exceeded the expenditure by over £306. The number of new subscribers joining during the year exactly corresponded with that of last year, and was above the average of the last twenty years. In addition to the usual flower shows, exhibitions of special groups or classes of plants had been undertaken. These were thought useful as enabling amateurs and others to compare in one view the many varieties of the same class of plants. Above £800 had been awarded in prizes for the encouragement of the cultivation of plants, flowers, and fruit, and so large had been the collections of exhibits sent in that much difficulty was experienced in finding accommodation for them—in fact, the great strides of late years in the commercial cultivation of plants and flowers, as may be noticed any day in the metropolis, might be almost compared with the general manufacturing energy of the country. Another feature, showing the public utility of the society's operations, as gleaned from the reports, was the assistance afforded to medical and other students, artists, and others whose pursuits had any connexion with the vegetable kingdom, in the issue of free admission tickets of from one to six months each, and the distribution of cut specimens. Of these 827 tickets had been applied for and issued, and nearly 37,000 cut specimens distributed. A catalogue of the tropical, medicinal, and economic plants living in the society's garden had been published during the year. The society by these and other operations was thus carrying out its objects as set forth in its charter of incorporation, and in its lease of the gardens, viz., "For the promotion of botany in all its branches, and its application to medicine, the arts, and manufactures."

ÆCHMEA GLAZIOVI.

THIS fine plant is conspicuous in the remarkable collection of similar subjects possessed by Professor E. Morren. He records (*Belg. Hort.*, 1881, 270) that in the bromeliad house at The Boverie, Liège, it flowered for the first time in the year 1880, and about the same time in Paris. It was introduced from the province of St. Paul, Brazil, in the year 1876, by M. Glaziov. As seeds only were received, the flowering within so brief a space of time is a fact of some interest. The style of the plant is massive, the leaves are light glaucous-tinted green, the inflorescence rosy carmine and deep vinous red.

THE PURPLE BROOM.

It is a question whether "purple broom" is a suitable name for the beautiful shrub here figured as *Lespedeza bicolor*. It will, however, suit those of our readers who demand "an English name" for every plant, because, as they say (sometimes with truth), the botanical names are equally ugly and misleading. This *Lespedeza* has been entered in our register of new plants as figured in *Botanical Magazine*, t. 6, 602, where, by reason of its gay colours, it is very attractive. The plant is a native of North China and Japan, and belongs to the small category of hardy shrubs that flower in the autumn. The flowers are of the proper papilionaceous type, and are richly coloured crimson and purple. Its season of flowering is September and October. It was first introduced to Europe by Maximowicz, in the year 1858.

REPORTS ON THE ORCHARD AND GARDEN CROPS OF 1882.

APPLES.

ABERDEENSHIRE.—Almost a complete failure, the more hardy kinds alone bearing moderate crops.

ANGLESEA.—A thin crop, and the fruit of poor quality.

ANTRIM.—Very light throughout the county, and several cases of total failure are reported.

ARGYLLSHIRE.—A complete failure on all sides.

AYRSHIRE.—Nearly a complete failure, there being but little fruit in either garden or orchard.

BEDFORDSHIRE.—Crops generally very light; in some districts a total failure.

BERKSHIRE.—The crops are thin, but the quality is on the whole good.

BERWICKSHIRE.—An almost complete failure, so small is the quantity of fruit in any of the districts.

BUCKINGHAMSHIRE.—Much under an average. In some districts the crops are so light as to be hardly worth taking into consideration, and from others a total failure is reported.

CAMBRIDGESHIRE.—The crop light throughout the country; in many places a complete failure.

CARMARTHENSHIRE.—A decided failure in all districts.

CHESHIRE.—Rather mixed: in some districts fair crops, in others a total failure; on the whole very light.

CLACKMANNAN.—Complete failure, and trees in some instances not particularly healthy.

CORNWALL.—Almost a complete failure; the crops everywhere very thin.

CUMBERLAND.—Very poor; few trees having more than a light sprinkling of fruit.

DERBYSHIRE.—Very light and the quality unsatisfactory.

DEVONSHIRE.—Practically a complete failure, for in no instance are the trees reported to be bearing more than a mere shadow of a crop.

DORSETSHIRE.—A total failure is reported from all districts, and many complaints are made of the unhealthy condition of the trees.

DUMFRIESSHIRE.—Much under an average; in most cases the quality good.

DURHAM.—A moderate crop; the fruit generally good, although in some instances rather small in size.

EDINBURGHSHIRE.—Very poor; few sorts producing more than a light sprinkling of fruit.

ESSEX.—Very light, and from several districts reports of complete failures have been received.

FIFEHIRE.—A complete failure in all districts.

GALWAY.—Total failure in most of the districts, and very little fruit anywhere.

GLAMORGANSHIRE.—A complete failure; the trees in many cases in an unsatisfactory condition.

GLOUCESTERSHIRE.—Considerably under an average; very few varieties bearing anything approaching a full crop.

HAMPSHIRE.—Very light in some districts, a complete failure in others.

HEREFORDSHIRE.—Generally a ruinous failure, but a few good crops in gardens are reported.

HERTFORDSHIRE.—Very thin; the trees generally in good condition, and the few fruits produced are of excellent quality.

ISLE OF WIGHT.—Light crops, and fruit of poor quality, are reported from all parts of the island.

JERSEY.—The crops throughout the island are light, and in several of the reports complaints are made of the small size of the fruit.

KENT.—Light throughout the county, and in most instances the quality is not satisfactory.

KILDARE.—A light crop; but the fruit is of good size, and promises to be of fine quality.

KILKENNY.—Very light generally; in some cases a total failure.

LANCASHIRE.—Rather mixed; on the orchard trees the crops light, but in some cases trees in gardens are fairly productive.

LEICESTERSHIRE.—Rather uneven; the crops good in some districts and very light in others.

LIMERICK.—A complete failure throughout the county.

MIDDLESEX.—A very light and unsatisfactory crop, particularly on large orchard trees.

MONMOUTHSHIRE.—A partial failure, few trees bearing more than half a crop, the majority only lightly sprinkled with fruit or quite unproductive.

NORFOLK.—Almost a complete failure, the hardy kinds only bearing fruit.

NORTHUMBERLAND.—Crops light; in some parts of the county a total failure.

NOTTINGHAMSHIRE.—Good crops are reported from some districts, but light from others.

PEMBROKESHIRE.—Considerably below the average, the trees in some instances bearing a fairly good crop.

PERTSHIRE.—So little fruit in any of the districts that the crop may be regarded as nearly a failure.

SHROPSHIRE.—Rather mixed, but generally the crop is very light.

SOMERSET.—Crops very poor, except in sheltered situations.

STAFFORDSHIRE.—Much under an average in some districts; in others a complete failure.

STIRLINGSHIRE.—Practically a failure; there are only a few fruits to be found here and there.

SUFFOLK.—Very little fruit in any part of the country; generally a failure.

SURREY.—A light sprinkling of fruit in some places, but the majority of the reports agree in describing the crop as a complete failure.

SUSSEX.—Very light, the hardy sorts alone bearing even a moderate crop.

SUTHERLAND.—Crops light, and fruit of fairly good quality.

WATERFORD.—Moderate crops in some part of the county; light in others.

WILTS.—Complete failure excepting in sheltered situations, and in these the trees are fairly productive; in no instance is an average crop reported.

WESTMORELAND.—Generally a poor crop, with many complete failures.

WORCESTERSHIRE.—Crops thin, and the trees in some districts in an unsatisfactory state of health; the early kinds are the most productive.

YORKSHIRE.—Very light throughout the county, and in many districts a complete failure.

Mr. A. Anderson, Oxenford Castle, Dalkeith, writes: There is a very poor crop of almost all the sorts; Lord Suffield is the most productive, and York-shire Greening ranks next in that respect.

Mr. Landers, Southill Park, Biggleswade, reports: Cellini, Cockpit, Manks Codlin, and Koswick Codlin are the most fruitful with us.

Mr. J. Atkins, Lockinge Park, Wantage, remarks: The best kinds are Keswick Codlin, King of the Pippins, and Hanwell Souring.

Mr. R. Owen, Yewden, Honley-on-Thames, reports: Under an average, and the varieties bearing heavy crops are Cellini, Lord Suffield, Keswick Codlin, Manks Codlin, Hawthornden, New Hawthornden, Frogmore Prolific, Herefordshire Pearmain, Winter Pearmain, and Blenheim Orange.

Mr. A. Aitken, Richings Park, Slough, states that there are few apples, with the exception of the crops of Boston Russet, Cellini, Cox's Poinona, Keddleston Pippin, King of the Pippins, and Scarlet Nonpareil.

Mr. J. Maher, Stoke Court, Slough, observes: Hawthornden and King of the Pippins good, Irish Peach and Wellington middling.

Mr. G. T. Miles, Wycombe Abbey, Wycombe, reports: Under an average crop and generally of an inferior quality. Early varieties, comprising Keswick Codlin, Lord Suffield, Lord Grosvenor, and Echlinville Seedling, are yielding the best crops. Late sorts are very indifferent both in quantity and quality.

Mr. T. Jones, the Royal Gardens, Frogmore, Windsor, writes: Very few here, and of some sorts there are none. Lord Suffield and Echlinville Seedling are bearing good crops and are useful now.

Mr. James Morley, Pampesford Hall, Cambridge, states that the only sorts that are at all productive are Blenheim Orange and Ribston Pippin, and of these there is not half a crop.

Mr. George Brighton, Mount Edgcombe, Devonport, writes: I may say a complete failure, only a few sorts being able to withstand the effects of the disastrous gale we had at the end of April, and of those few may be mentioned Crofton Scarlet, Irish Peach, Smith's Pippin, and Keswick Codlin. Nearly all the trees were sadly defoliated, and I fear they will not fully recover this season.

Mr. W. G. Pragnall, Sherborne Castle, Dorset, reports: The orchard crop is a complete failure, and the foliage has a scorched appearance. In the gardens here we have a few fruits of Lord Suffield, Keswick Codlin, Dutch Mignonne, Echlinville Seedling, Kerry Pippin, Yellow Ingestre, and Golden Winter Pearmain.

Mr. P. Davidson, Shaftesbury, Dorset, remarks: To-day I closely examined twenty-six full-grown trees, and upon them there is not a husel of fruit. The storm, which did so much damage to the chestnut trees in the spring, destroyed also the apples.

Mr. J. Hunter, Lambton Castle, Durham, reports: We have a fair crop, the fruit small but clean, and should the weather be fine during the autumn we shall fare better than we have done in the three previous years. Here Lord Suffield is the most reliable variety, and stands out holdly wherever planted in the county. Most of the Codlins succeed on our heavy soil.

Mr. J. Douglas, Loxford Hall, Ilford, Essex, remarks: There is hardly a single variety in our garden that is bearing a crop, excepting a few small trees that were sheltered from the terrific gale of last spring. Cellini, Kentish Codlin, Lord Suffield, and others that seldom fail, have done so this year.

Mr. Donald, Knots Green, Leyton, observes: The crop is not satisfactory, and many of the trees are poor both in foliage and fruit.

Mr. A. L. Allix, Auhin Place, Jersey, states that apples are not plentiful in consequence of the disastrous effects of the gale which swept across the island at the end of April last. The dessert kinds are very scarce and rather small, particularly the late sorts.

Mr. Lewis A. Killick, Langley, Maidstone, reports: The crop is one of the shortest known. There are a few varieties that appear to be prevalent throughout England, but the crops of these are few and far between. Keswick Codlin is one of the most prolific, and the others bearing crops are Worcester Pearmain, Stone's Apple (Loddington), Devonshire Quarrenden, Echlinville Seedling, Tower of Glamis, King of the Pippins, Yellow Ingestre, and Duchess of Oldenburgh.

Mr. A. Pettigrew, Cardiff Castle, writes: The storm of April 29 did much mischief to the trees, blowing them about in all directions, completely destroying the fertility of the flowers, and doing great injury to the leaves. Up to the date mentioned the trees had every appearance of producing a good crop of fruit.

Mr. D. McInroy, Combermere Abbey, Whitchurch, states: Lord Suffield and Cellini are plentiful, but other sorts extremely scarce.

Mr. A. Young Holme Lacy, Hereford, remarks: Apples are a failure in this district, except a few trees on the Paradise stock which are bearing a fair crop. The trees were in bloom earlier than those on the Crah. In a neighbouring garden I saw heavy crops of Northern Greening, Cellini, Stirling Castle, King of the Pippins, and Pott's Seedling, on pyramidal trees. The orchards are a total failure, and Blenheim Orange and Ribston Pippin, for which the Herefordshire orchards are famous, are practically nil. The trees were much injured by the gale and frost.

Mr. Coleman, Eastnor Castle, Ledbury, writes: The trees were thickly set with flower buds, and looked promising up to the end of May. Blight then became unusually troublesome; cold, wet, and sunless weather set in, and, with the exception of a few solitary instances, the staple crop of Herefordshire was destroyed.

Mr. T. Spencer, Goodrich Court, Ross, remarks: The best sorts here are Stirling Castle, Lord Grosvenor, Alfriston, Cellini, Tewksbury Baron, Beauty of Kent, and Wellington.

Mr. W. B. Upjohn, Worsley Gardens, Manchester, states: Lord Suffield and Irish Peach are bearing the heaviest crops, and many trees of other sorts have a sprinkling of fruit on the sheltered side. All orchard trees were injured by the cold and hoisterous winds in the spring, and the growth is weak.

Mr. T. Baines, Palmer's Green, Southgate, reports: Next to no fruit, excepting where the trees are root pruned or kept to a comparatively small size by periodical replanting. Under these conditions there is a sufficient crop; in some cases thinning has been necessary, a circumstance which holds good, not only to this locality but to many distant parts of the country in which I have been in the course of the season.

Mr. Warren, Worton Gardens, Isleworth, writes: A very thin crop, particularly of the better sorts.

Mr. Coomher, Hendre Park, Monmouth, observes: In this district the apple crop is very unsatisfactory, and many kinds have completely failed. King of the Pippins is perhaps the most prolific, and Cellini, Lord Suffield, Court of Wick, and Irish Peach may be mentioned as bearing fair crops. I am afraid the quality will not be first rate.

Mr. J. B. Payne, the Palace Gardens, Wells, states that Hawthornden, Lord Suffield, King of the Pippins, 'Tom Put, a fine Somerset apple, and the Codlins are the most plentiful.

Mr. J. C. Clarke, Cothelstone, Taunton, reports: In some sheltered orchards there is a light crop, in others none. In proportion to space there are more apples in gardens than orchards, and the most fruitful varieties are Manks Codlin, Keswick Codlin, Cellini, Hawthornden, Lord Suffield, King of the Pippins, and Cox's Pomona.

Mr. Z. Stevens, Trentham, writes: The trees bloomed well, but the continued frosts through May cleared off all the fruit that had set. There are a few exceptions, chief amongst them being Cellini, Pott's Seedling, and Cox's Orange Pippin, the last-mentioned being grafted upon the French Doucin.

Mr. T. D. Fish, Hardwick, Bury St. Edmunds, Suffolk, observes: Nearly a total failure; the very high wind at the end of April seemed to clear off most of the embryo fruit, and to tear and lacerate the leaves into fragments or shreds. Maggot has also been very troublesome, and fruits on the few sorts that have any, such as the New Hawthornden, have dropped prematurely.

Mr. Wallis, Orwell Park, Ipswich, writes: With the exception of one or two early varieties, including Jeanneting, and a tree here and there in favourable positions, the crop of apples in this district is much under average.

Mr. J. W. Moorman, Coombe Bank, Kingston-on-Thames, states: Not more than half a crop; all trees suffered much from the gale of April 29.

Mr. C. Orchard, Coombe Leigh, Kingston-on-Thames, observes: There was a good promise of a crop, but the terrific wind at the end of April destroyed the crop and so crippled many of the trees that they have been a prey to insect pests, which have caused the few fruits remaining to drop.

Mr. Sidney Ford, Leonardslee, Horsham, reports: Throughout the district the trees suffered much from the April gale, and have been so injured by caterpillars and blight that some have lost nearly the whole of their leafage. The only productive kinds here this season are Warner's King and Keswick Codlin.

Mr. S. Jenks, Brambletye, East Grinstead, Sussex, remarks: Very scarce indeed, excepting a few hardy kinds, such as Lord Suffield, Keswick Codlin, and Northern Greening.

Mr. James Rodgers, Charlecote Park, Warwick, writes: A light crop, with the exception of Blenheim Orange and Hawthornden.

Mr. T. Challis, Wilton House, Salisbury, reports: A very bad crop, and trees much blighted. The small bush trees of Lord Suffield, New Hawthornden, and Dumelow's Seedling are an exception to the general rule, as on these the fruit is plentiful and good.

Mr. J. Allen, Compton Bassett, Calne, Wiltshire, observes: The crop in orchards round here is almost nil. On espaliers there is a sprinkling of fruit, Lord Derby, Irish Peach, and Cockle Pippin bearing the best.

Mr. G. Westland, Willey Court, Stourport, writes: In this district apples are much under an average, and particularly partial, and fair crops are only to be seen on trees in exceptionally sheltered situations. The mild winter and spring pushed the trees into bloom early; and the flowers and young fruit succumbed to the boisterous winds and sharp frosts which prevailed throughout April and May. Vegetation received a very severe check, and in many orchards the trees afford unmistakable signs of having received permanent injury. The varieties bearing the most satisfactory crops are Worcester Pearmain, Keswick Codlin, a seedling Codling, a sure-bearing variety of good cooking quality; Echlinville Seedling, King of the Pippins, Kerry Pippin, Stirling Castle, Tower of Glamis, and Ribston Pippin.

Mr. W. Culverwell, Thorpe Perrow, Bedale, reports: The apple crop is the worst I have ever known; not one tree in twenty in this district is bearing any fruit. The sorts bearing crops are Keswick Codlin and Lord Suffield.

PEARS.

ABERDEENSHIRE.—Crops very light throughout the county, with numerous failures.

ANTRIM.—Generally a complete failure, a few trees here and there alone bearing a sprinkling of fruit.

ANGLESEA.—Crops very light and the trees in a rather indifferent condition.

ARGYLLSHIRE.—The most complete failure known, hardly a fruit to be seen in any of the districts from which reports have been received.

BEDFORDSHIRE.—Crops light, and fruit mostly of small size.

BERKSHIRE.—Fruit very thin, not more than half a crop in any of the districts; in some instances the quality is described as good.

BERWICKSHIRE.—Failure most complete, hardly a fruit to be met with, even of the most hardy sorts.

BUCKINGHAMSHIRE.—Rather mixed; in some districts the crops are about an average, in others much under it; a few complete failures are mentioned.

CAMBRIDGESHIRE.—Very light; in no case is more than half a crop reported.

CARMARTHENSHIRE.—Much under an average in all districts.

CHESHIRE.—Fruit so scarce that the crop closely approaches a failure.

CLACKMANNANSHIRE.—Very thin, and the fruit hardly up to the mark in size.

CORNWALL.—Rather below an average in point of quantity, but the fruit is generally good.

CUMBERLAND.—Very light, and not up to the average in size.

DEVONSHIRE.—A partial crop on wall trees, but on pyramids and standards the crop is almost a failure.

DORSETSHIRE.—Generally very little fruit on wall trees, and practically none on pyramids and standards. In one case an average crop is reported.

DUMFRIESSHIRE.—Much under an average in quantity, and hardly likely to be up to the mark in quality, in consequence of the cold and wet weather.

DURHAM.—A very poor crop; the fruit mostly small.

ESSEX.—Light generally; a few good crops are reported, and several failures.

EDINBURGHSHIRE.—A total failure on all sides.

FIFESHIRE.—Failure complete in all districts.

GALWAY.—Very little fruit in any part of the county.

GLAMORGANSHIRE.—But little fruit in any of the districts, and generally a total failure.

GLOUCESTERSHIRE.—Crops poor in garden and orchard alike.

HAMPSHIRE.—Very mixed; good crops in some cases, but poor in others.

HEREFORDSHIRE.—Fair average crops in some districts, much under in others, the wall trees being the most productive.

HERTFORDSHIRE.—A fair average crop; the trees on walls the most productive.

ISLE OF WIGHT.—Fruit very thin and generally of small size.

JERSEY.—Much under an average, particularly the late kinds.

KENT.—Crop very small, and in some instances the fruit is below the mark in size.

LANCASHIRE.—A complete failure on all sides.

LEICESTERSHIRE.—Much under an average in all districts.

LIMERICK.—A fair crop, but the fruit is likely to be late in attaining maturity.

LINCOLNSHIRE.—Crop small, and the fruit below an average in quality.

MIDDLESEX.—A fairly good crop generally, but thin in some quarters.

MONMOUTHSHIRE.—Decidedly thin and below the average in quality.

NORFOLK.—Light, few trees bearing more than a moderate crop.

NORTHUMBERLAND.—Crops poor and the fruit not up to the usual size.

NOTTINGHAM.—Light in some districts, failure in others.

OXFORDSHIRE.—Moderate crops on walls, but light on trees in the open.

PEMBROKESHIRE.—Failure complete on all sides.

PERTHSHIRE.—Crop so light as to closely approach a failure.

SHROPSHIRE.—A poor crop, with not a few complete failures.

SOMERSET.—Moderate crops in some districts, thin in others, and on the whole below the average.

STAFFORDSHIRE.—Crop a complete failure in most districts, in others very light and the fruit small.

SUFFOLK.—Much under an average, with many total failures.

SURREY.—About an average crop on the whole, but the fruits are reported to be small.

SUSSEX.—A light crop on walls; standards and pyramids a failure.

SUTHERLANDSHIRE.—Very light, and the fruits are not likely to attain their usual size.

WARWICKSHIRE.—Crop light generally, and several total failures are reported.

WESTMORELAND.—Fruit scarce; many varieties totally unproductive.

WILTSHIRE.—Crop moderate and the fruit poor in quality.

WORCESTERSHIRE.—Fair crops on walls, but the fruit is scanty on pyramidal and standard trees.

YORKSHIRE.—Crops more or less a failure and the trees in a most unsatisfactory state.

Mr. Thomas Jones, Royal Gardens, Frogmore, Windsor, writes: Not half a crop. The severe gale of April 29 made sad havoc among the flowers and young growth. Williams's Bon Chrétien on walls is bearing a good crop.

Mr. H. Landers, Southhill Park, Biggleswade, reports: Pears are scarce and very small; the kinds bearing the best are Williams's Bon Chrétien, Louise Bonne of Jersey, Beurré Bosc, and Beurré d'Amanlis.

Mr. J. Atkins, Lockinge Park, Wantage, states: The heaviest crops are those of Williams's Bon Chrétien, Louise Bonne of Jersey, and Marie Louise on walls, and of Beurré de Capiaumont and Marie Louise on bushes.

Mr. G. T. Miles, Wycombe Abbey, Wycombe, writes: Williams's Bon Chrétien and Beurré de Capiaumont are the most prolific this season.

Mr. Maher, Stoke Court, Slough, observes: Generally short; we have a fair crop of Louise Bonne of Jersey, Glou Morceau, Brown Beurré, and Marie Louise, a few of Jargonelle, and Knight's Monarch on standards is pretty good.

Mr. A. Aitken, Richings Park, Slough, remarks: The best with us this season are Beurré Clairgeau, Glou Morceau, Jargonelle, and Williams's Bon Chrétien, the last three on walls.

Mr. Robert Owen, Yewden, Henley-on-Thames, reports: The varieties with full crops are Citron des Carmes, Louise Bonne of Jersey, Williams's Bon Chrétien, Beurré Diel, Duchesse d'Angoulême, and Passe Colmar.

Mr. T. Bailey, Shardeloes, Amersham, writes: Not a general crop in this locality. We have a fair sprinkling, Louise Bonne of Jersey and Winter Nelis cropping the best.

Mr. J. Morley, Pampesford Hall, Cambridge, observes: Beurré Bosc, Autumn Bergamot and Jargonelle are the most productive here this season.

Mr. G. Brighton, Mount Edgecumbe, Devonport, states: A partial crop on walls; the best are Louise Bonne of Jersey, Williams's Bon Chrétien, and Knight's Monarch.

Mr. J. Hunter, Lambton Castle Gardens, Durham, reports: A poor crop, almost a complete failure, and the fruits are small and have a cankered appearance, and not likely to ripen properly. After the pears were set we experienced as much as twelve degrees of frost with a cold east wind, with the result that nearly all dropped.

Mr. J. Douglas, Loxford Hall, Ilford, writes: The only two sorts that are bearing a crop are the Jargonelle and Louise Bonne of Jersey. The trees look healthy and clean. We have a few good fruits on pot trees in the orchard house, and are very thankful for them with such a dearth outside.

Mr. Donald, Knotts Green, Leyton, says: Very good crop on pyramids; trees on walls facing south are not so good.

Mr. A. L. Allix, Aubin Place, Jersey, writes: The late pears grown here, such as the Chaumontel and Duchesse d'Angoulême, are very scarce, and the trees have been much injured by the wind.

Mr. A. Pettigrew, Cardiff Castle, writes: The pear trees never looked better here than they did this spring. They were covered with bloom, and the fruit had set on many, when a devastating storm came and destroyed it all.

Mr. Wildsmith, Ilckfield, Winchfield, Hants, reports: Great crops of all kinds, both on walls and standards. The hardiest and most prolific kinds here are Williams's Bon Chrétien, Passe Colmar, Winter Nelis, Duchesse d'Angoulême, Marie Louise, Bourré Superflu, and Beurré de Capiaumont.

Mr. A. Young, Holme Lacy, Hereford, observes: We have a few on the west walls and on cordons, but none on espaliers and pyramids. Beurré Clairgeau and Duchesse d'Angoulême are bearing very heavily, but of course they are useless. The latter, although generally classed with the dessert kinds, should be included amongst the culinary sorts, and the former is very little better.

Mr. W. Coleman, Eastnor Castle, Ledbury, remarks: A fair half crop on walls, but very backward; pyramids and standards a failure. Trees are clean, free from curl, and look promising for another year.

Mr. J. Froggart, Belmont, Hereford, reports: Pears are much more plentiful than apples; some standards in orchards are carrying good crops, but the fruit is likely to be small. On the wall and espalier trees there are very few fruits. Knight's Monarch, Bourré Diel, Althorp Crassano, and Swan's Egg are the most plentiful.

Mr. R. Sanford, Dancesbury, Wolwyn, Herts, says: Glou Morceau, Seckle, Beurré Bachelier, Ne Plus Meuris and Josephine de Malines are carrying by far the best crops.

Mr. J. Rust, Eridge Castle, Tunbridge Wells, writes: Pears are very scarce; the great storms of wind and rain ruined the blossom.

Mr. Lewis A. Killick, Langley, Maidstone, remarks: This is not a pear district. The chief pear for market use is the Hessel, which bears fair crops. Williams's Bon Chrétien does not succeed, but Louise Bonne of Jersey is bearing as it usually does.

Mr. W. B. Upjohn, Worsley Hall, Worsley, Manchester, observes: A complete failure; bloom was very thin on wall trees, but abundant in orchards, but it was entirely annihilated by frost and wind.

Mr. W. Ingram, Belvoir, Grantham, reports: Much under average; in fact very few.

Mr. Warren, Worton Gardens, Isleworth, states: A good crop generally.

Mr. Coomber, Hendre Park, Monmouth, reports: Winter Nelis, Flemish Beauty, Beurré d'Amanlis, Louise Bonne of Jersey, Beurré Diel, and Williams's Bon Chrétien are carrying good crops, but the quality is under an average.

Mr. Bowic, Chillingham Castle, Northumberland, observes: In the gardens here pears are a very poor crop.

Mr. J. B. Payne, the Palace Gardens, Wells, remarks: Williams's Bon Chrétien, Beurré Giffard, Chaumontel, Passe Colmar, and Swan's Egg are the most plentiful, and the trees are carrying good crops; whilst of other sorts there are none at all.

Mr. J. C. Clarke, Cothelstone, Taunton, says: With us the crop is poor; we have a few fruits of Marie Louise, Winter Nelis, Beurré Rance, Beurré Diel, and Williams's Bon Chrétien. In other parts of the country I have seen good crops of Beurré d'Amanlis, Williams's Bon Chrétien, Beurré de Capiaumont, and Beurré Clairegeau. On the whole there are more late pears than early ones.

Mr. Z. Stevens, Trentham, remarks: Only good-tempered people should look at pear trees this year, for a more complete failure I have not seen. Both early and late flowering sorts were pictures of beauty in the spring; and the early-blooming kinds, such as Williams's Bon Chrétien, Louise Bonne of Jersey, Beurré Diel, Easter Beurré, set a good crop of fruit which swelled to the size of horse-beans. But with the exception of a few of Williams's Bon Chrétien and Louise Bonne of Jersey, the fruits were cut off by their relentless foe "Jack Frost." The later-blooming sorts had no chance to set fruit, for the blooms were destroyed from day to day as they expanded.

Mr. C. Roberts, Highfield Hall, near Leek, says: Very few pears, and these small.

Mr. J. Wallis, Orwell Park, Ipswich, observes: Amongst the exceptions to failure may be mentioned Zéphirin Grégoire, which is a trustworthy kind for cropping in ordinary seasons, the fruit of medium size, melting, with a good flavour.

Mr. D. T. Fish, Hardwicke, Bury St. Edmunds, reports: Pears very few indeed, a few on Beurré Diel on walls. Pyramids are almost wholly bare; trees are clean and healthy.

Mr. Denning, Londesborough Lodge, Norbiton, states: Fair crop, but trees much injured, and what fruit we have is on trees much sheltered.

Mr. S. Ford, Leonardslee, Horsham, writes: We have about one-fourth of a crop. On walls we have a few of most kinds, such as Marie Louise and Louise Bonne of Jersey. All the trees on the south wall suffered much from the April gale.

Mr. S. Jenks, Bramletye, East Grinstead, remarks: None on standards, and about half a crop on walls, of Jargonelle, Williams's Bon Chrétien, Louise Bonne of Jersey, Winter Nelis, Josephine de Malines, and a few others. Espaliers and bushes blown to pieces by the storms of April 28 and 29.

Mr. J. Rodger, Charlecote Park, Warwick, states: Louise Bonne of Jersey, Doyenné du Comice, and Comte de Lamy are bearing a fair crop.

Mr. Challis, Wilton House, Salisbury, remarks: Moderate crop; fruit much speckled and cracked.

Mr. J. Allen, Compton Bassett, Calne, Wilts, reports: Pears on walls are bearing fair crops, such as Marie Louise, Williams's Bon Chrétien, Louise Bonne of Jersey, and Winter Nelis; baking pears on standards are a fair crop.

Mr. G. Westland, Witley Court, Storrport, observes: Pears are, on the whole, a scanty crop. The trees flowered very thinly, more especially those which produced heavy crops last season and suffered from the injurious results of overcropping. A good growth is being made this season, and, if we have a dry autumn, the trees promise to give a good return next season.

Mr. W. Culverwell, Thorpe Perrow, Bedale, writes: Pears are a bad crop, although the trees were covered with bloom; the flowers were imperfect and fell off, and the unfavourable weather in May so injured the trees that they will take some time to recover.

Mr. J. Clarke, Studley Royal, Ripon, remarks: A complete failure, and the trees very much blighted.

PLUMS.

ANGLESEA.—Crop light, and in many instances the fruit rather below the usual size.

ANTRIM.—Light, but moderately good in quality.

ARGYLLSHIRE.—Practically a failure; there is so little fruit on the trees as to be hardly worth taking into consideration.

ABERDEENSHIRE.—Very thin, but about equal to the average of previous years in the matter of quality.

AYRSHIRE.—Very little fruit on trees against walls or in open quarters.

BEDFORDSHIRE.—A light crop and much blight.

BERKSHIRE.—Good crop in some districts, moderate in others; wall trees the most productive.

BERWICKSHIRE.—A poor crop, the trees in no case having more than a light sprinkling.

BUCKINGHAMSHIRE.—Little fruit and much blight is the burden of most of the reports from the county.

CAMBRIDGESHIRE.—Good crops of many kinds on walls, but very little fruit in orchards.

CARMARTHENSHIRE.—Very little fruit, and trees suffering from blight.

CHESHIRE.—Fair crops in some districts, light in others, and a few failures.

CLACKMANNAN.—Crops light, and the fruit of good quality.

CORNWALL.—Not more than half a crop, but the fruit is mostly of full size.

CUMBERLAND.—Rather mixed, some crops heavy, others very light; on the whole a fair average.

DEVONSHIRE.—Moderately good, the wall trees the most productive.

DERBYSHIRE.—Crop light, and trees in many districts suffering from blight.

DORSETSHIRE.—Generally light, with a few good crops here and there; quality below the mark.

DUMFRIESHIRE.—Plums much under an average and damsons a total failure; trees damaged by blight.

DURIAM.—Trees thinly sprinkled with fruit and badly infested with blight.

EDINBURGHSHIRE.—Very light, excepting a few of the hardest kinds, which are moderately productive.

ESSEX.—Generally indifferent, with a few good crops; blight very prevalent.

FIFESHIRE.—Very thin, but of good size and quality.

GALWAY.—A light crop; much injury done by aphides.

GLAMORGANSHIRE.—But little fruit, and the trees in many instances severely injured by the blight.

GLOUCESTERSHIRE.—Total failure; the trees suffering from the attacks of aphides.

HAMPSHIRE.—Fairly good in most parts, the wall trees being the most productive.

HEREFORD.—Moderate crops on walls in a few places; pyramids and standards a failure; trees much injured by blight.

HERTFORDSHIRE.—Wall trees moderately productive in some districts; trees everywhere much blighted.

KENT.—Plums much under an average; a fair sprinkling of damsons.

JERSEY.—Light in quantity and not good in quality.

LIMERICK.—A good crop in most gardens.

LANCASHIRE.—Poor in quantity and quality, and the trees in some districts in an unsatisfactory state.

LEICESTERSHIRE.—Much under an average; in many districts a complete failure.

MIDDLESEX.—On the whole very light, the hardy kinds alone bearing a moderate crop.

MONMOUTHSHIRE.—Fruit thin and generally inferior.

NORFOLK.—Small in quantity, but good in quality; a few complaints of the mischief done by blight.

NOTTINGHAMSHIRE.—Crop light, with a good promise of the fruit ripening well.

NORTHUMBERLAND.—A fair crop in some districts, light in others.

OXFORDSHIRE.—Rather mixed; a few good crops, but on the whole nearly or quite an average.

PERTSHIRE.—Very thin, and not first-rate in quality.

SOMERSET.—Rather mixed; but on the whole a moderately good crop.

STAFFORDSHIRE.—Generally described as the most complete failure for many years. Complaints are made of injury from blight.

SUFFOLK.—Much mixed; a few good crops, many very light, and some failures; plenty of aphides everywhere.

SURREY.—Moderate crops in some cases on walls; pyramids and standards, on the whole, a failure.

SUSSEX.—A few good crops on wall trees, but much under an average on trees in the open quarters.

SUTHERLANDSHIRE.—Very light crops, even of the hardest kinds.

WARWICKSHIRE.—Fruit generally thin, and not up to the average in quality.

WESTMORELAND.—Crop quite a failure, and the trees suffering severely from blight.

WILTSHIRE.—Crops moderate on walls, but poor on trees in the open. Blight is reported to have done much damage.

WORCESTER.—Crops of plums very poor, and the trees badly blighted. No damsons.

YORKSHIRE.—A light crop of fruit, and an abundance of aphides, which in some cases have done much damage to the trees.

Mr. T. Jones, Royal Gardens, Windsor, writes: A failure on standards; on walls fair crops, but much cracked owing to the heavy rains; good crops indoors.

Mr. G. T. Miles, Wycombe Abbey, Wycombe, remarks: Very much under average crop, and the trees greatly infested with blight. In this locality the crop is very partial; at some places certain kinds are a fair crop, and at others scarcely any are to be found on the trees.

Mr. J. Maher, Stoke Court, Slough, observes: Greengage on east wall pretty good; Jefferson's Washington and Kirke's thin; Belle de Septembre on standards fairly productive.

Mr. Aitken, Richings Park, Slough, says: Very few except Victoria, and trees much blighted.

Mr. R. Owen, Yewden, Henley-on-Thames, writes: Varieties with heavy crops are Victoria, Greengage, Orleans, and Goliath.

Mr. T. Bailey, Shardeloes, Amersham, reports: A very poor crop on walls; plenty on standards, but very much blighted.

Mr. J. Morley, Pampesford Hall, Cambridge, states: A heavy crop of Orleans and Victoria, plenty of Goliath, Washington, Kirke's, Jefferson, and Greengage; a sprinkling of Reine Claude de Bavay and Drap d'Or on walls. Not any fruit on orchard trees.

Mr. G. Brighton, Mount Edgecumbe, Devonport, reports: A medium crop on walls of Victoria, Orleans, and Greengage; very few on pyramids, and the samples poor.

Mr. P. Davidson, Shaftesbury, Dorset, writes: Good crop, but the fruit small and not of good flavour, owing doubtless to the cold wet weather experienced until quite recently. Rivers's Early Prolific, Orleans, and a few of the early sorts are ripe, but very insipid.

Mr. W. Smith, Broomlands, Dumfries, states: Plums are under an average, and damsons are a total failure. Fly very troublesome.

Mr. J. Hunter, Lambton Castle, Durham, observes: Trees suffered much from the late spring frost; all the fruit dropped off, the leaves curled up, and the blight made such vigorous attacks that we had to resort to hard measures to eradicate it.

Mr. Anderson, Oxenford Castle, Dalkeith, writes: Very scarce, Victoria being the most productive.

Mr. J. Douglas, Loxford Hall, Ilford, reports: Trees set an abundant crop, but they were early and most severely attacked by aphides, so that the fruit is of very poor quality.

Mr. W. Mincher, Hardwicke Court, Gloucester, observes: Trees bloomed well, but owing to the attack of blight the crop in this district is quite a failure.

Mr. W. Wildsmith, Heckfield, Hants, reports: Very good crops on walls, thin on standards. The varieties bearing most fruit are Victoria, Belgian Purple, Orleans, Jefferson, and Washington.

Mr. A. Young, Holme Lacy, Hereford, writes: We have a few on west and east walls; Jefferson is a sure cropper, and Rivers's Early Prolific should be in every garden.

Mr. J. Froggatt, Belmont, Hereford, remarks: The crop is a failure, and

the trees have been almost destroyed with blight; even Victoria has failed, which is a most unusual occurrence.

Mr. T. Spencer, Goodrich Court, Ross, says: Average crop on walls; none on pyramids. Our best sorts are Jefferson, Belgian Purple, and Denniston's Superb.

Mr. Sanford, Danesbury, Wolwyn, writes: Our best crops are those of Greengage, Kirke's, and Golden Drop.

Messrs. H. Cannell and Sons, Swanley, report: Plums much under an average; damsons will again be much the most profitable, and they are annually being planted in large numbers.

Mr. L. A. Killick, Langley, Maidstone, writes: The Victoria is as usual the most prolific. The Czar is a good plum, and will become a general favourite when known. Prince of Wales is bearing a few fruits, but it does not succeed in this locality. The damson crop varies, but it will not be large.

Mr. C. Roberts, Highfield Park, Leck, remarks: Much under an average; the Victoria the best.

Mr. J. Wallis, Orwell Park, Ipswich, says: The crop is much below the average, and the trees in an unsatisfactory state. Victoria again stands out this season as a most certain cropper.

Mr. D. T. Fish, Hardwick, Bury St. Edmunds, writes: Plums scarce, especially gages; of other sorts a tree here and there has a fair crop. Altogether this crop is erratic; for example, there are very few Jefferson or Coe's Golden Drop, with a fair crop of Impératrice here.

Mr. Denning, Lonsborough Lodge, Norbiton, says: Total failure here, and trees much disfigured ever since the high winds in April last.

Mr. S. Jenks, Brambletye, East Grinstead, remarks: Victoria, Coe's Golden Drop, and Purple Gage are very good, but some other sorts are a failure.

Mr. S. Ford, Leonardslee, Horsham, writes: About one-fourth of a crop on



AECHMEA GLAZIOVI. (See page 434.)

Mr. A. L. Allix, Aubin Place, Jorsey, observes: The crops of plums have been light for some years past, but that of this year is the lightest, for we have not more than a quarter of a crop; Kirke's Greengage, Impératrice, Coe's Golden Drop, and Reine Claude de Bavay are the most fruitful.

Mr. W. Warren, Worton Gardens, Isleworth, writes: Not a good crop; a few trees which are sheltered by others are bearing well. The Gisborne is a very poor crop, and the Sandal a good one.

Mr. J. B. Payne, the Palace, Wells, remarks: Oslin's, Coe's Golden Drop, Victoria, Rivers's Early Prolific, and Washington are the most plentiful; but the trees are very much blighted.

Mr. J. C. Clarke, Cothelstone, Taunton, reports: Our best varieties are Victoria, Coe's Golden Drop, Greengage, White Magnum Bonum, and Red Magnum Bonum, and of these there is a fair crop. Damsons are scarce.

Mr. Z. Stevens, Trentham, observes: No plums; crops of damsons a failure, and trees much damaged by fly.

trees in the open; against walls a good crop; trees on the east side bearing the best.

Mr. J. Allen, Compton Bassett, Calne, reports: Trees on a western aspect are bearing a full crop, such as Jefferson, Coe's Golden Drop, Kirke's, and Victoria. The low pyramids were badly infested with aphides, which caused many of the fruit to drop prematurely.

Mr. W. Jones, Abbey Manor, Woroester, remarks: We have a fair crop of Pershore. Damsons very thin and trees badly blighted.

Mr. J. R. Cox, Parkfield Hollow, Worcester, says: Fruits few and much deformed; trees injured by blight early in the season, but growing freely now.

Mr. W. Culverwell, Thorpe Perrow, Bodale, states: Moderate crop, odd trees in sheltered places are bearing a good crop; the sort is mostly Victoria, but in some cases Jefferson's is good.

Mr. J. Clarke, Studley Royal, Ripon, reports: Crops poor and trees very much blighted.

PEACHES AND NECTARINES.

ABERDEENSHIRE.—These fruits are not so far north grown without the aid of glass; the indoor crops are reported very satisfactory notwithstanding the cold and wet weather which prevailed until the end of July.

ANGLESEA.—Crops light and fruit rather small.

ANTRIM.—Crops poor where their cultivation is attempted outside.

AYRSHIRE.—Very little fruit, and that not first class.

BEDFORDSHIRE.—A good average crop, and the trees in capital condition.

BERKSHIRE.—Rather unequal; crops so heavy as to necessitate severe thinning in some districts; light in others.

BERWICKSHIRE.—Crop light, and the trees not particularly healthy.

BUCKINGHAMSHIRE.—Heavy crops in most districts, and fully up to the average in others.

CAMBRIDGESHIRE.—Light crop, and the fruit hardly up to the mark in size.

FIFE SHIRE.—Cultivation not attempted outside; good crops general under glass.

GLAMORGANSHIRE.—An abundance, and the trees in the most healthy condition.

GLOUCESTERSHIRE.—Good crops, but fruit rather small and likely to be late.

HAMPSHIRE.—Much mixed; excellent crops in some districts, hardly any fruit in others.

HEREFORDSHIRE.—Abundant crops in most districts.

HERTFORDSHIRE.—Light crops on the open walls.

JERSEY.—Splendid crop, which promises to finish well.

KENT.—Good average; abundant in some districts.

LIMERICK.—Good crops of peaches; nectarines not much grown outside.

LEICESTERSHIRE.—Heavy crops in all quarters and the trees in capital condition.



LESPEDEZA BICOLOR. (See page 424.)

CHESHIRE.—Good crops of both fruits, the nectarines rather the best.

CARMARTHENSHIRE.—A poor crop, and the trees not satisfactory.

CLACKMANNAN.—Not much grown outside, and crop very light.

CUMBERLAND.—Where grown outside the crops are light, and the fruit rather small.

DEVONSHIRE.—Crops good, and the trees healthy, although seriously injured in the spring.

DORSETSHIRE.—Light outside, and the fruit so late as to cause apprehensions as to its ripening properly. An abundance under glass.

DUMFRIESHIRE.—Very few grown outside, and those not productive.

DURHAM.—So few grown outside as not to be worth considering; indoors the early crops have been good and the late ones are most promising.

EDINBURGHSHIRE.—None grown outside; excellent crops under glass.

ESSEX.—Crops partial, but about an average on the whole.

MIDDLESEX.—Excellent crops, which promise to finish well.

MONMOUTH.—A fair average and the trees healthy.

OXFORDSHIRE.—Rather partial, and, on the whole, about an average.

NORFOLK.—A full average, and the fruit of good size.

NORTHUMBERLAND.—Very few grown on open walls; very good crops under glass.

NOTTINGHAM.—Crops moderately good, and the trees generally healthy.

PERTHSHIRE.—Good crops generally under glass.

SOMERSET.—Capital crops generally, peaches being rather the best, nectarines thin in a few places.

STAFFORDSHIRE.—Indoor crops good; none grown outside.

SUFFOLK.—A full average crop; fruit rather late in some places.

SURREY.—Abundant, and the quality likely to be good where thinning has had proper attention.

SUSSEX.—Light outside, but indoor crops highly satisfactory.
 WARWICKSHIRE.—Abundant and good; trees very healthy.
 WESTMORELAND.—None grown out of doors; excellent under glass, excepting in unheated houses.
 WILTSHIRE.—Good crops generally; trees not altogether satisfactory, and nectarines thin in some places.
 WORCESTERSHIRE.—A heavy and excellent crop with a few partial failures.
 YORKSHIRE.—A light crop outside where grown without the protection of glass, and hardly likely to finish well. Inside fruit abundant and good.

Mr. T. Jones, Royal Gardens, Frogmore, Windsor, writes: Peaches and nectarines abundant; required much thinning; trees clean and healthy.

Mr. G. T. Miles, Wycombe Abbey, reports: Peaches a good average crop, and the trees in a healthy state. Amongst more recently introduced kinds Hales's Early may certainly be pronounced an excellent sort for outdoor work. Nectarines a good average crop; trees in good order this year, even under ordinary attention, and making a good growth, which will only need plenty of sunshine to develop it to ensure the prospect of success another year.

Mr. J. Maher, Stoke Court, Slough, states: Peaches and nectarines abundant. From a fruit gathered the other day, Hales's Early appears to be of excellent flavour and fine colour.

Mr. R. Owen, Yewden, Henley-on-Thames, remarks: Peaches are above an average, and we had to thin heavily twice to reduce the crop. The varieties grown are Royal George, Barrington, Bellegarde, Grosse Mignonne, Noblesse, Early Victoria, Early Beatrice, and Early Louise; the latter ripe by July 15, and the whole crop gathered by August 1. We have full average crops of Victoria, Pitmaston Orange, and Elruge nectarines.

Mr. J. Morley, Pampesford Hall, Cambridge, reports: Of Royal George and Early Admirable peaches we have about half a crop; other varieties very light. Prince of Wales and Albatross nectarines are fairly abundant, but Elruge is not so good.

Mr. Donald, Knott's Green, Leyton, writes: Very partial crop; the trees have not yet recovered from the injury received in the winter of 1880-81.

Mr. A. Pettigrew, Cardiff Castle, reports: We have plenty of fruit, and the trees are clean and healthy. In the early part of the season they were infested with aphides, but now they are quite clean and making excellent growth.

Mr. Mincher, Hardwicke Court, Gloucester, states: A good crop generally; fruit will be small, and the trees are making a poor growth.

Mr. W. Wildsmith, Heckfield, Winchfield, reports: Peaches are extra good, and the trees are very healthy; they were well protected with canvas blinds. We gathered Early Louise and Early Beatrice on July 15, and Large Early Mignonne is now ready. Nectarines are equally as good as peaches; Elruge and Violette Hâtive are our two best kinds.

Mr. W. Coleman, Eastnor Castle, Ledbury, remarks: Peaches are abundant. Fruit required a great deal of thinning. Trees clean, healthy, and vigorous. Commenced gathering Early Louise on July 23. Nectarines are also plentiful and good. Lord Napier is one of the earliest and best.

Mr. T. Spencer, Goodrich Court, writes: Under glass the crops have been good, but they do not succeed well out of doors, so we do not grow them against the open wall. Our best peaches are Royal George, Stirling Castle, Dymond, Violette Hâtive, Walburton Admirable, and Late Admirable; and the best nectarines are Hardwicke Seedling, Lord Napier, Pitmaston Orange, Rivers's Orange, Pine-apple, and Humboldt.

Mr. M. Henderson, Loudoun Villas, Ashby-de-la-Zouch, writes: Plentiful, and required much thinning.

Mr. Ingram, Belvoir, Grantham, remarks: Unusually abundant and fine.

Mr. J. C. Clarke, Cothelstone, Taunton, reports: More than an average crop of peaches this season. The best varieties are Barrington, Grosse Mignonne, and Royal George. There has not been so much blister as I have seen in some years.

Mr. J. Wallis, Orwell Park, Ipswich, reports: Although peaches on open walls have required almost constant attention to keep the foliage and shoots free from insects, the trees have made fair growth, are healthy, and are carrying an average crop of fruit, and this without much distinction as to varieties. On the whole nectarines have been less difficult to keep clean than peaches. The trees have grown freely, and are carrying an average crop of fruit. Lord Napier not only appears to take the lead in point of earliness, but the fruit is of large size and fine quality.

Mr. Payne, Birkfield Lodge, Ipswich, says: Plentiful, and the trees are doing well, but more sun is required to bring the fruit to maturity.

Mr. D. T. Fish, Hardwick, Bury St. Edmunds, writes: These are the two crops of the season in the gardens, and are progressing most favourably.

Mr. C. Orchard, Combe Leigh, Kingston-on-Thames, remarks: Trees are fairly smothered with fruit.

Mr. J. Rodger, Charlecote Park, Warwick, states: Very heavy crop and the quality seems to be good. Such peaches as Hales's Early, Early Beatrice, and Malta have been of first-rate quality.

Mr. John Nichol, Belsfield, Windermere, writes: None grown out of doors, under glass good, except late house, in which no fire heat could be applied.

Mr. T. Challis, Wilton House, Salisbury, observes: Good crop; trees suffered severely from cold winds and excessive wet.

Mr. J. Allen, Compton Bassett, Calne, reports: The peach trees were protected with nets when in flower, and are an average crop: Stirling Castle and Violette Hâtive are the best, but they will require bright sunshine and warmer nights to ripen the fruit well. Nectarines under glass are an abundant crop, but on outside walls very thin.

Mr. W. Jones, Abbey Manor, Worcestershire, writes: Good crop on trees that were protected with blinds.

Mr. G. Westland, Willey Court, Stourport, reports: Trees are heavily cropped and the growth clean. Some of the old trees, which were injured two years ago, show signs of exhaustion and must be replaced, as the best means of ensuring plentiful crops.

Mr. G. Helman, Crown Earl Court, Worcester: The best crop on outside walls that has been known for many years.

Mr. John Clark, Studley Royal, Ripon, states: Abundant crop under glass; none grown outside.

APRICOTS.

ABERDEENSHIRE.—Fairly abundant and the fruit of full size.

ANGLESEA.—Good crops in some districts, light in others; on the whole below an average.

ANTRIM.—Rather light.

ARGYLLSHIRE.—Considerably below a full crop.

AYRESHIRE.—Moderately plentiful and of excellent quality.

BEDFORDSHIRE.—A heavy crop and the fruit extra good.

BERKSHIRE.—Abundant and of splendid quality in all parts of the county.

BERWICKSHIRE.—Below the average in quantity, but fully up to the mark in quality.

BUCKINGHAMSHIRE.—A heavy crop generally, with a few complaints of small supplies; fruit very fine.

CAMBRIDGESHIRE.—Abundant and good.

CHESHIRE.—Above an average and of splendid quality.

CLACKMANNAN.—Much below an average, with numerous complete failures.

CUMBERLAND.—Moderately good in some places; generally about half a crop.

CORNWALL.—Light crops and fruit not first class.

DEVONSHIRE.—Crops heavy and good.

DORSETSHIRE.—Rather mixed; heavy crops in many districts, light in others; on the whole a full average.

DURHAM.—Generally poor; in many gardens the trees have been either killed or seriously injured during recent winters.

EDINBURGHSHIRE.—Heavy crops in all directions; fruit good and trees healthy.

ESSEX.—Quite up to the average; very fine in some gardens.

FIFESHIRE.—Somewhat partial, and, on the whole, not more than half a crop.

GLAMORGANSHIRE.—A moderately good crop of excellent fruit.

GLOUCESTERSHIRE.—A good average.

HAMPSHIRE.—Heavy crops throughout the country.

HEREFORDSHIRE.—Generally heavy and good, with a few complaints of thinness.

HERTFORDSHIRE.—An abundance of fruit, but in some instances rather small.

KENT.—Partial, but on the whole not more than half a crop.

JERSEY.—Heavy crops of excellent fruit.

LANCASHIRE.—Rather light on the whole, with a few good crops here and there.

LEICESTERSHIRE.—Generally abundant; thin in a few places.

LIMERICK.—Crop heavy and the fruit good.

MIDDLESEX.—Generally good and fully an average.

MONMOUTHSHIRE.—Good crops, especially where protection was afforded the trees.

NORTHUMBERLAND.—Abundant and good.

PERTHSHIRE.—Light crop in some gardens, failures in others.

NORFOLK.—Heavy crops; trees healthy and fruit of good size.

NOTTINGHAMSHIRE.—Fully an average, and the quality up to the mark.

OXFORDSHIRE.—A little mixed, but the heavy crops predominate.

STAFFORDSHIRE.—Crops generally good and the trees making a good growth.

SUFFOLK.—An abundance of fruit of splendid quality; trees in capital health.

SURREY.—A fair average crop in most districts.

SUSSEX.—A poor crop, and the trees not altogether satisfactory.

WARWICKSHIRE.—Crops heavy and the quality good.

WESTMORELAND.—Very poor crop, and the fruit by no means first-class in quality.

WILTSHIRE.—Crops heavy and the fruit good; a few complaints of thinness where the trees were not protected.

WORCESTERSHIRE.—Excellent crops and the fruit of splendid quality.

YORKSHIRE.—Crop heavy in some places, moderate in others.

Mr. T. Jones, Royal Gardens, Frogmore, Windsor, writes: Plentiful, and of fine quality.

Mr. G. T. Miles, Wycombe Abbey, reports: An average crop; fruit fine and good, and trees in a healthy state. Moor Park is undoubtedly the best kind in cultivation.

Mr. J. Maher, Stoke Court, Slough, states: Abundant crops of Large Early, Musch Musch and Moor Park.

Mr. R. Owen, Yewden, Henley-on-Thames, observes: Under an average here, but we have a heavy crop of Moor Park.

Mr. Thomas Bailey, Shardeloes, Amersham, observes: A moderate crop, but trees are very healthy.

Mr. John Fleming, Clevedon, Maidenhead, reports: A fair crop on trees which were covered.

Mr. W. Matthews, Broughton Hall, Malpas, states: Moor Park is the best kind of apricot that I have this year; the finest are as large as oranges.

Mr. J. Hunter, Lambton Castle, Durham, remarks: All our trees here were killed to the snow level during the late severe winters.

Mr. A. Anderson, Oxenford Castle, Dalkeith, reports: The best crop we have had for some years. The varieties are good old-fashioned kinds, such as Moor Park, Hemskirk, and Orange.

Mr. Donald, Knotts Green, Leyton, observes: An average crop; some branches dying out with the fruit on them.

Mr. W. Mincher, Hardwicke Court, Gloucester, writes: A fair crop, Moor Park being the best.

Mr. W. Wildsmith, Heckfield Place, Winchfield, states: Very heavy crops; Moor Park and Musch Musch are our most certain bearers.

Mr. A. Young, Holme Lacy, Hereford, reports: Very heavy crops of good fruit, and trees healthy. I never remember such a crop; but I find the branches of Moor Park are dying off more than usual.

Mr. W. Coleman, Eastnor Castle, Ledbury, writes: A very heavy crop. Although well thinned, the fruit has not passed the stoning process satisfactorily.

Mr. T. Spencer, Goodrich Court, Ross, says: Thin here and round this neighbourhood; the variety chiefly grown is Moor Park.

Mr. M. Henderson Loudoun Villas, Ashby-de-la-Zouch, remarks: Variable, but good crops where bloom was protected.

Mr. W. Ingram, Belvoir, Grantham, writes: Unusually abundant; a heavy crop on some trees, though reduced by a severe frost in the spring.

Mr. T. Coomber, Hondre Park, Monmouth, reports: Trees that were protected with glass coping have very heavy crops, and the fruit is large and excellent. The kinds that have done well are Hemskirk, Shipley, and Peach; the trees are very healthy.

Mr. Bowie, Chillingham Castle, Northumberland, observes: Very plentiful, and the trees clean and healthy.

Mr. J. C. Clarke, Cothelstone, Taunton, states: Apricots are, in nearly all cases, a very heavy crop and the trees fairly healthy; the most sure

bearing kinds are the Moor Park and Hemskirk; the Royal and Musch Much we have discarded.

Mr. Challis, Wilton House, Salisbury, states: Good crop under wide glass coping; where not so protected very poor.

Mr. J. Allen, Compton Bassett, Calne, remarks: Apricots are an immense crop, especially Kaisha, Royal, Turkey, and Moor Park; the fruits of the latter are much spotted.

CHERRIES.

ABERDEENSHIRE.—Good crops in some districts, poor in others; on the whole a fair average.

ANGLESEA.—Nearly an average, and the fruit generally of good size.

ANTRIM.—Good crops; fruit of excellent quality.

ARGYLLSHIRE.—Rather light, and the quality below the mark.

AYRESHIRE.—Moderately good; crops not heavy nor the quality first-class.

BEDFORDSHIRE.—Crops good, and the fruit of fine quality.

BERKSHIRE.—Abundant and generally good.

BERKSHIRE.—Light in most districts; fruit rather injured by the rains.

BUCKINGHAMSHIRE.—A full average crop and the quality excellent; a few complaints of fruit injured by the rains.

CAMBRIDGESHIRE.—Nearly an average, and the fruit of good size and quality.

CARMARTHENSHIRE.—Crops heavy and the fruit good.

CHESHIRE.—Abundant in all districts; in some instances not of good quality, in consequence of too much wet.

CUMBERLAND.—Very light and generally of poor quality.

DERBYSHIRE.—Abundant in most districts, with a few failures.

DEVONSHIRE.—Good in some districts, poor in others; on the whole a fair crop, and Morellos the most satisfactory.

DORSETSHIRE.—Good crop generally, especially of Morellos; trees much injured by blight in some gardens.

DUMFRIESHIRE.—Considerably under the average.

DURHAM.—Early kinds fairly good; Morellos unsatisfactory.

EDINBURGHSHIRE.—Dessert kinds nearly an average, culinary sorts very light.

ESSEX.—A good average both in quantity and quality.

FIFESHIRE.—Rather thin, but of good size and quality.

GLAMORGANSHIRE.—Under average.

GLOUCESTERSHIRE.—Generally good, both in quantity and quality.

HAMPSHIRE.—Fairly good; Morellos the most satisfactory.

HEREFORDSHIRE.—Under an average; Morellos rather thin and the trees much injured by blight.

HERTFORDSHIRE.—Early sorts reported to be good and late kinds light, with much injury from blight.

JERSEY.—Morellos abundant, other sorts rather light.

KENT.—Good crops on the western side, light on the east, excepting Morellos, which are fairly good.

LANCASHIRE.—Under an average, and in some cases the fruit was damaged by the wet.

LEICESTERSHIRE.—Poor crop generally, but Morellos fairly good; black fly very troublesome.

LIMERICK.—A fair crop; quality good.

MIDDLESEX.—All kinds below an average, excepting Morellos, which are very good.

MONMOUTHSHIRE.—Nearly an average; Morellos plentiful and good.

NORFOLK.—Partial, but generally light; Morellos fairly good, but trees much blighted.

NORTHUMBERLAND.—Generally good, with the exception of Morellos. NOTTINGHAMSHIRE.—Rather unequal; good in some districts, light in others; trees in many cases much injured by blight.

OXFORDSHIRE.—A fair average; Morellos thin in many districts.

PERTSHIRE.—Rather thin; in some cases seriously damaged by wet.

SOMERSET.—Rather poor generally; a fair sprinkling of Morellos.

STAFFORDSHIRE.—Rather mixed; good in some cases, complete failures in others; on the whole below the average.

SUFFOLK.—Generally good; finer mid-season kinds damaged by wet; an average crop of Morellos.

SURREY.—Early and late kinds a good average.

SUSSEX.—On the whole a fair average; Morellos most abundant.

WARWICKSHIRE.—Good crop; much damaged by wet and blight.

WILTSHIRE.—Rather under an average of all but the Morello.

WORCESTERSHIRE.—About half a crop; the Kentish and Morello the most productive.

YORKSHIRE.—A very moderate crop throughout the county.

Mr. T. Jones, Royal Gardens, Windsor, reports: Early sorts very good crops, and fruit fine in quality; later sorts injured by rain; Morellos very fine.

Mr. G. T. Miles, Wycombe Abbey, writes: Over average crop and wonderfully fine; Morellos very fine and abundant; Frogmore, Early Black, and Governor Wood are both excellent early kinds; and Bigarreau and Bigarreau Napoleon are most excellent sorts for furnishing late supplies.

Mr. J. Maher, Stoke Court, Slough, observes: Abundant and fine, particularly Black Circassian, Bigarreau, and Morello.

Mr. T. Bailey, Shardeloes, Amersham, remarks: A very fine crop in orchards, and on walls Morellos extra good.

Mr. W. G. Pragnall, the Castle, Sherborne, states: Cherries do not generally succeed in this neighbourhood with the exception of the Morello, and of that variety we have a good crop on north walls.

Mr. J. Douglas, Loxford Hall, Ilford, writes: Abundant crops on wall and standard trees; many of the trees in the open were blighted, but those on the walls escaped. Governor Wood is one of the best cherries for standards, and the Kentish is very useful to come in before the Morello.

Mr. W. Wildsmith, Heckfield, Winchfield, states: Excellent crops of the Morello; very few of other kinds.

Mr. A. Young, Holme Lacy, Hereford, reports: Morellos on north wall abundant and good; fruits of dessert varieties on standards were very small, many cracked.

Mr. W. Coleman, Eastnor Castle, Ledbury, writes: Choice kinds on west walls very good; on north walls fairly good, blight or black fly troublesome; Morellos on north walls severely injured; some trees dying.

Mr. Lewis A. Killick, Langley, Maidstone, remarks: The cherry crop in this district was a failure on account of the weather; otherwise there would have been a fair crop of some varieties, the Morello especially on cottage walls bearing well.

Mr. J. Rust, Eridge Castle, Tunbridge Wells, writes: An excellent crop and of good flavour.

Mr. W. Ingram, Belvoir, Grantham, states: A good crop of Morellos, but very much blighted.

Mr. Bowie, Chillingham Castle, Northumberland, observes: In this district cherries are a good crop, with the exception of Morellos, which are rather scarce.

Mr. Walton, Hilton Park, Wolverhampton, writes: Have not had so poor a crop of Morellos in these gardens during the last thirteen years.

Mr. D. T. Fish, Hardwick, Bury St. Edmunds, reports: Most of the early sorts abundant and of good quality; some of the fine later ones, such as Governor Wood, much split by the excessive wet; Morellos dropping very much.

Mr. J. Nicol, Belsfield Gardens, Windermere, states: Bloom was abundant and fruit set well of all varieties, but a large proportion dropped in stoning.

STRAWBERRIES.

ANGLESEA.—Abundant and good on the whole; in some cases fruit injured by wet.

ABERDEENSHIRE.—A full average, and the quality good.

ANTRIM.—Crops heavy, but fruit much injured by the rains.

ARGYLLSHIRE.—Rather light in some districts, good in others; on the whole a full average.

AYRESHIRE.—Fruit abundant and good.

BEDFORDSHIRE.—Crops heavy, and the fruit of good size and quality.

BERKSHIRE.—A full average crop in most instances; much damaged by wet.

BERWICKSHIRE.—Crops good, and the fruit chiefly of full size.

BUCKINGHAMSHIRE.—Very abundant, and the fruit generally of large size, quality in many instances below the mark in consequence of the wet weather.

CAMBRIDGESHIRE.—Crops heavy, and the fruit remarkably good considering the weather at the time of its ripening.

CARMARTHEN.—Very abundant; fruit large, but not of first-class quality.

CHESHIRE.—Crop large, and the fruit of good size and flavour.

CLACKMANNAN.—A fair average crop.

CUMBERLAND.—A full average; the fruit large and of fairly good quality considering the wet weather.

DEVONSHIRE.—Crop generally good.

DORSETSHIRE.—Plentiful and the fruit of large size, but in flavour second rate.

DUMFRIESHIRE.—Above the average in quantity but second-rate in quality, in consequence of the wet weather.

DURHAM.—Abundant, and on the whole remarkably good.

EDINBURGHSHIRE.—A heavy crop of excellent fruit.

ESSEX.—Abundant and fairly good, considering the unfavourable character of the weather at the time of ripening.

FIFESHIRE.—An average crop; the quality moderate.

GLAMORGANSHIRE.—Plentiful, but somewhat damaged by the rains.

GLOUCESTERSHIRE.—Heavy crops, and considering the weather of excellent quality.

HAMPSHIRE.—Abundant, but much damaged by the wet weather.

HEREFORD.—Crops heavy, but quality not good, owing to the heavy rains when the fruit was ripening.

HERTFORDSHIRE.—Plentiful and on the whole fine in quality.

JERSEY.—Crops heavy and fruit of large size, but nearly flavourless.

KENT.—Considerably over an average; the value of market garden crops much depreciated by the wet weather.

LANCASHIRE.—Crops good; fruit much damaged by the wet.

LEICESTERSHIRE.—Good average crop; quality not up to the mark.

LIMERICK.—An average crop of good quality.

MIDDLESEX.—Crops heavy; fruit rather inferior in flavour, and in some cases rather small.

MONMOUTHSHIRE.—Abundant; fruit large in size, but seriously damaged by the wet.

NORTHUMBERLAND.—Good crops of excellent fruit.

NORFOLK.—A full average and the quality good.

NOTTINGHAM.—Plentiful, and generally of large size and excellent quality.

PERTSHIRE.—A large crop, but much damaged by wet and slugs.

SOMERSET.—A full average, and of better quality than might have been expected considering the weather.

STAFFORDSHIRE.—A heavy crop, generally poor in flavour, and in some instances small in size.

SUFFOLK.—A little mixed; but on the whole a fair average, and the quality good.

SURREY.—Generally a good average crop, and the quality fair; a few partial failures are reported.

SUSSEX.—A full crop, but in many instances the fruit was indifferent in flavour.

WARWICKSHIRE.—Abundant and fairly good in quality.

WESTMORELAND.—Crops heavy, and the fruit of large size; much damage done in some cases by the wet.

WILTSHIRE.—An abundance of fruit; quality not so high as in most seasons.

WORCESTERSHIRE.—Heavy crops of excellent fruit, which in many instances was much damaged by the wet.

YORKSHIRE.—Plentiful, but not of first-class quality, in consequence of the wet.

Mr. H. Landers, Southill Park, Biggleswade, reports: With us Wonderful is a heavy cropper and colours well.

Mr. G. T. Miles, Wycombe Abbey, writes: Considerably over an average; wonderfully fine in size and quantity, but somewhat deficient in quality, owing to so much rain. Oxonian and Loxford Hall Seedling are both fine sorts for late work; the latter is not, however, a good robust grower, but excellent in every other way.

Mr. R. Owen, Yewden, Henley-on-Thames, observes: The varieties grown here are Vicomtesse Héricarte de Thury, President, Dr. Hogg, and Aromatic.

Mr. T. Bailey, Shardeloes, Amersham, remarks: Strawberries have been abundant and fine. We are now (August 5) gathering Frogmore Late Pine, a valuable late variety.

Mr. W. Matthews, Broughton Hall, Malpas, observes: The two varieties that have been best with us this year are Sir Harry and The President.

Mr. G. W. Pragnall, Sherborne Castle, writes: President does best with us, and is our principal sort.

Mr. Davidson, Shaftesbury, Dorset, states: Keen's Seedling, British Queen, President, Dr. Hogg, and Sir Charles Napier are the best kinds grown here.

Mr. A. Anderson, Oxenford Castle, Dalkeith, remarks: Keen's Seedling, Duke of Edinburgh (Moffat), Garibaldi, and Elton are our favourite kinds.

Mr. J. Douglas, Loxford Hall, Ilford, observes: We began with Black Prince, and followed with Keen's Seedling, President, British Queen, and Frogmore Late Pine. Our last supplies were obtained from Loxford Hall Seedling.

Mr. A. Pettigrew, Cardiff Castle, reports: President, Vicomtesse Héricarte de Thury, and Sir Joseph Paxton do best in this district, and are the most generally grown.

Mr. W. Wildsmith, Heckfield, Winchfield, writes: Our best kinds are President and Vicomtesse Héricarte de Thury.

Mr. A. Young, Holme Lacy, Hereford, observes: Where late strawberries are grown Oxonian should have first place. On July 31 I saw in a neighbour's garden a grand crop just coming in; the plants were on a north border.

Mr. J. Froggatt, Belmont, Hereford, says: President and Elton Prince have been particularly good this year.

Mr. T. Spencer, Goodrich Court, Ross, writes: Our favourite sorts here are Keen's Seedling, La Grosse Sucrée, James Veitch, President, Sir Joseph Paxton, and Dr. Hegg.

Mr. R. Saudford, Danesbury, Welwyn, remarks: Garibaldi and Alexandra have been especially fine.

Mr. J. Rust, Eridge Castle, Tunbridge Wells, writes: I am now (August 5) gathering Trollope's Victoria and Loxford Hall Seedling from a north border.

Messrs. H. Cannell and Sons, Swanley, report: Strawberries over an average, and the quantities dispatched daily from this district during the picking season were simply enormous.

Mr. J. C. Clarke, Cothelstone, Taunton, states: Sir Joseph Paxton, President, Dr. Hogg, and Sir Charles Napier are the sorts most generally grown about here.

Mr. Z. Stevens, Trentham, writes: Fruits small in size and flavourless, and many rotting on the plant. This applies to such sorts as Sir Harry, Keen's Seedling, Vicomtesse Héricarte de Thury, and Sir Joseph Paxton.

Mr. D. T. Fish, Hardwick, Bury St. Edmunds, reports: Under an average here, Keen's Seedling and President fair; Dr. Hogg, James Veitch, and British Queen almost a failure. Generally the crop seems to have been an average, and of good quality.

Mr. J. Nicol, Belsfield, Windermere, remarks: We had an extraordinarily heavy crop; and the quality first-rate; individual fruit very large, in some instances over eight inches in circumference. The latter part of the crop very much injured by heavy rainfall: we had nearly eleven inches of rain in July.

Mr. J. Allen, Compton Bassett, Calne, reports: Strawberries have been an excellent crop and large, but required more sunshine to give them first-rate flavour. President, Garibaldi, and Sir Charles Napier have produced heavy crops, and Garibaldi is now bearing a second crop from forced plants turned out in March.

Mr. G. Westland, Witley Court, writes: President a very reliable sort; Lucas highly flavoured; Dr. Hogg not surpassed for flavour; Sir Charles Napier, British Queen, and John Powell good.

BUSH FRUITS.

ANGLESEA.—Most kinds plentiful, and generally good.

ABERDEENSHIRE.—Rather unequal, but on the whole an average.

ANTRIM.—Abundant, and the quality fully up to the mark.

ARGYLLSHIRE.—Rather under an average, and the quality not good.

AYRSHIRE.—Fairly plentiful, particularly gooseberries.

BEDFORDSHIRE.—Much above an average, and good.

BERKSHIRE.—Crops heavy, and the fruit of splendid quality.

BERWICKSHIRE.—A full average crop; fruit generally good.

BUCKINGHAMSHIRE.—Heavy crops of all kinds; in some cases red currants much injured by blight.

CAMBRIDGESHIRE.—Gooseberries and red and black currants very abundant; white currants hardly so plentiful; raspberries good.

CARMARTHEN.—Excellent crops of all kinds.

CHESHIRE.—Average both in quantity and quality.

CLACKMANNAN.—Abundant, and good in quality.

CUMBERLAND.—Crops of all kinds large, and the quality generally good.

DEVONSHIRE.—Very plentiful; more particularly currants and gooseberries.

DORSETSHIRE.—Crops heavy; fruit of good size, but in some cases below the mark in quality, in consequence of the wet weather.

DUMFRIESSHIRE.—A full average of all kinds.

DURHAM.—Heavy crops of all but raspberries, which were fairly good only.

EDINBURGSHIRE.—Average crops of currants, gooseberries, and raspberries.

ESSEX.—Over an average, gooseberries being very abundant; red currants much injured in many parts of the country by blight.

FIFEHIRE.—Abundant, and the quality excellent.

GLAMORGANSHIRE.—Good crops of fine quality.

GLOUCESTERSHIRE.—A little unequal, but generally good.

HAMPSHIRE.—Very plentiful, and in every way satisfactory.

HEREFORDSHIRE.—All kinds are reported to be abundant and good throughout the county; a few complaints have been made of injury done to the currants by blight.

HERTFORDSHIRE.—Crops heavy and satisfactory.

KENT.—Plentiful, but below the mark in quality, in consequence of too much wet at the time of ripening.

LANCASHIRE.—Very abundant, and fairly good.

LEICESTERSHIRE.—Raspberries an average; currants and gooseberries much above it.

LIMERICK.—All kinds plentiful, but raspberries hardly so large as usual.

MIDDLESEX.—Generally abundant and of fair quality, considering the wet weather experienced during the ripening process.

MONMOUTHSHIRE.—Crops generally good, with the exception of black currants, which in a few cases were hardly up to the mark.

NORFOLK.—Very abundant throughout the county, and the quality most excellent.

NORTHUMBERLAND.—Plentiful and of good quality.

NOTTINGHAMSHIRE.—Heavy crops of currants and gooseberries, and a good crop of raspberries.

OXFORDSHIRE.—Above an average in quantity, and nearly so in quality.

PERTHSHIRE.—Black currants thin; other kinds plentiful and good.

SOMERSET.—Crops heavy and the fruit of fine quality.

STAFFORDSHIRE.—Rather mixed. Gooseberries and currants plentiful and

good, with a few complaints of the kinds being rather thin; raspberries large and flavourless in some districts, under an average in others.

SUFFOLK.—Above an average, and generally good; red currants in some cases injured by blight.

SURREY.—Good crops; gooseberries of excellent quality, and all our correspondents agree in describing the currants as much damaged by blight.

SUSSEX.—Plentiful and good.

WARWICKSHIRE.—Rather unequal; currants much damaged by blight in some cases.

WESTMORELAND.—A good average, excepting black currants, which are rather thin.

WILTSHIRE.—Crops heavy, and on the whole most satisfactory.

WORCESTERSHIRE.—A full average, with the exception of black currants, which, in some instances, were rather thin.

YORKSHIRE.—Crops good; but the currant trees much blighted, and the crops seriously damaged in consequence.

Mr. A. Anderson, Oxenford Castle, Dalkeith, writes: Whitesmith, Warrington, Hedgehog, and Sulphur are our favourite gooseberries.

Mr. A. Pettigrew, Cardiff Castle, observes: The gooseberry bushes are more free from caterpillar than I have seen them for some years. This I attribute to the application in the winter of a liberal dressing of soot to the ground for some distance round the stem.

Mr. Lewis A. Killick, Langley, Maidstone, reports: Bush fruits have been fairly good; but with currants they were too watery to fetch the prices originally expected. The Black Naples and Raby Castle (Victoria), red, have been among the best currants; and Lancashire Lads (Merry Monarch) and Rifleman are the most popular gooseberries.

Mr. J. Wallis, Orwell Park, Ipswich, remarks: Currants have been an average crop, but the bushes have suffered from aphides, and much of the foliage dropped, thus exposing the ungathered fruit, and no doubt deteriorating its flavour.

Mr. D. T. Fish, Hardwick, Bury St. Edmunds, writes: Extraordinary crop; many of the gooseberry bushes broken down beneath the weight of fruit. Black currants also an enormous crop; raspberries a heavy crop of fine quality, the dull dripping summer on the whole suiting them admirably.

NUTS.

The crops of cobs, filberts, and walnuts are not equal to those of last year, and walnuts are the least satisfactory of the three. There are good crops of walnuts here and there, but on the whole they will not much exceed half an average. Of cobs and filberts there will, according to the reports of our numerous correspondents, be about two-thirds of a crop, the cobs being the most abundant.

The House, Garden, and Home Farm.

CONSTANTINOPLE.

O SYMBOL of thine empire's long decay,
Sad city girdled by thy myriad waves,
A voice, amid the wind that slowly waves
The dark funereal cypresses away
Above thy dead—like his who calls to pray
At sunset from thy minarets—moans and raves
Prophetic sorrows. Fate awearies craves
To end thy lustful and luxurious day.
Thy limbs are stiff, thy heart hath drunk despair,
Poor empire, fallen from thy high estate;
While, prowling round the bed whereon thou liest,
The jackal and the tiger and the bear,
Eye flashed on eye with fear and jealous hate,
Would rend thee and each other ere thou diest.

G. F. ARMSTRONG.

THE HOUSE.]

CAGE birds often occasion anxiety by a prolonged moult, more especially when they are aged. It is advisable to check this at a certain point, because of its exhausting nature and the probability that the birds will be thinly clad when the autumnal chills occur. The question is, what can be done? In many cases that have come under our notice we have found great advantage in a mere change of scene and circumstances, such as putting the birds into other cages and removing them to other rooms, so that all being strange about them, the awakening of curiosity proves highly beneficial. Birds that are customarily allowed to come out occasionally should have liberty more frequently when the moulting appears to progress badly. A little change of diet is also desirable, and the food should be nourishing and somewhat stimulating, the addition of pepper being often of great service. As a rule, moulting is a very simple affair, and soon over; its prolongation suggests bad conditions, and these should be mended if possible. A bird of almost any kind that is placed where cold draughts prevail will be constantly shedding feathers. This appears to be owing to the drying of the quills and their consequently shrinking. But whatever the reason for this action of cold, it is a fact that it occurs, and many a bird is stripped bare by it, while people look and wonder what is the cause of the shedding of the feathers. A matter of some importance is to remove from the cages all loose feathers as soon as possible. Parrots will sometimes play with a feather, and finding the toy a pretty one, will learn to pluck one when a toy is needed. Parrots that do not busy themselves with performances should have toys provided. A cotton reel answers well, but any small piece of clean wood will do for the birds to play with.

THE GARDEN.

BEDDING PLANTS can only be kept in good trim by constant attention. Remove seed trusses, yellow leaves, and rank growths. Put in cuttings of whatever is required.

CAULIFLOWERS to be sown on raised beds of fine rich earth; when they have their first rough leaves to be taken up and potted in thumb pots, in good fuchsia compost, and the pots plunged in a bed of coal-ashes. As soon as the pots are full of roots to be shifted to sixties, and in these to be wintered in frames, the pots plunged to the rim to prevent frost touching their roots.

CUCUMBERS for winter fruiting must be reared at once, and cuttings are preferable to seed, as the plants have a shorter habit, and are more fruitful.

Take very small cuttings from the ends of newly-made shoots, pot them singly in small sixties, and shut up over a gentle bottom heat. A small frame put over a heap of grass-mowings, mixed with dry litter, will afford enough heat to start them, and keep them going till new beds are made up.

EVERGREEN SHRUBS may now be moved with every chance of success, whether they be large or small. Where new gardens are being laid out, the gain of three months upon the ordinary planting season is no small matter, as it enables the planter to finish the chief operations at a time when the men enjoy the work, and the proprietor is enabled also to enjoy the result, and all to the advantage of the plants.

GESNERAS to flower in winter will require a shift now. The compost to be equal parts hazelly loam, fibry peat, and leaf-mould. Keep shaded and warm after shifting, and syringe frequently.

PINES swelling their fruit to have frequent supplies of liquid manure and abundance of atmospheric moisture. Young plants to stand the winter, for fruiting early next year, had best be removed from those swelling fruit, so as to keep them drier and more freely ventilated.

STRAWBERRIES.—Now is the best time in the whole year to make new beds, to ensure good bearing next year. If rooted runners are plentiful, take the best only, and destroy all the weak ones; but of any varieties it is thought desirable to propagate to the utmost, sort the runners as to sizes, planting the forwardest and strongest in beds to bear, and the late weaker ones in separate beds for stock: these latter will probably not bear till the year after next, and then will be strong plants. Strawberries to fruit in pots next year ought by this time to be strong and in need of a shift. The soil should be strong loam, well chopped over with rotten dung, and the plants to be potted firm.

Sow Horn Carrot on dry sandy borders for supply in early spring. Endive for spring use, Lettuce to stand the winter, Tripoli and Strasburg Onions to stand the winter, Turnips, and Prickly Spinach.

WINTER GREENS lately planted are now doing well. Breadths that were planted early and close now require every other plant to be removed, and there will be room for this now that summer crops are being cleared off.

THE HOME FARM.

THE sowing of stubble turnips and cattle cabbage must no longer be delayed, and the present time is favourable for the sowing of grass seeds both for two or three years' lay and for permanent pastures. The turnips must be sown immediately the land is cleared, for there is none too much time for the crop to reach a profitable stage by the end of the autumn. Seed of the large Drumhead Cabbage must also be sown to provide a stock of plants for putting out in the spring, and it may be well to remind cultivators not well acquainted with the management of cabbages that the variety here mentioned, which is unquestionably the best for winter crops, requires not less than twelve months for the full development of the heads. A sheltered position should be selected for the seed bed, and if the soil is not very rich it will be all the better, as stocky little plants stand the winter better than those that have made a vigorous growth. One pound of seed will be required for every acre to be planted, and to avoid waste and injury to the plants from overcrowding sow thinly and evenly. The sowing of grasses must be proceeded with as soon as the soil is in suitable condition. The ground must be quite free from weeds, or as nearly so as it is practicable to have it, or the pastures will be anything but satisfactory. There is yet time for sowing *Trifolium incarnatum*, which is one of the most productive of clovers, and differs from the other species in being biennial. Sown now it will give in the course of next summer a splendid cut, which, both green and in the form of hay, will be much liked by all classes of live stock.

Replies to Queries.

Devizes.—Yes; if the apparatus is all above ground.

Books.—Young Beginner.—The "Orchid Album," by Mr. B. S. Williams, is published in five-shilling parts, but the number of parts of which the book will consist appears not to have been determined as yet.

Darwin.—The stuff would be sold on commission, and you would have to find sacks, &c. Some growers sell their own produce, but to do so it is necessary first to hire a standing.

Fuchsias.—G. Fry.—Your seedling *Cetewayo* is a bold and brilliant double dark flower; sepals recurved, rich carmine; corolla short, regular, very stont, puce purple. *White Lady* reached us out of condition.

Earth Closets.—A correspondent inquires, "Who was the originator of the patent earth closets, Jennings or Moule?" If the "patent" were removed from the question we should refer our correspondent to Deuteronomy xxiii. 13, for the origin of earth closets.

Unhealthy Vines.—Clevedon.—The vines will probably make a more satisfactory growth next year, and we would strongly advise you to allow them to remain. At the winter pruning cut them back to within one or two buds of the base of the wood made this season.

W. Hobbs.—Your grapes are probably, like many other people's, spoiling for want of fire heat. A great many growers of grapes appear to be unaware that we have had a cool summer. Most of the bad samples sent here with letters of inquiry have failed through being kept too cold in the growing season.

Dionaea muscipula.—J. A. S.—This interesting little plant should be grown in a mixture of fibrous peat and sphagnum moss, and be placed, with the pot standing in a saucer of water, in an intermediate house, or in the coolest part of the stove. It will be advantageous to place it within a short distance of the glass, and it should be protected with a bell glass and be screened from brilliant sunshine. The *sarracenia* may be successfully cultivated in an ordinary greenhouse.

Names of Plants.—Constant Reader.—1, *Polypodium venosum*; 2, *Davallia bullata*; 3, *Adiantum pubescens*; 4, *Pteris serrulata*; 5, *Pteris serrulata cristata*; 6, *Phlebodium sporodocarpum*. Dunstall.—The pretty pink-flowered plant is the Rest-harrow, *Ononis arvensis*. A. P. C.—*Scutellaria Mociniana*. F. W.—1, *Asplenium appendiculatum*; 2, *Xeranthemum orientale*; 3, *Cordylina stricta*; 4, *Phyteuma comosum*; 5, a variety of *Begonia Pearcei*; 6, *Asplenium flaccidum*. Wallington.—1, *Erigeron canadense*; 2, *Senebieria coronopus* (syn. *Coronopus Ruslii*); 3, *Pulicaria dysenterica*; 4, shrivelled out of form; 5, *Sisymbrium officinale*; 6, apparently a robust form of *Diploxys muralis*. W. Mann.—*Lilium tigrinum*.

Exhibitions and Meetings.

FRANT COTTAGERS' SHOW.

PRESIDENT, THE MOST HON. THE MARQUIS OF ABERGAVENNY.

FRANT is a delightfully-situated and most picturesque village two miles south of Tunbridge Wells. On the right lie the Eridge woods, and on the left the Forest of Frant, the several approaches to which exhibit a profusion of the most beautiful and expansive scenery. The annual exhibition of the above association was held in the beautiful grounds of Shernfold Park, which adjoins the village green, through the kindness of the Countess of Ashburnham. The mansion is a handsome structure, built in the Italian style of architecture some thirty years ago, by the Hon. Percy Ashburnham, on an eminence of about 700 feet above the sea level. The air of this elevated spot is bracing and exhilarating, and extensive views reveal themselves on all sides. Distant glimpses of the Sussex downs and Surrey and Kent hills may be obtained, while even Fairlight, Dungeness, and Beachy Head are distinctly visible.

The grounds adjoining the mansion, rich in fine specimen shrubs, contain interesting examples of *Leycesteria formosa*, while *Rhus cotinus* shows with fine effect in the distance. There is a fine specimen of pomegranate growing on the walls. A fine bush, six feet high, of the old white azalea is here quite at home out of doors, and conifers thrive remarkably well. We noticed *Wellingtonia gigantea*, *Cupressus macrocarpa*, *Pinus insignis*, forty feet high, *Aracaria imbricata*, *Thuopsis borealis*, and a fine tree of the handsome cut-leaved *Platanus orientalis*. The association embraces the parishes of Frant, Eridge, Broadwater, Pembury, Lamberhurst, Wadhurst, Rotherfield, and Groombridge, and the show was of an exceptionally varied character, prizes being given for flowers, fruit, vegetables, cottage gardens, best kept cottages, poultry, plain needlework, honey in the comb, home-made bread, butter, writing, and drawing.

Some idea of the extent of the show may be gathered from the fact that there were no less than 536 exhibitors, some of whom sent in as many as 22 exhibits. There were 65 poultry exhibitors, 336 exhibitors of needlework, writing, and drawing, and 135 exhibited flowers, fruit, and vegetables. There can be no doubt of the amount of work thrown upon the honorary secretary, Mr. Ware, and the committee of management.

Prizes given in so great a variety afford an excellent stimulus and persuade nearly all the cottagers to take some part in the show. The day has become quite an annual holiday for the working classes, and is looked forward to with a keen spirit of pleasant rivalry in the various districts. The tents on Wednesday were arranged in a line and in the shade of trees. Those devoted to needlework, writing, and drawing were crowded during the afternoon, showing the great interest taken in this part of the work of the society. The exhibits of writing and drawing were very good, and the needlework, I was told, was more than creditable. In the vegetable, fruit, and flower tent there were some remarkably fine exhibits of the more useful products of the cottager's garden; while cherries, gooseberries, and currants were especially good.

Flowering plants and cut flowers were not so numerous. Wild flowers were very good, the first-prize collection containing no less than eighty-four varieties correctly named. In this tent Mr. Ellis exhibited a nice collection of shells and seaweed well arranged. For honey and home-made bread there was a strong competition. The prizes were distributed in the afternoon by the Marchioness of Abergavenny in the presence of a large number of people. The distribution over, the Rev. J. Filmer Sullivan, who had been looking at the fruit and the flowers and walking amid the sylvan beauties of these lovely grounds, addressed a few words to the cottagers and visitors gathered there. He hoped they would all be encouraged by the past, and he congratulated them upon the excellence of the show, wishing it all prosperity, and on behalf of the association he thanked Lady and Sir John Ashburnham for their kindness in throwing these grounds open, and Lady Abergavenny for distributing the prizes. A cordial vote of thanks to Mr. Ware was carried by acclamation.

STOW-ON-THE-WOLD FLORAL AND HORTICULTURAL SOCIETY, AUGUST 9.

This society held its third annual exhibition on the above date, in the beautiful domain of Quar Wood, Stow, by permission of the honorary secretary, T. W. Stubbs, Esq., and, favoured with bright weather, proved a success. The show as a whole was not so large as last season, still the quality of the exhibits staged was of general high character. The productions filled three large marquees, the divisions of the show being equalized between professionals, amateurs, and cottagers.

The display of plants in the gardeners' classes was truly grand, although the competition lay in very few hands; R. N. Byass, Esq., Daylesford House, and A. Sartoris, Esq., staging the bulk of the stove and greenhouse and foliage plants. In this department the premier honour, £5, for a group of ten varieties, went to Mr. Otley, gardener to Mr. Byass, who staged specimens of immense size, fresh and well flowered, including an *Allamanda Hendersoni*, *A. nobilis*, *Cissus discolor*, *Maranta zebrina*, a small-leaved myrtle, *Caladium laingii*, *Hibiscus Cooperi* (ten feet through), *Stephanotis floribunda*, *Croton pictum*, and a gigantic *Beaucarnea recurvata*; the second card going to Mr. Norton, gardener to Mr. Sartoris, of Abbotswold, for healthy but smaller examples of *Latania borbonica*, *Croton Weismanni*, *Anthurium Scherzerianum*, *Dracena terminalis*, *Begonia Weltoniensis*, *Eucharis amazonica*, *Agapanthus umbellatus*, *Alocasia metallica*, *Begonia carminata*, and *Seaforthia elegans*.

FUCHSIAS were really handsome pyramidal bushes, aglow with pendent bloom, the bulk coming from the conservatories of Abbotswold. Ferns were limited to several handsome exhibits of exotic kinds, the beautiful *Adiantum cuneatum* taking the prizes for single specimens. Geraniums were grandly staged by Mr. Otley, his half-dozen plants being large bushes carrying from sixty to eighty trusses of flowers each. The amateurs had a fair show of plants, such as geraniums, ferns, &c., as did the cottagers. In the latter division the exhibits were above the average.

CUT FLOWERS embraced very tastefully-arranged bouquets, table decorations, &c., but the button-holes, in sets of three each, were certainly most attractive, the premier award going to blooms of *Eucharis amazonica*; *Carnation the Bride*, and a *gardenia* and pip of *stephanotis*, each backed with a spray of maidenhair fern. There were a few dahlias of general average quality, and the annuals and herbaceous perennials were in force, and very neatly grouped. Roses were but few. The best twelve came from Miss Watson-Taylor, Manor House, Headington, Oxford, whose stand attracted much attention, the finest blooms being Alfred Colomb, La France, Marie Baumann, Mme. Marie Verdier, Charles Lefebvre, Mme. Lambert, Mme. V. Verdier, and

Souvenir de Paul Neyron; H. C. Wilkins, Esq., Chipping Norton, leading in the amateur section.

FRUITS included very handsome well-finished bunches of Black Hamburgh, Buckland Sweetwater, and Muscat of Alexandria grapes, Royal George peaches, Pitmaston Orange nectarines, Turkey figs, melons, and remarkably good gooseberries, currants, &c. Apples were chiefly of cooking kinds, the Lord Suffield variety taking the winning cards. The dessert kinds were not fit for table. Some good Jargonelle pears and toothsome plums were staged in the cottagers' tent.

VEGETABLES were a strong point, especially potatoes; these were on the whole of good table size, handsome, of good colour, free from disease, and correctly named. We noticed some two dozen popular varieties in the cottagers' classes. The number of potatoes shown was 1,066 tubers; these were entered in competition in classes for single dishes, and in collections of six tubers each of six sorts. In the gardeners' class for six dishes R. N. Byass, Esq., took the premier award for very clean handsome examples of Magnum Bonum, Triumph, International, Schoolmaster, Myatt's Prolific, and Harlequin (this last of the Early Rose type but more pointed). C. A. Whitmore, Esq., and P. Thursby, Esq., were placed equal seconds, so good were the dishes staged; they had White Elephant, International, Beauty of Hebron, Adirondack, Late Snowflake, Peerless Rose (very handsome), Pride of Ontario, and Brinkworth's Beauty (this graced several dishes, and is a very telling red kidney), Alma, Reading Abbey, Fluke, Walnut-leaf, and Snowflake. In the amateurs' division the competition was more keen. For six Mr. R. Blizard was placed first with Queen of the Valley, Vicar of Laleham, Trophy, International, Pride of Ontario, and Beauty of Hebron; Mr. R. Hanks a good second with Dalmahoy, Beauty of Hebron, Magnum Bonum, Early Rose, International, and Carter's Main Crop. In this class there were several other sets of six, including the varieties known as Butler's Kidney, Gloucester Kidney, Bresee's Peerless, Carswell Kidney, and Brownell's Beauty; while in the single dishes International, Rivers's Royal Ashleaf, Carswell Kidney, Royal Albert, Triumph, and Vicar of Laleham took the cards.

The collections of vegetables of ten kinds in the first division were all so good that equal first were awarded. Peas were largely staged, and a corresponding quantity of all other kinds was observable. Wild-flower bouquets were in large numbers; and a special award was made to the workhouse children for an arrangement in which the varieties were set out in five lines of different colours.

The cottagers, if possible, outdid their more wealthy compeers in the other divisions, as we noticed over two dozen varieties of the most popular kinds of potatoes, besides the best of beans and peas, &c. The fruit, too, in this tent was altogether commendable.

The judging was entrusted to Mr. Downing, gardener to A. Brassey, Esq., Heythrop Park; Mr. Buckland, gardener to Captain Arnold, Addlethorpe House; Mr. Otley, gardener to R. N. Byass, Esq., Daylesford House; and Mr. Merryfield, gardener to Mrs. Paul Butler, Wyck House.

The attendance was very large. The band of the Royal North Gloucester Militia was in attendance, and performed during the day, and also in the evening, when an *al fresco* dance took place on the spacious lawn facing Quar Wood House. At half-past eight there was a display of fireworks by H. Brock and Sons, which concluded the day's programme. The arrangements went smoothly at the hands of the executive, viz., Messrs. J. F. Nicholls, R. Blizard, and W. Norton (committee), under the direction of T. W. Stubbs, Esq., and Mr. J. M. Badger, the courteous and efficient hon. and assistant secretaries. Mr. Hickson, of the Unicorn Hotel, served the judges' luncheon, an invite to assist being courteously extended to

Oxford.

WILLIAM GREENAWAY.

HEADINGTON, OXON, VILLAGE SHOW, AUGUST 7.

On the above date the Headington Horticultural Society held its second annual exhibition in the spacious grounds of the Manor House, Old Headington, by kind permission of Miss Watson-Taylor, and, favoured with one of the finest days during the present summer, proved a splendid success. On this occasion the horticultural display was enhanced by a large exhibition of poultry, &c., the latter exhibition being under the management of Messrs. A. and H. Wootten-Wootten, of Headington House, assisted by an efficient staff of stewards.

Two spacious marquees were required for staging the exhibits; in addition, a large amount of tabling was arranged outside under the overhanging beeches which skirt the south side of the park.

PLANTS.—In making a brief report, we observe that this division was large and meritorious, the "groups of plants arranged for effect" forming a great feature, no less than five competitors staging collections, in which the number of plants ranged from eighty to sixty each. The post of honour was assigned to Messrs. North and West, who had very handsomely-grown fuchsias (one, the centre plant, a fine standard specimen), stag's horn fern, Lobelia cardinalis, double and single petunias, carnations, picotees, coleus, single and double geraniums, exotic ferns, Mesembryanthemum cordifolium, the mass edged with blue lobelia and Flower of Spring geraniums. Mr. Geo. Jacob, jun., Barton, was awarded second; his group comprised the choicest of decorative plants, including a well-bloomed orchid (oncidium), Ficus elastica, Cocos Weddelliana, ferns (hardy and exotic), coleus, foliage and flowering begonias, geraniums, fuchsias, edged with blue and white lobelias, and Isoplepis gracilis (exotic grass). Miss Watson-Taylor was assigned third place for a group in which there were several fine fuchsias, Lilium auratum (the golden-rayed lily of Japan), hydrangeas, coleus, roses, ferns, carnations and lobelias. High cultural commendations were awarded in this class to Messrs. R. and J. Price for a neat collection, in which ferns, lobelias, and flowering begonias predominated, Veronica gentianoides, Agapanthus umbellatus, Agrostemma coronaria (a fine specimen), salvias, &c. Mrs. Tebbutts, Highfield House, received a like notice for a group of smaller specimens, in which sunflowers, fuchsias, geraniums, salvias, begonias, balsams, petunias, palms, and lobelias blended with fine æsthetic taste. The above were staged by gentlemen's gardeners, who were well to the fore in

CUT BLOOMS, including a number of well-made bouquets, table decorations, and boxes of beautiful roses, "open to all comers," the winners' names being familiar at the exhibitions far and near. The "extra" exhibits of cut flowers embraced a box of hybrid perpetuals (40 blooms), bunches of tea-scented rose (160 blooms), and a box of 40 blooms of the pure white tea-scented roses Niphetos; these came from Mr. John Mattock, Rose Nursery, New Headington, and secured high cultural commendations. Miss Watson-Taylor staged a collection of tea-scented roses and a stand of dahlias, which were also honoured with a notice from the judges. Dr. Bywater Ward, Warneford

Asylum, also exhibited helichrysums, German stocks, dahlias, gladioli, annuals, phloxes, and cucumbers; these were awarded a first-class cultural commendation. Mr. C. Taylor, Old Headington, set up well-grown herbaceous phloxes in nine varieties.

FRUIT AND VEGETABLES.—The collections of fruit made a large show, Mrs. Jacob (widow of the late Thos. Jacob), Headington Quarry, leading with six dishes, and Major-General Desborough, Headington Lodge, for three dishes. The vegetables in this division, included some ten collections of general high quality; but the strong point was the classes for potatoes. For three dishes of kidneys ten competitors staged. Messrs. C. Bodimeade (gardener to W. Markby, Esq.) and J. T. Hall, gardener to P. F. Willert, Esq., were adjudged equal firsts; Mr. E. Ryman, Barton, second (these three dishes were very bright and smooth), and Mr. Charles Adams, Convalescent Home, third. For three dishes of rounds Mr. W. Wheeler, gardener to A. J. W. Taylor, The Rookery, first, Mr. J. T. Hall second, and Mr. C. Adams third. The number of potatoes exhibited was just under 1,400 examples. Of these a very large number were staged in Division I. by exhibitors whose rental does not exceed £13 per annum. In this division the productions spoke much in favour of the knowledge possessed by the competitors, as the bulk of the exhibits were well grown. In the class for peas fourteen exhibits were staged, and a corresponding competition was manifest throughout each.

EXTRA PRODUCTIONS.—Another valuable "extra" of note was a fine collection of potatoes grown by Mr. Slarke, gardener to the Earl of Ellesmere, and exhibited by Mr. H. Deverill, seedsman, &c., Banbury, comprising twelve tubers each of the following varieties: King of Flukes, Myatt's Prolific, Handsworth Early, Early Rose, Dean's Advance, Grand King, Grampian, Haropt's Kidney, Covent Garden Perfection, Bresee's Prolific, International, Pride of Ontario, Brownell's Beauty, Gloucester Kidney, Early Ashleaf, Centennial, Edgecote Seedling, Fenn's Bountiful, Rivers's Royal Ashleaf, Snowflake, Lady Webster, Early Warwick, Schoolmaster, Magnum Bonum, Early Vermont, Slarke's Kidney, Beauty of Hebron, Eclipse, and Peach Blow, the whole of fair size and free from disease. Mr. R. Busby, Kirtlington, staged, "not for competition," three handsome dishes of round potatoes, which were highly commended.

We ought to notice that the onions were more or less large, and approaching ripeness. One fine lot of autumn-sown were exhibited by Thomas Newport, St. Clement's; specially fine were those in competition for the special prize offered for "twelve bulbs of Rousham Park Onion," a variety raised at Rousham Park, Oxon, by Mr. S. Wingrove, gardener; they are of large size, compact, and mild in flavour. Mr. Deverill has the stock of seed: a dozen bulbs exhibited by him gave an average of fifteen inches circumference.

COTTAGERS.—The plants staged by the cottagers comprised some dwarf-grown and well-bloomed fuchsias and geraniums, the specimen window plants being above the average. Charles Snow, Headington Quarry, had the premier award for a nice Hydrangea hortensia carrying three heads or panicles of rose-coloured flowers; the second card going to William Hicks for a healthy Begonia Dredgi with white flowers. The display of fruit in the cottagers' tent embraced very fine Morello cherries, Jargonelle pears, heavy culinary apples, and large gooseberries, and black, red, and white currants. The apricots were not up to the exhibition standard. The wild flowers were very good, some sixteen capitally-arranged bouquets being staged by the school children.

GARDENS AND ALLOTMENTS.—Visits were made to the plots of the cottager inhabitants of the parish, which is an extensive one, and the judges were pleased to note the order and neatness prevailing, in addition to the planting and cropping. In one case we noted down the names of the potatoes, which had been very neatly tallied in the following varieties: White Elephant, Garibaldi, Trophy, Blanchard, Salmon Kidney, Purple Ashleaf, Vicar of Laleham, Avalanche, Radstock Beauty, Matchless, International, Reading Abbey, Reading Hero, Rector of Woodstock, Beauty of Hebron, Schoolmaster, and Early and Late Rose. A special prize was awarded to this competitor.

BEE TENT.—Another attraction was the Oxfordshire Beekeepers' Association Bee Tent, which filled well during the afternoon, when an expert (Mr. R. Green) lectured on and illustrated the "Improved and Humane System of Bee Culture, without Destroying the Bee." The manipulations were very interesting and instructive, but owing to the hives of bees sent not being in suitable condition for driving the expert was unable to display his skill to the best advantage. The Rev. W. Neame, Forest Hill, Oxon, kindly supplied the hives of bees, which, however, had not been properly packed for transmission. Messrs. Gill and Co., High Street, exhibited improved beehives. The presence of the bee tent on this occasion was entirely due to the generosity of G. H. Morrell, Esq., who defrayed the entire cost.

The duties of judging the horticultural productions were entrusted to Mr. W. Hovell, gardener to G. H. Morrell, Esq., and Mr. W. Berry, gardener to H. Parsons, Esq., Elsfield, in Division II.; the cottagers' department falling to Messrs. H. Deverill, Banbury, and W. Coppock, Headington Quarry.

The attendance was very large, including the leading gentry for miles round, some 1,600 persons passing through the gates, inclusive of 400 subscribers and friends; and it seems probable that in the future Headington Show will form an attractive August Bank holiday re-union.

The arrangements were under the direction of a staff of stewards marshalled by Oxford.

WILLIAM GREENAWAY, Secretary.

TAUNTON DEANE HORTICULTURAL SOCIETY.

The fifteenth annual exhibition of this society was held on August 10, in the Vivary Park, which is well known as a very eligible spot for such a gathering, owing to its close proximity to the main thoroughfare of Taunton. The town was gaily decorated with flags and bunting; the bells of St. Mary's church rang out merry peals, and in the centre of the town a military band dispensed charming music for a greater part of the day. Favoured by delightful weather, the company was very large indeed. Taunton is proverbial for the hearty manner in which holiday keepers flock to its flower show from districts many miles round. A military band is also placed within the park during the time the show is open, which always proves a great attraction. Every one who has any experience of the management of this show also knows how courteous are all the members of the committee, and Mr. C. H. Samson, the hon. secretary, works indefatigably to render every one happy and contented. That he succeeds is evidenced by the fact that there was not a hitch anywhere in the arrangements, and everything passed off in the most pleasant manner.

The display of plants was, on the whole, of a very satisfactory character. The amateurs' tent was not quite so well filled as is generally the case: but

the quality of the majority of the exhibits made up for any slight deficiency in number, and in many of the classes the contest was severe.

OPEN CLASSES FOR PLANTS.—In the tent devoted to plants there was a splendid display of first-class subjects, comprising palms, tree ferns, crotons, and miscellaneous flowering, stove, and greenhouse plants. Those put up by J. Lawless, Esq., of Exeter, and Mr. Cypher, of Cheltenham, were truly magnificent. Mr. Lawless's gardener (Mr. Cole) obtained the ribbon for twelve splendid specimens. Again in the class for twelve flowering plants Mr. Lawless had grand examples in the most perfect condition of *Erica Mar-nockiana* and *E. amule*, *Clerodendron Balfouriana*, *Lapageria rosea*, and *L. alba*; also a fine *stephanotis*. In Mr. Cypher's second prize for twelve plants he had capital examples of *Ixora Williamsi*, *E. Duffei*, *Erica Austiniana*, *E. Candolleana*, *Bougainvillea glabra*, &c. For eight exotic ferns Mr. Lawless was first with grand examples of superior cultivation. For eight fine-foiled and variegated plants Mr. Cypher was well to the fore with plants that bore the impress of a master cultivator. The gladioli of Mr. Dombree, of Wellington, and Messrs. Harkness and Son, of Bedale, Yorkshire, were very fine indeed, and the same must be said of a splendid collection from Messrs. Kelway and Son, of Langport, sent not for competition. The cut roses were a strong feature, and the individual flowers of great excellence. It is a question if there was ever before seen such a large collection at Taunton that contained such high quality flowers. The depth of colour and substance of petal were remarkable features. Dahlias were in strong force, the flowers being fine and well developed. The stand of single dahlias exhibited by Messrs. Lumbe, Pince, and Co., of Exeter, was much admired, the cactus dahlia being shown in grand form. The fuchsias in this tent from Messrs. Garaway and Co., of Bristol, were finely-grown plants, but a little past their best. The zonal pelargoniums made a grand display, as did also the cockscombs.

PLANTS AND CUT FLOWERS.—In the tent devoted to the amateurs Messrs. Lumbe, Pince, and Co. put up a grand show of foliage and flowering plants as an introductory decoration. The principal prizes for twelve stove and greenhouse plants went to Sir J. H. H. Amory, Bart., M.P., and also the first for six ditto. The same gentleman also secured the card for six foliage plants. There were other noteworthy exhibits in these classes; also for ferns, lycopodiums, &c. The fuchsias, which were largely shown, were also well grown and remarkably full of flower. The best dark varieties were Dodd's Favourite, Acme, and Daybreak. The best light flowers were Queen Victoria and Lustre. The cut flowers in this tent included dahlias, German asters, miscellaneous collections, zonal pelargoniums, roses, carnations, &c. It was a grand display.

In the lady's tent Miss Cypher was first for a dinner table arranged with fruit and flowers for ten persons, with a very tastefully-arranged table. This table had for a centrepiece a single plant of *Cocos Weddelliana*, rising out of a base of selaginella, and on each side a glass stand very tastefully decorated with choice flowers, conspicuous amongst which were some long spikes of bloom of the Francoa, a hardy plant, but which is also grown in pots sometimes. Miss Coker was second in this class with an arrangement very little inferior to the other. For hand bouquets Mr. J. Bland was first; Miss Cypher second.

FRUIT AND VEGETABLES.—The display of grapes on this occasion rather exceeded that of any previous year, but the quality was not equal to what we are accustomed to see at Taunton shows. The bunches for the most part were only of ordinary size, while the berries were certainly small. The collections of ten and six dishes of fruit contained nothing very remarkable. The same remark applies to all the other fruits. The first-prize grapes of Sir J. H. H. Amory were handsome and well-coloured bunches. There were plenty of white grapes shown both of Muscats and the Sweetwater, but very few of the Muscats were ripe. The vegetables made a grand display, and the quality of the exhibits was equal to any previous year.

The festival concluded with a grand display of fireworks in the evening.

EAST LONDON FLORICULTURAL SOCIETY, AUGUST 14 TO 16.

The annual summer exhibition of this society was held in the Coborn Schools, Tredegar Square, Bow, on the dates above mentioned, and although hardly so large as usual, was fully up to the average in quality. The collections of miscellaneous plants were remarkably good, and formed an important part of the show, and the fuchsias, lilioms, and coleus were remarkably good.

In competition for the prizes for fuchsias Mr. C. J. Dance was first in the class for six with large and superbly-flowered specimens. For three fuchsias of any age Mr. J. Holtum was first with capital examples, Mr. C. J. Dance a close second, and Mr. Hare was third. In the class for three fuchsias, from cuttings struck during the current year, Mr. Hare occupied the first place, Mr. Holtum was second, and Mr. C. J. Dance third, with specimens of the most creditable character, although differing in relative merit. For two Mr. Dann was first. Coleus were considerably above the average, the plants being of medium size, compact, and exceedingly well coloured. The first and second prizes for these were awarded respectively to Mr. Hare and Mr. Dann, and for two to Mr. Holtum and Mr. Parvin. In the class for three pots of lilioms Mr. Roberts was awarded the first prize, for specimens seldom equalled either as regards size, the immense number of blooms, or the high finish. Mr. Dann was first for a single pot of lilioms with a nice specimen. Ferns were admirably shown by Mr. Hare in the class for three, and the award of the first prize was well deserved. The first prize for two palms was awarded to Mr. Parvin.

The classes for collections were mostly well filled, and in that for a collection unlimited in number Mr. Parker was first with a large and excellent group, which filled the platform at one end of the large hall, and produced a striking effect. The lilioms and palms in the collection were particularly good, and the gloxinias were remarkable for their high degree of excellence. Mr. Roberts was first for a collection not exceeding twenty-five plants, in or out of bloom, with a fine group. For twelve plants Mr. Hare, Mr. Dann, and Mr. Holtum were first, second, and third respectively. For a collection of twenty-five plants in bloom Mr. Dance was first, and staged a capital lot of fuchsias and other good things, and in the class for twelve plants in flower Mr. Hare was first, staging several fine specimen lilioms. Mr. Dann was second with a group remarkable for the neatness of the specimens, and Mr. Dance was third, and had a capital example of *Abutilon Boule de Neige*. For six miscellaneous plants, open to those who had not previously taken a first prize in the class, Mr. Hitchins, Mr. Dance, and Mr. Parvin were the prizetakers in the order of their names.

The arrangements were, as usual, highly satisfactory, and to Mr. Tait, the secretary, and the executive committee much praise is due. The judges were Mr. J. Mowbray and Mr. George Gordon.

NATIONAL CARNATION AND PICOTEE SOCIETY.—EXHIBITION OF NORTHERN SECTION, MANCHESTER, AUGUST 15.

The annual northern exhibition of the National Carnation and Picotee Society was held in the Manchester Town Hall, under the auspices of the Council of the Royal Botanical and Horticultural Society. In addition to a fine display of picotees and carnations, there were on view several miscellaneous collections of stove and greenhouse plants and a considerable quantity of roses. The unfavourable weather which prevailed during a great part of last month had left its impress upon many of the blooms, but notwithstanding the adverse atmospheric conditions which then affected floral growth, the majority of the exhibitors had succeeded in raising flowers which were remarkable both for fulness and for purity of colour. The list of exhibitors included many fresh names, which may be taken as an indication that the culture of both carnations and picotees is being carried on to a greater extent than has been the case formerly. Another gratifying feature of the exhibition was found in the new seedlings, some of which appeared very promising.

Among the chief prize winners were Mr. B. Simonite, of Sheffield; Mr. S. Barlow, Stakehill, near Middleton; Mr. E. Adams and Mr. T. Flowdy, Newcastle; Mr. J. Whitham, Hebden Bridge; Mr. R. Gorton, Eccles; Mr. Taylor, Middleton; Mr. George Rudd and Mr. T. Bower, Bradford, Yorkshire; Mr. Chadwick, Dukinfield, and Mr. R. Lord, Todmorden. One side of the large hall was almost entirely taken up by decorative plants, gladioli, and cut roses. A collection shown by Messrs. R. P. Ker and Sons, Liverpool, included some crotons in splendid condition, and other beautiful stove and greenhouse plants, as well as some of the spotless white blooms of the *Lapageria alba*. Messrs. Dickson, Brown, and Tait, and Messrs. Dickson and Robinson, of Manchester, and Messrs. F. and A. Dickson, of Chester, were represented by gladioli or cut roses. A miscellaneous collection of plants, which occupied one end of the room, was contributed by Mr. John Hooley, of Stockport, and was chiefly remarkable for some fine bouvardias. In another collection, shown by Messrs. G. and W. Yates, of this city, were several beautiful specimens of the *Lilium auratum*. Mr. S. Barlow, of Stakehill, exhibited a small and unpretending collection of hardy flowers, amongst which was a plant of the "bog gentian" (*Gentiana pneumonanthe*). The most striking collection, however, in the room was one sent by Mr. Attenbury, of Timperley, and consisted of magnificent specimens of the *Eucharis amazonica*, for which the society's silver medal was awarded.

TWELVE CARNATIONS, all dissimilar (open to all): 1, B. Simonite, Sheffield; 2, E. Adams, Gateshead; 3, R. Lord, Todmorden; 4, T. Flowdy, Gateshead; 5, G. Rudd, Bradford, Yorkshire; 6, Geggie, Bury.

TWELVE PICOTEEES, all dissimilar (open to all): 1, T. Flowdy; 2, R. Lord; 3, B. Simonite; 4, G. Rudd; 5, G. Geggie; 6 not awarded.

TWELVE CARNATIONS, nine at least dissimilar (open to growers of 400 pairs or less): 1, R. Gorton, Eccles; 2, T. Bower, Bradford; 3, W. Taylor, Middleton; 4, G. Chadwick, Dukinfield; 5 and 6 not awarded.

TWELVE PICOTEEES, nine at least dissimilar (open to growers of 400 pairs or less): 1, R. Gorton; 2, T. Bower; 3, E. Adams; 4, W. Taylor; 5, G. Chadwick.

SIX CARNATIONS, dissimilar (open to growers of 150 pairs or less): 1, S. Barlow, Middleton; 2, J. Whitham, Hebden Bridge; 3, F. Law, Todmorden; 4, W. Prescott, Newton Heath; 5, J. P. Sharp, Perry Bar; 6, E. Shaw, Newton Heath; 7, G. Thornely, Middleton; 8, E. Pohlman, Halifax.

SIX PICOTEEES, dissimilar (open to growers of 150 pairs or less): 1, J. Whitham; 2, J. P. Sharp, Birmingham; 3, S. Barlow; 4, E. Shaw; 5, F. Law; 6, E. Pohlman; 7, G. Thornely; 8, E. Pohlman.

TWELVE SELFS: 1, R. Gorton; 2, S. Barlow.

TWELVE FANCIES: 1, S. Barlow; 2, G. Geggie.

CARNATIONS (single blooms).—*Scarlet bizarre*: 1, R. Lord; 2, T. Bower; 3, R. Lord; 4, T. Bower; 5, J. Whitham, Hebden Bridge; 6, R. Lord. *Crimson bizarre*: 1 and 2, R. Gorton; 3, G. Chadwick; 4, B. Gorton; 5, T. Bower; 6, R. Lord. *Pink bizarre*: 1 and 2, R. Gorton; 3 and 4, E. Adams; 5, R. Gorton; 6, E. Adams. *Scarlet flake*: 1, E. Adams; 2, B. Simonite; 3, G. Rudd; 4, R. Lord; 5, S. Barlow; 6, J. Whitham. *Rose flake*: 1, S. Barlow; 2 and 3, R. Gorton; 4 and 5, B. Simonite; 6, R. Gorton. *Purple flake*: 1, B. Simonite; 2, R. Lord; 3, T. Flowdy; 4 and 5, R. Lord; 6, W. Taylor, Middleton.

PICOTEEES (single blooms).—*Heavy-edged red or scarlet*: 1, R. Lord; 2, J. Whitham; 3, E. Adams; 4, R. Lord; 5, B. Simonite; 6, W. Taylor. *Light-edged red or scarlet*: 1 and 2, T. Flowdy; 3 and 4, B. Simonite; 5 and 6, T. Flowdy. *Heavy-edged purple*: 1, R. Lord; 2 and 3, B. Simonite; 4, G. Geggie; 5, W. Taylor; 6, B. Simonite. *Light-edged purple*: 1, R. Lord; 2, G. Geggie; 3, B. Simonite; 4, F. Law; 5, T. Flowdy; 6, F. Law. *Heavy-edged rose or salmon*: 1 and 2, J. P. Sharp; 3, Lord; 4, G. Rudd; 5, T. Bower; 6, J. P. Sharp. *Light-edged rose or salmon*: 1, R. Lord; 2, G. Chadwick; 3 and 4, R. Lord; 5 and 6, B. Simonite.

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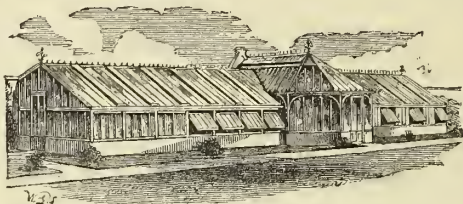
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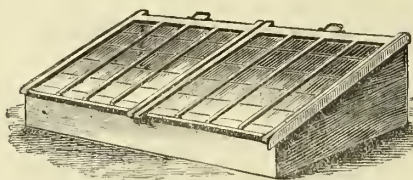
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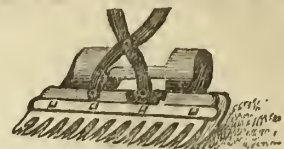
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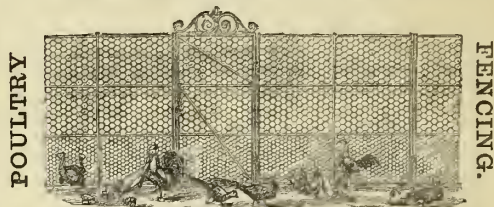
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TESTIMONIAL.

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PATENT RED RUBBER GARDEN HOSE.—Stands severe tests of Government Departments, thus proving superiority of quality. Lasts four times as long as ordinary India-rubber Hose, lighter in weight, greater in strength, and cheaper in the long-run than any other hose for garden use.

A Correspondent writes:—"I have had a length of your Red Rubber Hose in use nine years, and it is now as good as ever."

Private customers supplied at trade prices. Sample and price of MERRYWEATHER and SONS, Manufacturers, Leung Acre, London, W.C.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. av. of 60 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.
			Rises.	Souths after Noon.	Sets.	Itises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
27	S	12th Sunday after Trinity.	5 5	1 23	6 57	5 50	3 5	0 2	0 30	9 27	9 55	60.8	Aster coccineus, H.	Red. 239
28	M	Full Moon, 9h. 19m. afternoon.	5 7	1 5	6 55	6 19	4 29	0 55	1 20	10 20	10 45	60.7	Aster dumosus, H.	White. 240
29	Tu	St. John Baptist beheaded.	5 8	0 47	6 53	6 45	5 54	1 43	2 5	11 8	11 30	60.5	Erica Austrii, G.	Carmino. 241
30	W	Dr. Faloy born, 1743.	5 10	0 29	6 51	7 11	7 19	2 28	2 50	11 53	—	60.4	Ilarbrothamnus elegans, G.	Red-purple. 242
31	Th	Sittingbourne Railway Accident, 1878.	5 12	0 11	6 49	7 39	8 44	3 12	3 35	0 15	0 37	60.2	Ixora princeps, S.	Red. 243
		SEPTEMBER.												
1	F	St. Giles. Partridge Shooting begins.	5 13	0 8	6 46	8 9	10 5	3 57	4 20	1 0	1 22	60.8	Passiflora princeps, S.	Red. 244
2	S	Great Fire of London, 1666.	5 15	0 7	6 44	8 46	11 23	4 40	5 3	1 45	2 5	59.8	Veronica Imperial Blue, G.	Blue. 245

The Gardeners' Magazine.

SATURDAY, AUGUST 26, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

Exhibitions and Meetings for the Ensuing Week.

MONDAY, AUGUST 28, to WEDNESDAY, AUGUST 30.—EAST TOWER HAMLETS FLORICULTURAL SOCIETY.—Annual Exhibition.

TUESDAY, AUGUST 29.—BANBURY HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, AUGUST 30.—CHIPPENHAM HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, AUGUST 30.—ISLE OF THANET HORTICULTURAL SOCIETY.—Annual Exhibition.

THURSDAY, AUGUST 31. — ROYAL HORTICULTURAL SOCIETY OF IRELAND. — Autumn Exhibition.

THURSDAY, AUGUST 31, to SATURDAY, SEPTEMBER 2. — DUNDEE HORTICULTURAL ASSOCIATION.—Annual Exhibition.

Auction Sales for the Ensuing Week.

MONDAY, AUGUST 28.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs from Holland.

TUESDAY, AUGUST 29.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids from Messrs. H. Low and Co.

WEDNESDAY, AUGUST 30.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs from Holland; Imported Orchids from Messrs. Shuttleworth, Carder, and Co.

THURSDAY, AUGUST 31.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids from Mr. F. Sander.

SATURDAY, SEPTEMBER 2.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs from Holland.

THE CROPS OF THIS YEAR will soon be off the ground, and we shall be preparing for the next, with the aid of hope perhaps to inspirit us, and certainly with the aid of knowledge to direct us. That "hope springs eternal in the human breast" is sufficiently true to pass without question, but we may at this juncture doubt the soundness of the doctrine, "man never is, but always to be blest." When Pope committed himself to the declaration his thoughts were far away from crops, and ships, and banks, and shops, and other sources of material benefit; and so we may not properly subject him to a test of criticism in connexion with our reports on peas and potatoes. In respect of these matters it may be said that man is blessed when he has abundance, but when the crops are low and the prices are high the aggregate of possible blessedness is very seriously reduced. It may be said that in reference to the crops of this year we have been "hoping against hope," but the fact takes the place of the emotion, and it is pretty clearly demonstrated that this year will not prove a bright and blessed exception to the run of bad years to which we have become so painfully accustomed. The crops are not bad all round, but many that are really so have, as it were, but narrowly escaped being good, or even extra good, for some exceptional circumstances have occurred to change the current of the cheerful story. We shall need fully two months of fairly good weather even now to complete the ingathering, and we may have very bad weather to augment the number of our misfortunes. But at the best, when all is accomplished, and the plough is on its way again across the stubble, we shall have to reckon this as one of the sad seven years, of which five are now completed. It would avail but little to discuss at length the causes of our disappointment. The mild winter appears to have done but little positive harm, but it also appears to have done little positive good. The storms of April have entailed upon us losses that may be reckoned in millions of pounds sterling; and we may again dabble in millions if we endeavour to reckon up the consequences of the cold rainy weather experienced throughout the months of June and July. The value of sunshine has been strikingly exemplified since the fourth of this

month, when it may be said the summer commenced. It has arrested the progress of potato disease, rendered the harvesting of grain possible, and made a fair finish of the hay crop in the late districts. Still more strikingly has the influence of solar light on vegetation been displayed in the flower garden, for with the brighter days there came a perfect flood of flowers; and yet the sunny days have been divided by chilly nights, and the thermometer has on several occasions very nearly touched the freezing point. But tender plants seem able to endure without harm a temperature lower than we should dare to subject them to by intention, provided they are well established in the ground, and are brought to their full development in a dry healthy air under continuous sunshine. We cannot make sunshine, but we may, and must, take note of its action with a view to accommodate all our outdoor work to the necessity that is so amply demonstrated. When we plant strawberries on terraces, and potatoes on ridges, and stone fruits on walls, we are complying with the direct teachings of nature in respect to the powers of solar light, and it may be that we have much yet to learn as to the utmost advantageous appropriation of a power that we can never influence directly, and to only a small extent indirectly. As regards the possibility of indirect influence, we have but to compare the country with the town. In the country the light is strong and pure, and vegetation rejoices in it; in the town it is weak and impure, because we have ourselves loaded the air with smoke and dust, and the adulterated sunshine produces a weaker plant and a weaker man than that of the open country, where there are no fumes from chimneys, and no unwholesome exhalations from sewers and rubbish heaps, which are equally obstructive of sunlight and poisonous to all forms of animal and vegetable life.

We know not how much we have to learn, but one thing is certain, that we may learn patience advantageously. We may live to see grass and corn dried by machinery in seasons when the sun fails of his duty that way. The crops of winter-sown oats and of spring-sown wheat are this season so satisfactory in some few places that we may expect to see these cereals change places in respect of the season for the sowing of the seeds. The winter sowing of oats has been suggested by Nature herself time out of mind, for in every oat-growing district it is, and ever has been, a common occurrence for the first harvesting of a crop to occur on land self sown from the sheddings of the previous season. It is singular that the average put down in wheat has increased considerably, from which it must appear that the traditional order of cropping is in no danger of immediate extinction. It is certain, however, that in very many instances wheat has taken the place of barley, because of the discouragement the barley grower has suffered through the gratification of his desire for a repeal of the malt tax. There will be much grain secured this year, and some few other things, but a really good season it is not, and cannot be, for the time is gone for production, and the only change in our prospects now to be looked for is further loss through unfavourable weather.

Perhaps the fruit garden is more fruitful of lessons than of fruits. It is a very instructive and interesting fact that the miniature fruit trees have behaved exceedingly well this year, and they certainly do suggest that the standard trees would have borne abundantly if the early storms had not destroyed their harvest in the bud. These little trees, with their delightful dottings of colour, do not, and cannot, produce a heavy bulk of fruit as compared with thriving standards on a given extent of ground; but in a year of scarcity half a crop is a good crop, and the lesson of this half-crop is that we are indebted for it to the escape of the little trees from the blasts that tore the giants to pieces. It is the old, old lesson of the necessity for Shelter, and in that word "shelter" we have the one primary characteristic by which the garden is distinguished from the field, or, as Tusser might say, from the "champion country." The lesson of the little trees needs, more than any of the many lessons of this season—as of every season—to be heeded by the horticulturist. Whether a permanent change for the worse has come upon our climate, or whether we are passing through seven years of scarcity, to have a like period of plenty to follow, it is not for us to conjecture, nor could the subject be entertained advantageously in any casual way. But it is clearly indicated that, apart from the special local circumstances on which success everywhere must in a great degree depend, the general result will be satisfactory in proportion to the shelter secured against extreme conditions. The work of a year, or even of

a lifetime, may be destroyed by one hour's ravage of a rude wind, or by one night of severe frost. Production is always slow: the living structure is piled up, cell upon cell, as moisture, light, and food are provided for it. But destruction is rapid; it is often instantaneous, and yet in how many instances have we seen that some trivial protection would have averted it? The little fruit trees that escaped the blast that swept away the fruit crop in the month of April last, were in just the same happy case as the little mountain plants that make a low tufted growth instead of throwing up long branches, as their relations of the valley do. By keeping close the storm goes over their heads, leaving them unhurt, and thus humility may be regarded, not merely as a virtue, but as a positive protection from the dangers that await those who lift their heads too high.

THE COALBROOKDALE COMPANY have taken premises for show-rooms and offices at Nos. 43 and 44, Holborn Viaduct.

AN EXHIBITION OF SEEDLING POTATOES will be held at Northampton, September 21 and 22. Schedules may be obtained of Mr. Farr, Fawsley, Daventry.

A CASE OF POISONING BY DEADLY NIGHTSHADE is reported. A child gathered some of the berries in a garden, and died a few hours after having eaten them.

DR. SIEMENS' ADDRESS at the opening meeting of the British Association was devoted to a scientific analysis of the prevailing modes of producing light and heat for economic purposes. No such exhaustive statement of the case probably has ever been attempted.

SION HOUSE AND GROUNDS, BRENTFORD, will be open to inspection on the following five Wednesdays, namely, August 30, September 6, September 13, September 20, and September 27. Tickets (each passing six persons) may be obtained on application to Captain Stapleton Greville, R.N., 2, Grosvenor Place, S.W.

A PARCEL OF BLOOMS OF ANTIRRHINUMS, in considerable variety of colour, sent to us from Messrs. Stuart and Mein, of Kelso, illustrates in a striking manner the certainty with which flowers may be sent through the post if properly packed. These were in a frail card box, which happened not to be smashed in transit, and the flowers were protected by a thick wad of blotting paper made wet and laid over them. When taken from the box the flowers were as fresh as if but just gathered.

THE SAFE RETURN OF MR. LEIGH SMITH AND THE CREW OF THE EIRA is an event of considerable interest. While we congratulate the adventurous party on their escape from a thousand perils and disasters, we may also congratulate them on their contributions to the general stock of scientific knowledge, for every little is a mickle in the region of Arctic exploration. We must take notice of the report on the health of the men by their medical officer, as it strikingly confirms the objections to the use of lime-juice to which Mr. Hibberd gave expression in his speech at the luncheon of the International Potato Exhibition last year. It is, moreover, of interest and importance for other reasons. The report says:—

"Our food for ten months was procured by hunting, and consisted of walrus, bears, and looms. The meat was cut up into small pieces and boiled for about three hours. We had three meals a day, and about 12 lb. of vegetables were divided among the three meals every day. Every day from October to May 1 each man had a quarter of a pound of flour made into a 'dough boy' for dinner. Whenever it was possible, the blood was saved when a bear was shot; a pint of it put into the dinner pan made the soup beautifully rich. The effect of living on the meat of the country was (I am certain) that there was not the slightest symptom of scurvy among us; when the daylight returned, instead of every one looking pale and anemic, it was a surprise to all old wintering hands to see every one with rosy cheeks. No lime-juice was served, but one-fifth gill of rum per man was served out every day from October 1 to May 1. I must for the present defer expressing any opinion as to the relative value of lime-juice or rum in the prevention of scurvy."

THE PRODUCTION OF PURE WATER BY THE AGENCY OF SOLAR HEAT is a matter of such immense importance that we add to a former note on the subject the following from Mr. George Hicks, whose letter on the subject appeared in the *Times* of Saturday last. He says: "The most successful of the many processes of distilling water was adopted at Antofagasto, in the desert of Atacama, in South America, which process was invented by Mr. Charles Wilson, who obtained patents for its working in Peru, Bolivia, and Chili. As manager of the Antofagasto Nitrate and Railway Company, I received very considerable supplies of good fresh water from this apparatus, and during five years had ample opportunity of watching its successful and beneficial progress in a rainless district, containing about 15,000 inhabitants, situated almost 100 miles from any natural supply of good water, and I can certify to its being the most economical of all systems ever practised for distilling fresh water. The Antofagasto solar distilling apparatus covered an area of about 6,000 metres; the natural supply was a highly-saturated solution, containing about 10 per cent. of solid matter, from which 6,000 gallons of good fresh water were produced daily, at no other expense than a man in charge, with one attendant. I am induced to lay this subject before the public, feeling convinced that this process would be of great service if adopted by our army in Egypt, where the result would be still more favourable than at Antofagasto, as the solutions operated upon would probably not contain over 1 or 2 per cent. of solids, and in many cases the object of distilling would merely be to free the water of organic matter."

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, AUGUST 22.

THE committees had but little to engage their attention on Tuesday, for neither the novelties nor the miscellaneous subjects submitted to them were numerous, nor, with but few exceptions, were they of much importance. The most interesting of the contributions were the collection of single dahlias from Mr. T. S. Ware; the collections of cut specimens of hardy ornamental trees and shrubs staged in competition for the prizes offered by Mr. J. E. Ewing, and several dishes of fruit from Messrs. T. Rivers and Son, Sawbridgeworth.

The collection of single dahlias exhibited by Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, consisted of upwards of five hundred blooms, and included the named varieties mentioned in our report of the previous meeting, and numerous seedlings, possessing more or less merit. Staged in stone bottles of the same description as those in which single specimen carnations and picotees are exhibited, and in boxes in the same manner as show dahlias, they failed to present so attractive an appearance as they might have done; but they sufficed to show how exceedingly beautiful they are, and what a diversity of colouring they already afford. The award of a medal was recommended. Mr. Ware also exhibited a basket of the interesting *Eulalia japonica zebrina*.

In competition for the prizes offered by Mr. J. E. Ewing for twenty-four varieties of trees and shrubs with ornamental leafage, Mr. Harding, Orton Hall, Peterborough, and Mr. J. W. Moorman, Coombe Bank, Kingston-on-Thames, were first and second respectively; and Mr. Hardie, Mayfield, Falkirk, had an interesting collection. In the first-prize collection, which included perhaps too large a proportion of coniferæ, the following trees and shrubs were represented by admirable specimens, namely, *Taxus baccata aurea*, *Wellingtonia gigantea*, *Thujaopsis borealis*, *T. dolabrata*, *Pinus mugho*, *P. montezumæ*, *P. excelsa*, *Picea nobilis*, with cones; *P. Nordmanniana*, with two splendid cones; *P. amabilis*, *P. bracteata*, *P. lasiocarpa*, *P. pinsapo*, *P. grandis*, *Cupressus Lawsoniana*, *C. Lawsoniana aurea*, *Torreya myristica*, in fruit; *Cedrus atlanticus*, *Thuja gigantea*, in fruit; *Abies morinda*, *Aucuba japonica*, *Ilex aquifolium variegatum argenteum*, *Berberis japonica*, and *Buxus sempervirens aurea*. Mr. Moorman's collection consisted of *Prumnopitys elegans*, *Abies Albertiana*, *A. polita*, *Garrya elliptica*, *Widdingtonia ericoides argentea*, *Retinospora obtusa aurea*, *R. filicoides*, *Cryptomeria elegans*, *Larix Kämpferi*, *Rhus cotinus*, *Azara microphylla*, *Golden Elder*, *Cupressus Lawsoniana gracilis*, *Comptonia asplenifolia*, *Berberis japonica*, *Taxus baccata aurea*, *Quercus palustris*, *Juniperus tamariscifolia*, *Berberis mucronata*, *Acer negundo variegata*, *Retinospora plumosa aurea*, *Taxus adpressus*, and Perry's Weeping Holly. The collection from Mr. Hardie included specimens of *Quercus concordia*, *Retinospora plumosa aurea*, *R. selaginoides*, *Ilex aquifolium Lawsoni*, *Thujaopsis dolabrata*, *T. d. variegata*, *Abies Kämpferi*, *A. Englemanni glauca*, *A. Veitchii*, *A. Hookeri*, *Taxodium sempervirens albo-spicata*, *Cephalotaxus Fortunei*, *Arthrotaxis selaginoides*, *Alnus asplenifolia*, and *Liriodendron tulipifera variegata*.

Mr. F. Smith, Park Road, West Dulwich, exhibited a large group of balsams, consisting of plants exceedingly well grown, and bearing flowers of splendid quality. From the society's gardens came an interesting collection of tydæas, in which Robert le Diable and other fine varieties were represented. Messrs. Paul and Son, Cheshunt, staged a box of fine blooms of White Baroness rose, a beautiful white hybrid perpetual in the way of Mabel Morrison, but fuller than that variety. Messrs. H. Cannell and Sons, Swanley, exhibited a stand of African marigolds, which were of large size, full, and of splendid form, and represented a splendid strain of these showy flowers. G. F. Wilson, Esq., Weybridge, contributed cut specimens of *Lilium speciosum album* and *L. speciosum Melpomene*, a new American variety of great beauty.

Under the designation of *Celosia compacta* Crimson Superb Mr. Woodbridge, Syon, exhibited an excellent specimen of a good strain of *Celosia pyramidalis*. The plant shown was about eighteen inches in height, pyramidal in form, and well furnished with bright crimson spikes. Captain Patton, Alpha House, Regent's Park, sent six cockscombs with large well-formed heads, and a good specimen of the beautiful *Lisianthus Russellianus*. From Mr. Eckford, gardener to Dr. Sankey, Boreatton Park, Shrewsbury, came two or three stands of fancy pansies, in which were several flowers remarkable for their distinct colours, and a stand of cut blooms of sweet peas. Votes of thanks were, it may be added, awarded to each of the above-mentioned exhibitors.

The fruit exhibited by Messrs. T. Rivers and Son, Sawbridgeworth, included Clapp's Favourite pear, a rather large and handsome variety, ripening in August, but decidedly gritty; Beurré de l'Assomption pear, a large handsome fruit, very similar in appearance to Williams's Bon Chrétien, and Byron, Dryden, Chaucer, Lord Napier, and Rivers's Orange nectarines, all of which were raised at Sawbridgeworth, and are fast making their way into general cultivation. Messrs. Cheal and Son, Crawley, exhibited three melons, namely, Excelsior and Shepherd's Model, two white-fleshed varieties of much merit; the fruits are large, oval, and handsome in shape, and have a thick well-flavoured flesh; and Crawley's Paragon, a scarlet-fleshed variety in the way of Scarlet Gem, the fruits rather small, globular in form, and of a most delicious flavour.

The following First-class Certificates were granted:—

To G. F. Wilson, Esq., Weybridge, for

Lilium speciosum Melpomene.—A superb variety, raised by Mr. Hovey, of Boston. The growth is bold, and the flowers, which are much larger and of finer form than those of any of the other forms of *speciosum*, are of a deep rich rose colour, shading to pure white at the margin of the segments, and spotted with crimson.

To Mr. H. G. Smith, 17A, Coal Yard, Drury Lane, W.C., for

Carnation Mary Morris.—A very beautiful border variety, bearing freely and continuously large handsome flowers of a deep pink colour.

WITNEY FLOWER SHOW, AUGUST 15.

In conjunction with a large poultry show, this annual exhibition was held in the spacious paddock at the rear of the residence of N. Howso, Esq., Church Green, Witney, and proved a great success, despite the somewhat unfavourable weather experienced in the first half of the day, several heavy showers falling up to about one o'clock.

The exhibits were staged in four large tents, the largest, 100 feet by 40 feet, being devoted to plants and cut blooms only. The arrangement of this tent

was considered by the visitors to be A 1, the high quality of the exhibits aiding considerably in giving effect to a well-devised plan of staging.

For some years past this society has been indebted to the owners of large conservatories in the neighbourhood for a loan of plants to assist in making a display, but this year the committee, with commendable spirit, determined to offer prizes "open to All England," in order to produce competition in the class for large specimens of "stove and greenhouse plants;" and the offer of £10 and £5 as first and second prizes for nine plants was rewarded by one very superior collection from Mr. J. F. Mould, of Pewsey, Wilts, who staged in his wouted good form large fresh examples of *Erica Irbyana*, *Dipladenia Brearleyana*, *Dipladenia amabilis*, *Cycas revoluta*, *Clodendron Balfouriana*, *Bougainvillea glabra*, an *Ixora*, *Statice Batcheri*, and *Erica cineroides coronata*. This group obtained the £10 prize, an honour well deserved. The only other competitor in this class was Captain Waller, Charlbury, whose group, while it contained four fair plants, was scarcely eligible for the second prize, £5, and a special prize was recommended by the judge.

In the ordinary classes Mr. George Pratley, Burford, staged excellent half-specimens of stove and greenhouse plants and ferns and half a dozen lycopods splendidly grown. The single and double zonals made a blaze of colour, although we have seen better-grown specimens at previous Whitney shows. The fuchsias were in fair exhibition form. The best six came from Mr. Moses Fowler (gardener to Rev. W. F. Norris, The Rectory, Witney), who had six rather open pyramidal trained examples of Charming, Duchess of Buckingham, Tower of London, Arabella Improved, Try Me O, and Rose of Castille. Mr. H. Smith, Witney, presented smaller but densely-flowered bushes of Imogene, Day Dream, Anania, Covent Garden White, Crimson Globe, and Lady Dorothy Neville. There were many good double petunias, Mr. H. Surman leading; his best specimen was a plant of President Garfield, a premier among the many fine doubles raised by Mr. Surman. The cockscombs in the first division were not up to the usual Whitney standard, the best six coming from W. H. Wall, Esq., Bampton, the plants a little drawn, the colours being, three deep crimson, one rose, and two pale primrose-green. The finest cockscombs, however, came from Mr. Geo. Jacob, Barton, Headington, Oxford, whose plants were perfection. These were exhibited in the second division. This exhibitor also had the premier cards for mosses, tricolor zonals, roses, collection of bouquets, and cut pelargoniums. Balsams were fair, as were also the verbenas in pots. Mr. W. H. Smith, Captain Waller, C. D. Batt, Esq., and C. Early, Esq., all of Witney, exhibited largely in plants, of which there were some 300 specimens.

In the cottagers' tent the fuchsias, geraniums, and petunias were in some respects better grown plants than their better-off neighbours, but it must be stated that the subjects staged appeared to have been grown in greenhouses or glass frames: this would indicate a decided improvement in cottage gardening.

Among the cut blooms were very meritorious collections of bouquets, trusses of geraniums, pansies, asters, zinnias, roses, &c.; the table decorations and hand bouquets by the ladies being exceptionally good. The wild-flower bouquets by children were well-arranged exhibits, more or less tasty, and the collections of Masters Surman and Harris, in thirty-two and thirty-six distinct kinds, were altogether praiseworthy.

The tables dressed for dinner were on the whole good, but the space allowed was too limited for a good display.

The fruit was a very large feature of the show, the Black Hamburgh and Buckland Sweetwater grapes of C. D. Batt, Esq., and the black grapes of Mr. W. Worley being very fine, especially those of the last named, who had very handsome large-shouldered and well-finished bunches of Black Hamburgh. The peaches and nectarines were ripe, though not large, and the melons were fully up to the average. Plums, apricots, cherries, gooseberries, currants, and apples, with a few Jargonelle and Windsor pears, made up the list of kinds on view.

Vegetables were in force, the collections were numerous, and the censors had to bestow much time in judging the best (point for point) in order to arrive at a decision, so good were they in the general class. Of potatoes about 1,100 tubers were staged in competition, the whole clean, handsome, and of popular kinds. In the first or general class Mr. John Baker, Bampton, had the premier card for white kidney (International), red kidney (Trophy), and white round (Schoolmaster), with remarkably handsome dishes; the card for red round (Grampian) going to T. O. Gillett, Esq. The cottagers' samples and collections were quite equal to the other classes; in some cases the potatoes were very much larger, but quite as handsome.

At five o'clock Miss Howse (daughter of N. Howse, Esq.) distributed the cottagers' prizes, and also to the children for wild flowers. Thanks were accorded to that lady for her kindness in giving away the prizes, and also to Mr. Howse for his great generosity in granting the use of his grounds year by year.

The Whitney Band was in attendance and displayed great talent in the performance of a good selection of music.

The judges were, for general and amateur classes, Mr. Charles Hill, Rewley Nursery, Oxford; for cottagers', Messrs. H. Surman and J. Calcutt, jun., seedsmen, Witney.

Oxford.

WILLIAM GREENAWAY.

EXTRAORDINARY TITHES.—A public conference was held on Monday at the Bridge House Hotel, Southwark, to promote the abolition of these tithes, Mr. T. H. Bolton, president of the Anti-Extraordinary Tithe Association, occupying the chair. The attendance chiefly consisted of hop, fruit, and vegetable growers of Kent and Sussex. The chairman explained that in certain districts of these counties more particularly, but also in parts of Surrey, Hampshire, Worcester, Hereford, Cornwall, and Middlesex, there was, in addition to the ordinary tithe, an extraordinary tithe upon hops amounting in the aggregate to £40,000, and upon fruit and vegetables reaching in the aggregate a like sum. The tithe, which was very unequal in its incidence, amounted in some cases to 30s. an acre upon hops, 13s. 4d. upon market garden produce, and 10s. upon orchards and fruit. This extraordinary taxation operated, according to a Select Committee of the House of Commons, as "an impediment to agriculture, hampering new cultivation, and should be abolished." It placed English hop, fruit, and vegetable growers at a disadvantage with the foreign producer, to whom in 1880 we paid £900,000 for hops, £2,847,000 for potatoes, and £534,000 for onions. In view of the present condition of British agriculture, as revealed by the report of the Duke of Richmond's Commission, not a single impediment to the development of this important branch of industry ought to be allowed to remain. Finally, it was decided to ask the Government to receive a deputation from the Anti-Extraordinary Tithe Association for the purpose of representing the necessity for the speedy removal of the impost.

FLOWER TRIALS AT CHISWICK.

A FURTHER inspection of the flowers sent to the gardens of the Royal Horticultural Society at Chiswick for trial has been made by the Floral Committee under advantageous circumstances, the day being fine and the committee in full force. The gardens are very gay, and in capital keeping. Bedding plants, generally speaking, have flowered well everywhere this year, and many old favourites, such as the verbena, heliotrope, petunia, and calceolaria, have been seen in fine condition. The zonal pelargoniums have been magnificent, and begonias have made a glorious show. We have sometimes thought that as we rarely have a good hay crop and a good wheat crop in the same year, so we might expect that zonals and begonias would not run together well; but in this speculation we are happily mistaken. The zonals love sun, and the begonias love rain; and in the present summer each appears to have been gratified. As regards the flowers at Chiswick, however, these two classes are rather weak. But a bedding display, pure and simple, is no part of the programme there; the beds are planted with subjects sent for trial, and great skill is displayed in turning these to account, so that there shall be no patchiness or incongruities, for, as a matter of fact, the garden is richly and harmoniously coloured. The business for us, in the present report, will be to accompany the Floral Committee, and take note of the subjects to which critical attention is directed.

ACHIMENES fill one of the smaller houses, and constitute a good representative collection. The leading varieties were arranged in groups, and the committee selected the more distinctive and meritorious for notes of admiration. As there were no novelties amongst them, certificates were not awarded, but a vote of three stars (***) may be considered the equivalent of a F.C.C., and a note of two stars (**) the equivalent of a S.C.C. The first group to be examined may be regarded as the section of *A. longiflora*. The plants made a grand show with their numerous large, smooth, richly-coloured mauvy violet or soft purple flowers. Several bearing different names were found to be the same, or differing too slightly to be entitled to recognition. One labelled Cassiope could not be distinguished from an old favourite bearing another name, and therefore it was cancelled. When the weeding was done the following were recognized as worthy of three marks (***) each, namely: *Longiflora*, *Mauve Perfection*, *Longiflora major*, and *Mauve Queen*. These run near together in style and colour, but are distinct enough and are all desirable. The next step was a step down to *Dentomus*, soft lavender-blue, and *Longiflora picta*, rosy lavender; to these two stars (**) were awarded. The next group may be called *Longiflora alba*, identical with *Jaureguia*: these have large white flowers corresponding very nearly with the purple flowers of the section just disposed of, save in respect of colour. The first selection from this group was *Margaretta*, a fine flower in form and substance, perfectly white without a stain. To this was awarded a mark of three stars (***). The next selection comprised *Celestial*, white with purple stain in centre, and *Cherub*, very like the last, but the plant more compact; to these a mark of two stars (**) was awarded. The next group consisted of the section of *Tubiflora*, an unattractive group illustrative of the proverb which declares a good horse cannot be of a bad colour. They are very well made, but they are badly coloured in shades of rusty purple or reddish mauve. From this lot only one was selected, that being *Tubiflora*, to which two stars (**) was awarded. The next was *Georgiana*, a variety with large bold leafage, flowers of medium size, of a brilliant carmine shaded with orange, which was awarded two stars (**). Next came *Dr. Hopf*, the plant of good habit, the flowers white or bluish, with rosy-purple centre; two stars (**). *Diamond* was cancelled, proving the same as the well-known and much-admired *Ambroise Verschaffelt*, white ground richly pencilled with purple; awarded three stars (***). *Ami Van Houtte*, the habit neat, flowers medium size, soft purple; two stars (**). *Floribunda*, like the last, and a shade better; three stars (***). The *Reticulata* group were considered too poor to afford anything worthy of remark, but *Liemanni*, a smallish flower of a soft purple colour, obtained two stars (**). *Grandiflora* is of tall and diffuse growth, the leaves large, the flowers large, the colour puce rose; two stars (**). The beautiful old *Sir Treherne Thomas*, with rich rosy flowers, stands alone in its class, and readily obtained three stars (***). *Pink Perfection* was cancelled, being the same as another fine old variety known as *Carl Wulforth*, with lively rosy purple flowers, which also obtained, as by acclamation, three stars (***). *Masterpiece*, rosy purple, two stars (**). *Admiration*, a sort of dwarf form of the last; the same award (**). *Louis Van Houtte* is a good variety of the same purple-rose colour, but it was passed by. The same happened to *Camille Brogni*, a compact-flowering plant, the flowers pale lavender-purple. *Diadem*, spare habit, flowers smallish, lively light carmine; three stars (***). *Unique*, spare habit, small flowers, colour rich carmine-crimson; three stars (***). *Dazzle*, an old favourite, small, brilliant scarlet; two stars (**). *Firefly*, another old favourite, habit compact, flowers small, brilliant carmine-scarlet; three stars (***). *Hoffgartner Neuner*, smallish, rich rosy carmine; two stars (**). *Hoffgartner Wendschiff*, small, very flowery, rich rosy purple, two stars (**).

GESNERAS AND TYDÆAS.—The house devoted to these is very attractive by reason of the bold handsome leafage and very distinct characters of the flowers. There was not much work for the committee here, however. *Gesnera macrantha* has large, soft, light green leaves and brilliant salvia-like scarlet flowers, a very striking plant; three stars given without hesitation (***). *Tydæa Cybele* is extremely beautiful, the plant of dwarf habit, the flowers of fair size, richly pencilled in lines of deep maroon on a ground of vinous red; three marks (***). *Tydæa Chiron*, the leaves large, the plant inclined to robust growth, the flowers bright cinnabar-red overlaid with a heavy pencilling of dark lines; three stars (***). *Tydæa venosa*, rich purplish rose, heavily veined; three stars (***). *Tydæa Magician*, in the style of Robert le Diable, flowers dark rich red, shading into maroon, red in the face; First-class Certificate. *Cornvillie*, a peculiar hairy plant, the flowers dull vinous red; no marks. *Harlequin*, a bold plant, dark, with a curious veined face; three marks (***). *Kosanovia crenata*, a peculiar gesneraceous plant of smallish growth, the flowers prolonged into a curved trumpet form, ivory-white with pale stripes of rose, curious and beautiful; two marks (**).

VERBENAS have made a good growth and are very gay with flowers; *Ball of Fire* an extra fine full scarlet; *Phlox*, rosy purple, white eye, fine; *Auguste Reuz*, large, scarlet-carmine, large white eye, grand for pot culture, and a capital bedder; First-class Certificate. *Kentish Beauty*, rich deep cherry-tinted carmine, white or pale amber eye; three stars (***).

HELIOTROPEs appear not to make any special progress, for as the flowers acquire distinction by reason of the largeness of the corymbs or the positiveness of colour their fragrance declines, and thus the heliotrope loses by "improvement" one of its principal charms. *White Lady*, President Garfield,

Surpasso Guanoi, Jersey Beauty, Sensation, and Duchess of Edinburgh appear to be requisites where any collection of heliotropes is required. Madame Vilmerin is remarkable for the immense size of the corymbs; the flowers are bluish grey like forget-me-nots, and are almost odourless. Madame Athlos, large corymbs, flowers grey with deep purple base, very sweet; three stars (**). Bouquet Parfait, dwarf and compact in growth, flowers blue-purple, shading to grey, pleasing in appearance and delightfully fragrant; three marks (***)

MARGUERITES form a pretty patch, but afford no scope for criticism. The sorts are so nearly alike that two or three will suffice for any purpose. To our thinking, the original *Chrysanthemum frutescens* is the best of all, by reason of its elegant glaucous leafage and abundant production of neat white flowers. But *Chrysanthemum Halleri* obtained most favour, and it certainly makes more show than the other. The plant is more leafy, and not in any degree glaucous, and the flowers are larger, and produced in greater profusion. A variety named *Pinnatifidum* is very distinct, the leafage being finely cut and conspicuously glaucous tinted; it produces very few flowers.

TROPEOLUM.—There is a long line of *Tropæolum Bedford Rival*, faced with a line of trial Lobelias. The *tropæolum* is of dwarf growth, and somewhat wiry, the leaves smallish, the flowers smallish. All these seemingly weak points tell in favour of the variety as a bedding plant, for robustness and leafiness are often grave faults in a bedding *tropæolum*. The flowers are light scarlet in colour, and are produced in immense profusion, the result being a very brilliant and true bedding effect; three stars (***)

AGERATUM.—Only one was selected for honours. *Malvern Beauty* is very dwarf and compact; the flowers appear in large heads and in great plenty, the colour beautiful soft starch-blue; First-class Certificate.

PENTSTEMON.—Here again only one was thought worthy of special notice. *Virginal* is a pure white, of fairly good quality, yet wanting in dignity. For its distinctness and purity it was awarded two marks (**).

ROYAL HORTICULTURAL SOCIETY.—FLORAL COMMITTEE MEETING AT CHISWICK, AUGUST 16, 1882.

The Committee (G. F. Wilson, Esq., F.R.S., in the chair) inspected the collections of achimenes, tydæas, verbenas, heliotropes, &c., when the following awards were made. The names of those varieties that are printed in italics were granted first-class certificates, the others, not in italics, being recommended as worthy of culture.

VERBENAS.

Phlox (Cannell and Sons).—Plant of fine vigorous growth, very free flowering; the trusses of medium size; flowers large, rosy crimson, with mauve ring round distinct white eye.

August Reuz (Cannell and Sons).—Free habit, free-flowering; the trusses of medium size; flowers rosy scarlet with distinct yellowish eye. A showy variety.

Kentish Beauty (Cannell and Sons).—Plant of vigorous growth, free-flowering; trusses and flowers large, well displayed, of a beautiful rosy claret with pure white eye.

AGERATUM.

Malvern Beauty (Cannell and Sons).—Close compact growth, free-flowering; the flowers well displayed, pale blue. A fine variety.

IVY-LEAVED PELARGONIUM.

Rossini (Lemoine).—A free-growing variety. Stem short-jointed; the trusses of medium size; individual flowers very large, of a beautiful magenta-scarlet. A very fine addition to the single-flowered section.

HELIOTROPES.

Bouquet Perfume (Lemoine).—A dwarf and compact free-flowering variety; the trusses large, well displayed; flowers dark lilac-blue. A good variety for pot culture.

Madame P. Athles (Lemoine).—Vigorous habit, free-flowering; the trusses large and well displayed. Dark blue.

PENTSTEMON.

Virginal (Lemoine).—A variety of fine free habit with pure white flowers.

TROPEOLUM.

Bedford Rival (Dean).—A fine free-flowering variety, with flowers of an intense orange-scarlet colour.

ACHIMENES.

The collection includes about a hundred sorts, from which the following were selected as the best in their respective classes, and received three marks of merit:—

Margaritæ (Vallerand).—Pure white, fine, large-flowered. Good habit.

Mauve Queen (Vallerand).—Mauve, with orange-spotted eye; tube shaded orange.

Longiflora macrantha (Vallerand).—Pale blue; tube shaded orange; large showy flowers.

Longiflora (Vallerand).—Blue; more compact in habit than the above; leaves reddish beneath.

Mauve Perfection (Vallerand and Van Houtte).—Mauve purple, veined with crimson; fine large flowers; very free. This was received from Van Houtte under the names of *Cassiopée* and *Mauve Perfection*.

Ambroise Verschaffelt (Vallerand).—White, shaded mauve, deeply veined with purple; lemon eye. From Van Houtte under the name of *Diamond*.

Sir Trucheno Thomas (Vallerand and Van Houtte).—Rosy purple, with orange-spotted eye; leaves reddish beneath.

Floribunda (Vallerand).—Deep violet-purple. Very dwarf.

Carl Wolfarth (Van Houtte and Vallerand).—Violet-purple; pale yellow eye, spotted with red; very free-flowering. *Frau Schiller* (Van Houtte), *Pink Perfection* (Van Houtte), and *Baumann* (Van Houtte) are the same as the above.

Diadem (Vallerand).—Bright rosy scarlet; yellow eye; lobes of flower serrated.

Uniquo (Vallerand).—Bright magenta; orange-spotted eye.

Firefly (Vallerand).—Bright scarlet, with orange eye.

The following received two marks of merit:—

Celestial (Vallerand).—White, slightly veined with mauve; mauve eye.

Cherub (Vallerand).—White, with mauve eye; dwarf habit; leaves brownish beneath.

Dentonia (Vallerand).—Pale mauve with purple veins.

Longiflora picta.—Rosy lilac; large flowers.

Tubiflora (Vallerand).—Copper-red, with orange centre; long orange tube *Georgiana* (Van Houtte).—Bright scarlet; orange throat; long open tube, and small lobes.

Dr. Hopft (Vallerand).—White, with mauve centre. Dwarf and very free-flowering.

Ami Van Houtte (Vallerand and Van Houtte).—Deep violet-blue; throat yellow, with dark spots; leaves pale green.

Liebmanni (Van Houtte).—Mauve-purple, shaded with white in centre.

Grandiflora (Vallerand).—Rosy lilac, white centre.

Masterpiece (Vallerand and Van Houtte).—Violet-purple; white throat; large brownish leaves.

Admiration (Vallerand and Van Houtte).—Rosy purple; whitish throat; rough brown leaves.

Hofgartner Neuner (Van Houtte).—Magenta-rose; orange-spotted eye.

Dazzle (Vallerand).—Bright orange-scarlet; small yellow eye.

Hofgartner Wendseach (Vallerand and Van Houtte).—Violet-purple; small flowers; compact habit.

TYDÆAS.

Cybèle (Vallerand).—Soft rosy carmine; lobes spotted and striped with crimson.

Magicien (Vallerand).—Deep orange-scarlet; lobes spotted and striped with deep crimson.

Chiron (Vallerand).—Bright scarlet; lobes spotted and striped with crimson.

Harlequin (Vallerand).—Tube purple; lobes greenish yellow, heavily spotted with purple.

Venosa (Van Houtte).—Tube red; lobes soft carmine, spotted and striped with red.

The two following *Gesneriaceae* plants were also regarded as meritorious:—*Rosonowia ornata* (Van Houtte).—Creamy white covered with rose lines on the tube and on the two superior lobes; interior striped with purple.

Gesneria macrantha (Van Houtte).

JUDGING IN THE CLASS FOR SALADS.

A BIT of correspondence has passed through my hands which it seems may be made public with advantage. If it does not instruct it will amuse, and possibly suggest some other considerations. A representative of a horticultural society had to deal with a perplexity and obtained the assistance of a gentleman reputed to be well informed on the subject out of which the perplexity arose. He wrote as follows to his friend: "At our show we had a class for collections of salads. Mr. O. P. Q. put up a collection which contained Borage, Shallots, and Horseradish. There was some talk about the propriety of including these things in a collection of salads, and the general opinion of the gardeners was that the collection should be disqualified. I will not trouble you as to what followed, for I want your opinion on the case as thus put. If you had to judge in this class for salads, how would you regard the borage, shallots, and horseradish, as three salads or three things of another class?—X. Y. Z." To this the following reply was sent: "Having been a studious, experimental, and sometimes fantastic, salad maker for some thirty or more years, I have used all the three things mentioned in preparing a salad. Borage may sometimes be useful to give the flavour of cucumber, a little minced shallot will take the place of onion, and a little very delicately-scraped horseradish may be useful to give pungency, and moreover the tender blanched tops of horseradish make a welcome addition to any salad. However, it must be granted that borage is not a proper salad plant, and can be properly shown in a class for *Herbs* only. Shallots and horseradish are not proper salads, and can be shown only in classes for *vegetables* and *culinary roots*. Then what shall I do if I have to judge in the case you propose? Knowing all three subjects to be available for salads, and sometimes really valuable, I cannot in conscience disqualify. But, on the other hand, I shall not count them in judging while better or truer salads are against them. For example, if borage, shallots, horseradish, lettuce, endive, and radishes constitute one group, and lettuce, endive, radishes, beet, cucumber, and water-cresses another group, I should probably put the borage lot third or nowhere, and the other lot first or second, according to merit. What is a salad? I answer, anything that will advantageously for the palate and the health absorb salt, vinegar, and oil. Tomatoes, Potatoes, and Artichokes are salads, and equally so are Beets, Kidney Beans, and Vegetable Marrows. I have often used all these in making salads that have been pronounced by epicures of the finest quality. The fact is, with plenty of tender lettuce and water-cresses for a foundation, you may add almost any cooked vegetable and many uncooked, and the wise salad makers will take care that the lettuces and cresses predominate, while the other things come in to give softness and flavour without proving obtrusive."

SALADIN.

PROPAGATING VIOLAS AND PANSIES.

In many gardens a good deal of fuss is made about striking a few cuttings of violas or pansies and in numerous cases the increase of those useful flowers is effected by division, in consequence of the supposed difficulty in striking the cuttings. As a matter of fact few tasks are so easy, and there is really no justification for resorting to the objectionable practice of breaking up the old plants even in the garden of an inexperienced amateur. There is no more simple or better way of propagation than that in favour in the principal nurseries of Scotland. First of all a narrow border is prepared on the north side of a wall or fence by adding a rather liberal quantity of light sandy soil or of sand, and then digging it over. Care is taken to well incorporate the dressing with the staple and to break the soil up as fine as possible. Tops of the young shoots are then taken, and after the cuttings have been prepared by the removal of the lower leaves a trench about two inches in depth is opened out at one end of the border, and the cuttings are placed about two inches apart in it. On the first trench being filled in and the soil pressed firmly about the cuttings, a second trench is opened out six inches or so from the first, and the process is repeated until the border is filled. The only attention required by the cuttings until they are struck is to supply them with water according to their requirements. The cuttings may, if it is preferred, be inserted in a bed of soil made up in a cold frame, and be kept close and shaded until they have callused. When inserted in a shady border the use of mats or other shading material is not necessary, and the amateur is saved much anxiety.

GEORGE GORDON.

REPORTS ON POTATOES AND PEAS, 1882.

REPORTS ON POTATOES.

ADDERDEENSHIRE.—Early kinds were remarkably good, with but little disease; late main-crop kinds promise to yield well if the disease does not make too much headway.

BANFF.—Crops of early and late kinds are heavy, but disease has already done much mischief.

BEDFORDSHIRE.—Early kinds produced good crops, but much diseased; late kinds not much affected and are very promising.

BERKSHIRE.—Early crops good and sound, later kinds much diseased.

BERWICKSHIRE.—Crops generally good, disease spreading among the mid-season kinds, such as the American varieties; late sorts not much affected.

BUCKINGHAMSHIRE.—Disease prevalent throughout the county, and early and late sorts have already suffered severely.

CAMBRIDGESHIRE.—Crops mostly heavy, and as yet the disease has not done much mischief.

CUESHIRE.—Hardly an average, and much damaged by disease.

CARNARVONSHIRE.—Early and late sorts have produced good crops, but the disease has already thinned them very considerably.

CARMARTHENSHIRE.—Crops rather heavy, but much damaged by disease.

CORNWALL.—Fair crops, but the disease made its appearance at so early a period as to affect the first crops, and it has become so prevalent that the later kinds are seriously affected.

CUMBERLAND.—Early kinds very good; mid-season and late sorts very promising; disease has made its appearance, but as yet the crops have not suffered much.

DEVONSHIRE.—Early kinds rather light; late sorts promised to yield well, but now much damaged by disease.

DORSETSHIRE.—Crops rather heavy, but a considerable proportion are already rendered worthless by the disease.

DUMBERTONSHIRE.—Early kinds fairly good; late sorts promised to yield well, but the disease has made its appearance and spread with great rapidity, so that the marketable produce will be below the anticipations of cultivators.

DUMFREESHIRE.—Early kinds were much diseased; on some low-lying lands half the tubers were bad; late sorts promising.

DURHAM.—Crops generally good, but the disease is now making its appearance.

EDINBURGHSHIRE.—Early and late sorts good, but the latter are suffering from the disease.

ESSEX.—Heavy crops of both early and late kinds are reported from all districts, but on heavy soils the disease has done much mischief.

FIFESHIRE.—Crops of both late and early kinds about an average in bulk; the disease is spreading, and causing much anxiety.

FORFARSHIRE.—Main crops have, until quite recently, been most promising, but the disease has attacked them rather severely, and will much reduce the bulk unless checked by the weather.

GLAMORGANSHIRE.—Crops much damaged by the disease, which commenced its attacks much earlier than usual and spread with great rapidity.

GLOUCESTERSHIRE.—Early kinds much diseased, in some cases to the extent of half a crop; late sorts rather badly affected.

HAMPSHIRE.—Early kinds produced good crops, and in many instances were lifted in capital condition; later sorts very promising.

HEREFORDSHIRE.—Early and mid-season kinds very badly affected by disease, and a considerable portion destroyed; late crop promising, although attacked by disease.

HERTFORDSHIRE.—Early and late kinds remarkably good, and but little affected by disease.

JERSEY.—Crops heavy, and on the whole of excellent quality.

KENT.—Early kinds generally good, late sorts promising; disease more or less prevalent throughout the county.

LANCASHIRE.—The early crops good in every respect; late sorts rather short in the haulm, and showing signs of disease.

LEICESTERSHIRE.—Early kinds produced a rather heavy crop, but nearly one-half of the tubers were diseased; late sorts fairly promising.

LIMERICK.—Crops generally much damaged by disease, and the tubers smaller in size than usual.

MIDDLESEX.—Fairly good in the northern districts, less so in the west; disease more or less prevalent on all sides.

MONMOUTHSHIRE.—Disease very prevalent amongst both early and late crops, one-half of the former being perhaps destroyed.

NORFOLK.—Crops about an average, but in many districts much diseased.

NOTTINGHAMSHIRE.—Promising crops with very little disease, considering the frequent rains experienced until quite the end of July.

OXFORDSHIRE.—Crops generally about an average, but seriously damaged by disease; the mid-season kinds suffering the most severely.

SOMERSETSHIRE.—Crops very badly diseased; in some instances fully one-half of the tubers are rotten.

STAFFORDSHIRE.—Early and late kinds have both been much damaged by disease in some districts; in others the disease has not done much mischief.

SUFFOLK.—Crops rather heavy, but in most cases much diseased.

SURREY.—Disease has made its appearance, but has not done much damage, and fairly good crops are anticipated.

SUSSEX.—Fair crops, but much damaged by disease.

WARWICKSHIRE.—Crops of most kinds rather heavy, and but little affected.

WESTMORELAND.—Early kinds satisfactory and not much damaged by disease; later crops appear, on the other hand, to have suffered severely.

WILTSHIRE.—Crops rather light in some districts, and moderately heavy in others; disease general.

WORCESTERSHIRE.—Early kinds much damaged by disease; late sorts promising, although the disease has made its appearance amongst them.

YORKSHIRE.—Crops generally suffering from disease; many of the early kinds are reported to have had nearly one-half of the tubers diseased.

Mr. J. Aplin, Hasfield Court, Gloucester, reports: Potatoes are in a very bad state hereabouts; early in the season they had a very promising appearance, especially in the gardens, and there can be no doubt that if they had escaped the disease we should have had as good, if not better, crops than last year. But the disease made its appearance early in June, and its attacks have been so virulent that the tubers of many sorts are more than three parts rotten. Scotch Champion in the fields is looking the best. Of forty varieties grown here, and not yet taken up, only two show any signs of life in their tops, and these are Magnum Bonum and Sutton's Redskin Flourball.

Mr. Landers, Southhill Park, Biggleswade, writes: The early crops in this neighbourhood are very much diseased, but very fine in the tuber. The sorts we grow in the gardens are Rivers's Ashleaf, Myatt's Prolific Ashleaf, and Early Rose. Late varieties are looking well and very promising.

Mr. T. Jones, Royal Gardens, Frogmore, Windsor, observes: Early crops have been excellent, in fact, I never saw better quality and cleaner tubers raised; later crops much diseased.

Mr. G. T. Miles, Wycombe Abbey, Wycombe, reports: The crops in most places have an extremely wretched appearance. We have removed the haulm from all the early kinds. Later sorts—so far as the haulm is concerned—look somewhat better, and a few days of favourable weather has in some degree arrested the development of the disease, which was going on at a rapid rate. We have lifted only enough for ordinary use. Crops of such kinds as Veitch's and the other Ashleaf types are first-rate, but a small proportion of the tubers are already bad.

Mr. J. Maher, Stoke Court, Slough, states: Generally suffering from disease; Ashleaf very much so; Union very good; began digging May 29, and none of the tubers were touched with disease.

Mr. A. Aitken, Richings Park, Slough, remarks: Those lifted gave about an average crop, but kidneys are about thirty per cent. diseased. Other early sorts not quite so bad yet. Beauty of Hebron nearly all good. All the late sorts are affected in the haulm, except Champion, which appears to have escaped. Paterson's Victoria seems badly affected.

Mr. R. Owen, Yewden, Henley-on-Thames, writes: Heavy crops, but one-third diseased. All the sorts were attacked alike early in July, except Magnum Bonum and Reading Hero; the two latter kinds withstood the murrain longest. Crops not yet lifted. Varieties grown are Ashleaf (Veitch's), Snowflake, Beauty of Hebron, Covent Garden Perfection, Woodstock Kidney, Wiltshire Snowflake, Reading Hero, and Magnum Bonum.

Mr. J. Fleming, Clivedon, remarks: With us up to this date potatoes are very good, which may be from their being grown in land newly broken up on purpose for them. In the cottage gardens and all round a complete failure: more so than I remember to have seen in any previous year.

Mr. J. Morley, Pampesford Hall, Cambridge, reports: A good crop, especially of Myatt's Prolific Ashleaf, Early Rose, Magnum Bonum, Royal Ashleaf, Breese's Prolific, Schoolmaster, Beauty of Hebron, Peachblow, and Rough Red.

Mr. G. Brighton, Mount Edgcumbe, Devonport, writes: Early varieties under average crop; medium and late varieties looked very promising until within the past fortnight, but since the foliage has nearly all been destroyed. The weather we have at present, I trust, will check the disease, so we may lift a good crop.

Mr. W. G. Pragnell, Sherborne Castle, reports: Potatoes are badly diseased, and in many instances the haulm has quite disappeared. Scotch Champion and Magnum Bonum were going very fast about ten days ago, but dry weather having set in the disease appears to be checked a little.

Mr. W. Smith, Broomlands, Dumfries, states: Early kinds much diseased; in some low-lying lands fully one-half diseased. The disease has also attacked the later kinds.

Mr. J. Hunter, Lambton Castle, Durham, observes: Potatoes have been clean and free from disease up to the present, and are bearing very good crops.

Mr. A. Anderson, Oxenford Castle, Dalkeith, writes: Magnum Bonum, Victoria, and Champion are the best late sorts.

Mr. D. Donald, Knotts Green, Leyton, remarks: A very satisfactory crop; only very few diseased tubers have been seen.

Mr. J. Douglas, Loxford Hall, Ilford, reports: Potatoes, especially the early sorts, are a fine crop; early French shaws and kidneys a splendid crop; we have these. Regents and Schoolmaster as yet free from disease; so no one will eat White Elephant, which has an enormous crop. Champions are a puzzle to us; the tops are out of all bounds. This is the worst potato I know for a wet season and a rich soil.

Mr. A. Pettigrew, Castle Gardens, Cardiff, writes: Very badly diseased in the garden; not so bad in the fields. I fear, however, that the disease will be worse this season than it has been for a number of years.

Mr. W. Minchin, Hardwicke Court, Gloucester, states: In this district potatoes are badly diseased; we are now lifting early varieties and find quite half affected. Of several sorts grown, Bountiful and Magnum Bonum are free from disease.

Mr. W. Wildsmith, Heckfield, Winchfield, Hants, reports: Potatoes gave promise of being splendid, but the disease appearing about the middle of July, the prospect is now very gloomy indeed. All the early kinds have been lifted in capital form, there being but few bad tubers.

Mr. A. Young, Holme Lacy, Hereford, writes: Potatoes will, I fear, be a failure this season, as the disease has attacked them in all directions, even Magnum Bonum and Champion. Although the tops of ours have gone, I have found very few diseased tubers yet. There is a good local kind grown about here by the cottagers, which I find is a good cropper, called Scotch Seedling; it keeps well into June, and will keep as free from the disease as Champion and Magnum Bonum, but a much better potato. It is a round.

Mr. W. Coleman, Eastnor Castle, Ledbury, remarks: All early kinds badly diseased, succession crops also affected; tops dying and tubers affected. Late kinds look well, and with a continuance of the present weather may escape.

Mr. J. Froggatt, Belmont, Hereford, writes: Potatoes are badly diseased in this neighbourhood; indeed, the early kinds are totally gone, the disease having attacked them before they were half grown; the sound tubers are very small. Late ones, such as Magnum Bonum, are looking healthy at present, and may escape the disease if the fine dry weather we are having just now should continue for a few weeks.

Mr. T. Spencer, Goodrich Court, Ross, states: The potato disease has appeared and made sad havoc in the early varieties; fully three parts of the crop are rotten, but the present fine weather seems to have checked its progress in the haulm of the later varieties, which I hope will escape.

Mr. R. Sanford, Danesbury, reports: Old Ashleaf and Myatt's Prolific were lifted a fortnight ago in very fair condition, about ten per cent. being damaged with disease. Champions and Regents look well in the fields, but much want the present lovely weather.

Mr. Lewis A. Killick, Langley, Maidstone, states: Potatoes would have been good, but the blight has struck the earlier sorts. Magnum Bonum good until now; Pride of America and Snowflake have turned out well, but the last mentioned is badly blighted.

Mr. M. Henderson, Ashby-de-la-Zouch, writes: Early sorts are a pretty good crop, but half the tubers are now diseased. Late ones mostly look well, but the tops of some are showing disease; altogether the disease is as bad this year as I have ever seen it.

Mr. Thomas Conway, Elm Park, Clarina, Limerick, remarks: Small and much diseased, the late kinds greatly blighted; Magnum Bonum suffering.

Mr. T. Baines, Southgate, observes: In most cases potatoes look very well; a little disease has appeared in places, but I hope, with the dry weather the principal crops may this year escape.

Mr. Thomas Coomber, Hendre Park, Monmouth, writes: Potatoes are badly affected with the disease; all kinds are injured, but the early varieties have suffered most.

Mr. J. C. Clarke, Cothelstone, Taunton, reports: Potatoes are much diseased; in dry light soils, where the position is high and open, a few are still green, but in most cases the haulm is quite dead and the tubers half rotten.

Mr. R. Walton, Hilton Park, Wolverhampton, states: Good in quantity and quality, but diseased.

Mr. Z. Stevens, Trentham, writes: Ashleaf Kidney a fair crop, although the shaws were all cut down by the frost. Disease has appeared to some extent amongst the early sorts. My seed stock, however, has been harvested without much disease.

Mr. Charles Roberts, Highfield Hall, Leek, reports: Early potatoes are very much diseased and smaller than usual; late kinds look well and seem so far free from disease. Champion is much less planted than last year, and large growers in the district have fallen back on the old White Rock. Champions last year produced tubers so large and hollow that they were only fit for cattle, and they did not keep so well in spring as the White Rock.

Mr. J. Wallis, Orwell Park, Ipswich, states: In this district the potato disease was abroad early in the season, and has done much damage to the haulm; this is now leafless and bare over very large breadths, and one has grave doubts as to the eventual soundness of the crop.

Mr. A. Payne, Birkfield Lodge, Ipswich, writes: Early varieties are now being lifted and turn out well as regards weight of tubers, but there are many diseased tubers. Second earlies are showing symptoms of the disease, but late kinds, with few exceptions, are in a healthy promising condition.

Mr. D. T. Fish, Hardwicke, Bury St. Edmunds, reports: From the middle to the 20th of July the disease appeared, and we have been busy lifting the crops in succession, according to their ripeness, ever since, thus trying to snatch them from the grip of the disease. The latter seldom hits them hard until the crop reaches that stage of semi-maturity when it may be lifted and safely stored in earth.

Mr. J. W. Moorman, Coombe Bank, Kingston-on-Thames, states: Very sound; the disease has shown itself in several gardens, but not to any alarming extent; soil very dry and gravelly; most of the American kinds are of good flavour.

Mr. C. Orchard, Coombe Cottage, Kingston-on-Thames, reports: Potatoes seem very good at present. Ashleaf early and good. We tried this season Sharpe's Duke of Albany for second crop; it came in at the same time as Early Rose, and is a good cropper and very promising. The tubers resemble those of Magnum Bonum in shape; haulm is much dwarfer. Disease made its appearance about the 18th of July on the second earlies; lifted them at once and saved them. Magnum Bonum was attacked slightly with disease, but it does not spread, as weather is now all in the favour of the crop.

Mr. S. Jenks, Brambletye, East Grinstead, writes: Crops badly injured by the disease, which commenced here about the 5th of July. Not had early ones so bad for many years.

Mr. S. Ford, Leonardslee, Horsham, states: Disease showed itself quite three weeks earlier than in previous years. A complaint is made by all our cottagers that the tubers go bad after being stored. One of our men stored eight bushels, and a week afterwards, when he examined them, found a total loss of six bushels.

Mr. J. Rodger, Charlcote Park, Warwick, writes: Very good crops, with little disease. I removed the shaws as soon as I saw they were affected, and consequently there is very little disease.

Mr. J. Nicol, Belsfield, Windermere, reports: Early varieties very good, without disease, but later sorts now much affected, though the crop is still good. Early kinds taken up for seed apparently sound are now a good deal affected with disease.

Mr. Challis, Wilton House, Salisbury, states: Fair, moderate in size, poor in quality, and extensively diseased.

Mr. J. Allen, Compton Bassett, Calne, Wilts, writes: The potato disease appeared here some three weeks ago, and early and late varieties seem to have suffered alike, with the exception of the French Flukes; they are still green and growing and free from spot.

Mr. G. Westland, Witley Court, Stourport, reports: Never was the crop of early potatoes more satisfactory, or quality better, up to the time of maturity, when the disease attacked all alike, and one-half at least were destroyed in a few days. I do not believe the disease ever spread with such rapidity. Late potatoes look so far promising, and with dry weather we may calculate on a good return.

Mr. J. R. Cox, Parkfield Hollow, Worcester, observes: Early kinds a fair crop, but quite one-half diseased. Late sorts very healthy at present, and promise an abundant crop.

Mr. G. Helman, Crown Earl Court, Worcester, states: Very much diseased, the crops in a worse plight than for many years; some sorts are quite gone. The best kinds with us are Beauty of Hebron and the Vicar of Litcham; the Champion and Magnum Bonum are looking well in the field, but cannot say how they will turn out, but they are both gone with me in the garden; Schoolmaster is much diseased.

Mr. W. Culverwell, Thorpo Perrow, Bedale, Yorkshire, writes: Potatoes are getting very bad, especially in damp confined places, late sorts appearing to be free from disease at present. The continued wet weather is very much against them; in some soils they look stunted from cold and rain.

Mr. J. Clarke, Studley Royal, Ripon, remarks: Very good crops, but disease is making much progress among the early varieties; late sorts very gross in the tops.

REPORTS ON PEAS.

Mr. J. Aplin, Hasfield Court, Gloucester, writes: First and second crops good; the two best early sorts grown here are Wheeler's First Early and William I.; two best second earlies, Day's Early Sunrise and G. F. Wilson. Main crop very bad indeed, entirely destroyed with mildew. Late crops are looking promising at present. Field crops very fair in the neighbourhood.

Mr. H. Landers, Southhill Park, Biggleswade, states: Peas have been very plentiful and the pods well filled. We grow Ne Plus Ultra for late supplies, and it has been very fine and is so now.

Mr. J. Atkins, Lockinge Park, Wantage, reports: A good crop in the early

part of the season, but not doing so well now; many of the field peas in this neighbourhood are not filling well.

Mr. T. Jones, Royal Gardens, Frogmore, Windsor, states: Peas have not been very satisfactory; some of the wrinkled sorts came up badly.

Mr. G. T. Miles, Wycombe Abbey, writes: Peas have been very fine up to the present time, and the late ones are looking promising. The finest sorts for exhibition are Culverwell's Giant Marrow, Telegraph, and Telephone.

Mr. A. Aitken, Richings Park, Slough, observes: Crops abundant; all varieties have done well, but Ne Plus Ultra is held in high esteem here.

Mr. R. Owen, Yewden, Henley-on-Thames, remarks: Heavy crops of early kind, William I.; mid-season sorts a total failure; Telephone, Dr. Maclean, and Marvel wholly destroyed by thrips; late sowings of Ne Plus Ultra doing well.

Mr. T. Bailey, Shardeloes, Amersham, writes: Remarkably fine crops for earliness; Laxton's Earliest of All was first here, and is a capital early pea, and William I. valuable to follow it.

Mr. J. Fleming, Clevedon, remarks: Fine crops and good samples of both early and late sorts.

Mr. J. Morley, Pampesford Hall, Cambridge, reports: Good crops of Princess Royal, Williams's Emperor of the Marrows, Superlative, Laxton's Surprise, and Laxton's Supreme.

Mr. W. G. Pragnell, Sherborne Castle, Dorset, reports: All the early crops have been very good and heavily laden, but I fear the late ones will be much injured by mildew, which is now setting in very badly.

Mr. P. Davidson, Iwerne Minster, Shaftesbury, remarks: Fine crops. We grow Dickson's First and Best, gathered May 26, and Laxton's Alpha (Dr. Maclean is no use here nor to my neighbours), British Queen, Veitch's Perfection, G. F. Wilson, and Laxton's Supreme have borne abundantly, and are, in my opinion, the four best peas grown.

Mr. J. Hunter, Lambton Castle, Durham, states: Peas good, growing tremendously strong, higher than they have ever before grown with me; but they are not bearing well.

Mr. A. Anderson, Oxenford Castle, Dalkeith, writes: Peas have been fine, and are so still. Telegraph and Telephone are both good, Pride of the Market also fine, but none have the flavour of Hairs's Mammoth.

Mr. J. Douglas, Loxford Hall, Ilford, reports: Peas have been very fine; the early and second early sowing bore immense crops. Telephone was our best this year; but William I., as a first early, stood highest in that class; Dr. Maclean and Stratagem were the best dwarf sorts.

Mr. W. Wildsmith, Heckfield, Hants, writes: Peas have been, and still are very good; William I. was our best early, the next best being Advancer, Champion of England, and Duchess of Edinburgh; and at the present time Ne Plus Ultra and President Garfield are superb.

Mr. A. Young, Holme Lacy, Hereford, states: Ours are very good; but I notice that in the neighbourhood they are mildewed very much, consequently do not fill; but in our garden, although a very heavy clay, they are capital.

Mr. W. Coleman, Eastnor Castle, Ledbury, reports: Growth rather tall; have filled slowly, but quality good. Day's Early Sunrise is in every way excellent, and with me quite as early as William I.

Mr. J. Froggatt, Belmont, Hereford, observes: A fair crop, but much later than usual. Laxton's Supreme, Fillbasket, and Market Favourite are the best we have had this season; Veitch's Perfection looks likely to come in useful.

Mr. T. Spencer, Goodrich Court, Ross, states: The crops are good this season. William I., Day's Early Sunrise, Ne Plus Ultra, Marvel, and Criterion (Standish) have been the best with us.

Mr. R. Sanford, Danesbury, Welwyn, writes: William I., Day's Sunrise, and General Wyndham are our favourite sorts. We picked the first-named on May 26 from an open border. Sunrise is valuable as a second early; General Wyndham is a truly grand pea, seven to nine feet high, and borne down with pods, mostly in pairs, and containing from seven to nine peas in each; we grow no other than the last-mentioned for main crops.

Mr. Lewis A. Killick, Langley, Maidstone, states: This crop has been fairly good; field peas have been above the average.

Mr. J. Rust, Eridge Castle, Tunbridge Wells, remarks: I never knew them so good nor such an abundant crop: the four and a half inches of rain in July just suited them.

Mr. W. Ingram, Belvoir, Grantham, writes: Luxuriant growth and heavy crops.

Mr. T. Conway, Clarina, Limerick, states: Crops very good. I never saw peas so free from mildew. This is, I believe, owing to the cool and wet weather we have had up to the present time.

Mr. Warren, Worton Gardens, Isleworth, reports: A good crop.

Mr. Thomas Coomber, Hendre Park, Monmouth, writes: Unusually good; the haulm is strong and healthy, and carries enormous crops, which are of excellent quality.

Mr. J. B. Payne, The Palace Gardens, Wells, reports: Very plentiful, but not very full podded. Criterion is a very good new pea. After careful comparison I consider Alpha superior to William I. American Wonder is very good, but it requires very good soil, or there is no growth.

Mr. J. C. Clarke, Cothelstone, Taunton, states: Amongst tall peas the Champion of England and the Emperor of Marrows hold a high position. Our best dwarf kinds are Dr. Maclean, Yorkshire Hero, and Hair's Mammoth. The best early kinds are Ringleader and William I.

Mr. R. Simpson, Wrottesley, Wolverhampton, reports: Very good. American Wonder is quite a marvel; Day's Early Sunrise, Stratagem, and Telephone are all good sorts.

Mr. R. Walton, Hilton Park, Wolverhampton, remarks: Crops most satisfactory, especially of William I., Laxton's Supreme, and Telegraph.

Mr. Z. Stevens, Trentham, reports: Peas particularly good, when one speaks of proved sorts, such as William I., Ne Plus Ultra, Veitch's Perfection, Dr. Maclean, British Queen, and Telephone, the latter certainly the finest pea I know. When we turn to the now and much vaunted John Bull, there is a feeling of regret that the price of the seed is not again in the pocket, for it is a most disappointing variety.

Mr. J. Wallis, Orwell Park, Ipswich, writes: Peas have done well this season. There has not been an over-development of haulm, and the blossoms have set well, thus yielding fine crops of well-developed pods, which have afforded almost continuous gatherings where proper successional sowings had been made.

Mr. A. Payne, Birkfield Lodge, Ipswich, states: Peas have been very plentiful, but now need rain to bring on late kinds. I find the American Wonder an excellent early variety, a good cropper, and of fine flavour.

Mr. D. T. Fish, Hardwicke, Bury St. Edmunds, reports: Very vigorous and tall in the haulm, but hardly so prolific as usual. Telephone, Telegraph,

and *No Plus Ultra* are our favourites for main crops, and *Day's Sunrise* is the favourite for early supplies. The latter promises to supersede all the early strains.

Mr. J. W. Moorman, Coombe Bank, Kingston-on-Thames, remarks: Early peas good, and a fair crop, but of short duration, the haulm perishing as soon as the peas are developed. Late crops in some places attacked with mildew.

Mr. Sidney Ford, Leonardslee, Horsham, says: Peas have been good as a rule. Of the most useful kinds I grow I find *Veitch's Perfection* the best for a main crop, it has been splendid; this pea should be more largely grown for general use.

Mr. J. Nicol, Belsfield, Windermere, remarks: Early varieties very good; main crops also good, and late kinds looking well.

Mr. J. Allen, Compton Bassett, Calne, states: Peas have done wonderfully well round here this season, such as, *William I.* *Kentish Invicta*, *Best of All*, *Supreme*, and *Marvel*. The *British Queen* and *Veitch's Perfection* for the latest crop are looking promising.

Mr. G. Westland, Witley Court, Stourport, reports: Peas have produced famous crops, and there is less mildew than usual. *William I.* is a good reliable hardy sort for first crop; so also is *Day's Early Sunrise*, a pea of good quality. *Veitch's Perfection* is still unsurpassed for quality, *No Plus Ultra* is one of the best for general crops, and *Stratagom* is one of the most satisfactory that can be grown.

Mr. W. Culverwell, Thorpe Perrow, Bedale, writes: Very good crops. My own seedlings are mostly grown, in fact, the only exception was *Laxton's William I.* for a first early; it grows in our soil eight feet high.

Mr. J. Clark, Studley Royal, Ripon, remarks: Very abundant and good, but have filled very slowly.

VALUATION OF MANURES.

AN interesting paper on this subject was read by Mr. H. Scott, of Alnwick, before the Coquetdale and Vale of Aln Agricultural Association. The writer pointed out that nitrogen is generally given in the form of ammonia, and estimated as worth £80 a ton, or 16s. per unit. This referred to ammonia alone, and not to sulphate of ammonia, which was worth one-fourth of this, or 4s. per unit, from whatever source obtained. Insoluble phosphates, when procured from bones or first-rate guano, are worth £10 a ton, while from mineral sources they are of but little value. Muriate of potash is sold at £7, or nearly 1s. 6d. per unit. It contains nearly 50 per cent.; therefore pure potash is worth about 3s. per unit. Sulphate of potash can be bought at £2 5s. per ton (containing 15 per cent. of potash), and sulphate of magnesia at £3 15s. per ton. The latter would be 9d. per unit, and as it contains 15 per cent. of magnesia, it would be, therefore, worth 5s. a unit. Alkaline salts are valued at £1 a ton, which is 3d. a unit. Guano, in 1868, contained ingredients theoretically worth £16 a ton, whereas an average sample now is not worth more than £12 10s. to £13, and much is sold of very inferior value. Bones should contain about 50 per cent. of phosphates and 4 per cent. of ammonia. In case of bone meal yielding 54.10 per cent. of phosphates and 4.30 per cent. of ammonia, the valuation, deducting 10 per cent. for slow action, would be £7 19s. 3d.; while $\frac{1}{4}$ -inch and $\frac{1}{2}$ -inch bones, with the same analysis, would be worth respectively 4s. 5d. and 8s. 10d. less per ton. Dissolved bones should vary in price according to the percentage of soluble phosphates, the insoluble phosphates, and ammonia. They are the dearest form of phosphatic manure. Dissolved bone-ash is a highly valuable manure, very rich in soluble phosphate, often up to 36 per cent., with 4 or 5 per cent. of insoluble, which is considered as valuable as the same material in bones. Ordinary superphosphate from mineral sources is sold in two forms, ranging from 25 to 36 per cent. soluble. Such manures are worth from £3 15s. to £5 8s. per ton, and can often be bought in quantities at something less. A most interesting portion of Mr. Scott's paper was that in which he gave an account of his own farm, when he entered in 1865 on a twenty-one years' lease, and which has since been extended to the end of the present century. Some of the worst fields were considered by the outgoing tenant as quite unworthy of cultivation, and so had been left for fourteen years in bare stubble furrow. The land was at once drained and limed, and now yields, with artificial manure, heavy crops. When the farm was entered in 1865, £180 was offered for 103 acres of outgoing crops. In 1874, when our series of good harvests came to an end, 15 acres of barley, without straw, yielded £181 2s. 6d. This improved state of things was entirely attributed by Mr. Scott to the judicious use of artificial manures.

THE BRITISH LION.—The lion, along with the reindeer, elks, ur, &c., has been discovered in the river deposits over the whole of Southern England, and as far north as Bielbecks, in the North Riding of Yorkshire. It lived in the areas of Cambridgeshire, Beds, and Salisbury. It is, however, far more abundant in the caves, into which, in most cases, it had been dragged by the hyenas. The pack of hyenas inhabiting the Cave of Kirkdale, in the Vale of Pickering, fed upon reindeer in the winter, and at other times on horses and bison, and were able to master the hippopotamus, the lion, the slender-nosed rhinoceros, the straight-tusked elephant, &c., and to carry their bones into the dens where they were found by Dr. Buckland. The hyenas inhabiting the "dukeries" also dragged back to their dens fragments of lions. Here, too, our researches at Creswell revealed the presence of man. In the lower deposits in the caves were the characteristic implements of the river-drift hunter, while in the upper were the more highly-finished stone weapons of the cave man, along with articles made of bone and antlers, such as a needle, and the first trace of artistic design, in the figure of a horse incised on a polished fragment of bone. Here the wild animals were, for the most part, of the same species as those living in the area of London, and the same remark holds good for those found in the hyena dens in the Vale of Clwyd and on the banks of Wye. The head-quarters of the lion in Britain was, however, the Mendip Hills, in Somersetshire, which overlooked the fertile tract, which then extended from their foot, under the present estuary of the Severn, and joined the great prairie sweeping up the English Channel, and far to the west of Ireland, and as far south as the mouth of the Garonne. On this vast feeding-ground the lions followed the migratory herbivores, and Burden, Bleadon, and Weston-super-Mare appear to have been their favourite haunts. They lay in wait in the passes of Cheddar and Brendon, and from time to time were surprised and overpowered by hyenas on the banks of the Axe as it flowed through the picturesque ravine of Wookey.—PROFESSOR BOYD-DAWKINS, in *Contemporary Review*.

The House, Garden, and Home Farm.

THE DAFFODIL MAID.

WHEN Rowland found the Damsel of the Plain,
Her daffodil crown lit all her shining head;
He kissed her mouth and through the world they sped,
The beauteous smiling world in sun and rain.
But, when long joys made love a golden chain,
He slow her by the sea; then, as he fled,
Voices of earth and air and ocean said:
"The maid was Truth: God bids you meet again."

Between the devil and the deep dark sea
He met a foe more soul-compelling still;
A feathered snake the monster seemed to be,
And wore a wreath of 'the yellow daffodil.
Then spake the devil: "Rowland, fly to me;
When murdered Truth returns she comes to kill."

THEODORE WATTS, *Athenæum*.

THE HOUSE.

It now becomes necessary to remind our readers that window boxes and balcony plants will require less water than heretofore, and that care must be taken not to water them too plentifully, because the temperature is declining, and plants want less moisture than during the dry summer heat of which they have had so fine a taste this season. But they should not lack water, for the atmosphere is now somewhat dry, and the poor plants have to store up pulp on which their growth will be founded next year, and for what we wise people call the "ripening of the wood" a certain amount of moisture is necessary, although dryness and sunshine are as a rule great aids. We see in many places a tendency to a severe trimming up of ivies, creepers, &c., and we think it proper to say that the practice is injurious, as checking growth, and on the score of beauty, surely a little exuberance of growth and greenness are better than the hard lines the killing shears and knives will make. Nature will not in any kindly way conform to the straight-edge of the geometrician, and it is wise sometimes to let Nature have her way—at least a little.

THE GARDEN.

ANNUALS to stand the winter to be sown now on poor hard ground, or in pans filled with poor soil.

BULBS for early flowering to be procured soon and potted or planted as required.

CHRYSANTHEMUMS to be tied in as required, and to have plenty of water, varied once a week or so with liquid manure.

CUCUMBERS are mostly beginning to fail now, or will be shortly; so those who want a succession of fruit must be on the alert. Sow seeds or strike cuttings, the latter to be preferred, and make up new beds. Old plants still in vigour must have the help of linings, and be covered with mats at night. Beware of mildew; if it once appears remove the affected leaves and give the plants a sprinkling of sulphur.

MILDEW will show itself in all close damp places now, and do incalculable mischief if not checked. Sulphur dustings are the best remedy, but fresh air and cleanliness will do much to prevent it.

PANSIES to be propagated now in quantity for planting out in October, and to pot for early blooming in pits in spring. Those lately struck to be planted out in beds of turfy loam, with a liberal admixture of sand and charred rubbish, but very little animal manure.

PEACHES to have as much air as possible; therefore remove any subjects that require to be kept closer, in order to admit a thorough draught among the trees, and if the lights can be taken off all the better. If the wood is not well ripened now it never will be, and advantage must be taken of fine weather to make sure of it.

PINES must have a bottom heat of 90 deg., and every encouragement to swell their fruit. Pot off suckers as soon as possible, that full advantage may be taken of favourable weather for strengthening the young stock.

ROSES lately budded to have the ties loosened. Where buds have failed others may be inserted, either on the stems of young stocks or on suitable shoots lower down than those previously worked. Prune pillar roses, so as to remove a moderate amount of both old and young wood; that left to be its full length, and at such regular distances that there will be good symmetrical heads next season. Short cuttings of Chinas and perpetuals will root now in the open ground under hand-glasses.

TOMATOES will ripen well while the weather is comparatively hot and dry, but in case of a change to chilly weather it should be borne in mind that when the fruit is fully grown it may be ripened on a shelf in the greenhouse, if cut with some portion of stem attached.

REFUSE HEAP.—There will for several weeks be vast accumulations of rubbish by removal of pea, bean, and potato haulm, and other materials for manure. By this time the muck pits are generally full of grass mowings and other summer sweepings, but the economical gardener will never waste a scrap of anything that can be rotted into compost, and room must be made now for the extra supplies. It would be better to accumulate vegetable refuse in one large heap, to undergo fermentation and decay without the help of adventitious moisture; and if any offensive smell results throw a layer of earth over the heap. Ordinary garden soil is the best of all deodorizers.

THE HOME FARM.

PASTURES and grass lawns that are in bad condition may be much better repaired in autumn than in spring. It should be borne in mind that grasses of good quality will not grow on poor soil; therefore, if you have a starving staple you must put on plenty of manure, or find some means of fertilizing it if you want a growth that will pay, whether to make meat or furnish the green groundwork of a garden. It is commonly believed that any soil is good enough for grass, and hence the very many examples of starved grass that we meet with in our travels about the world. Just as in the garden the machine cuts and carries away, and the soil is systematically impoverished, so the meadow land is robbed in like manner; a green crop of grass is cut in June or July, and converted into hay, and from August to March, or even to the end of April, the land is stocked with cattle to the utmost of its capability.

THE ISTRIAN BELL-FLOWER.

THIS delicate campanula, figured in *B. M.*, 6,570, is now flowering freely. It appears to be typical of its habitat, Monte Maggiore in Istria, and though coming near to the Croatian *C. Waldsteiniana* in general characters, and occasionally grown under that name, to be nevertheless specifically distinct, as it is also peculiarly beautiful. We learn from Sir J. D. Hooker's notice that it was first recognized as an undescribed species by Dr. Reuter, of Geneva, who described it from specimens cultivated in the Botanical Gardens of that city under the name of *C. Waldsteiniana*, and who called it after the eminent botanist M. Tommasin, who seems to have discovered it. Thus it is named *Campanula Tommasiniana*, and under this name has been flowered at Kew, where it is quite hardy and flowers profusely in the month of August. The true *C. Waldsteiniana* appears to be a smaller species, with few flowers, obtuse lower leaves, and a shorter broader corolla, cleft half-way down into narrower and more acute lobes. *Campanula Tommasiniana* is a slender plant with wiry stems and lanceolate serrated leaves of a light or grass green colour. The flowers are numerous, axillary, or in loose light racemes one-half to two-thirds of an inch long, drooping, the colour a pale violet tinted blue. It is worthy of a place in a good rockery, and will take kindly to any good sandy soil.

SHORT NOTES FOR
SMALL GARDENS.

By the VICAR'S GARDENER.

BULBOUS PLANTS.

THERE are a few bulbous plants that must have attention now to ensure their being in good condition at their proper season of flowering, and as they are all useful for small gardens as well as large ones, I will briefly describe the cultivation of such as should be attended to at once.

LACHENALIAS.

These have begun to form new roots already, and the repotting, if not already done, should not be delayed. They may be grown in various ways; we grow some in six-inch pots for the decoration of vases, &c., in the house, and for the conservatory we have them in pans, which are about ten inches in diameter and six inches in depth. We also fill three or four baskets for suspending in the conservatory, and grown in this way we like them better than in pots. We use six-inch pots and fairly good garden soil, which is rather more heavy than light. In each pot we place ten of the largest bulbs, keeping the crown of the bulb about half an inch under the surface. We use the same kind of soil for the pans and baskets. In planting the pans the bulbs must be close enough together to nearly touch each other, or, to be more precise, there should not be more than half an inch space between each bulb, because, if they are not moderately thick they are not effective.

Our baskets are made of wire of the ordinary form. The inside of the basket is lined with green moss; commencing at the bottom, a layer of moss is put in and then a layer of soil. In the soil the bulbs are planted with the point of the bulb just visible through the moss. Another layer of moss and soil is then put round, and the bulbs fixed in the moss as the work goes on, until the baskets are full. After all the planting is done, any ordinary greenhouse will suit them. They are not hardy, but they do much better in a house in which fire

heat is only applied to keep out frost than they do in one in which a higher temperature is maintained. A very little water will suffice until the young growth is seen peeping through the soil, and then the water supply must be increased, and as soon as they begin to make vigorous growth in February next they can hardly have too much. When they go out of flower they will require less water, but it must not be quite withheld until the leaves are dead, and then they may be placed on the floor of any cold house or be put out of doors.

ROMAN HYACINTHS.

Nurserymen are late in offering these hyacinths this year, for what reason I know not. No doubt they will be shortly to be had, and where they are required no time should be lost in securing a sufficient supply, for the earlier they are planted the stronger to a certain extent will they flower. The white variety is the most valuable for all purposes, but although the blue one does not flower so early, it is useful for supplying cut flowers during the winter. The same kind of soil will suit these hyacinths as is recommended for lachenalias. If they are wanted for decorating vases and stands in the house it is best to put the bulbs in five-inch pots, three in each. The same will also do for the greenhouse or conservatory, but if they are wanted to produce a striking effect in the conservatory it is best to put twelve or fifteen bulbs in a pan, the same as is recommended for lachenalias, and we find them do exceeding well. After they are planted place them in a cold frame, keep them shaded, and without any air, and the soil just moist. As soon as the leaves are pushing through the soil place them where they will have plenty of light and air. Early in October take them to the greenhouse: in a warm greenhouse they generally come into flower early in December, but they will flower a fortnight earlier if they are subjected to a temperature of 65 deg. in the beginning of November. As soon as they are well in flower they should be removed to a cooler house to prevent the flowers becoming too much drawn.

TROPÆOLUM JARRATTI.

This tropæolum will be starting into growth shortly, and it should be potted before there is any danger of injuring the first shoots. It requires a rather light soil with plenty of drainage. It is of trailing habit, so that some sort of support is necessary for the growth; generally, it is trained on globe-shaped wires, but we also train them on feathery sticks about two feet high. We like these better than the stiffly-trained plants, and they give less trouble, as when wire frames are used the training of the growth requires constant attention, and the bottom part of the frame should be

covered with growth first. An ordinary greenhouse is the proper place in which to grow them, and they must be placed where they have plenty of light and air, and be kept just free from frost. As soon as they go out of flower the pots may stand on the floor beneath the stage and have no water.

SINGLE VAN THOL TULIPS.

The various colours of the Van Thol tulip are very attractive during the winter. To have them in bloom at Christmas they must be planted at once. The best varieties are the red, white, yellow, and gold striped. There is no better way to grow them than to plant them in pans six inches deep with some rather fine light soil, and the



ISTRIAN BELL-FLOWER, CAMPANULA TOMMASINIANA.

point of the bulb showing through it. The soil must be pressed rather firmly round the base of the bulb to keep it in its place when it is forming roots. Each colour should be put in a separate pan, and be then treated in the same way as the Roman hyacinths. If they are wanted to flower at Christmas they must be started in heat in November, and just as they are coming into flower they can be taken up with the roots intact, and the colours arranged in any way which is thought proper either in other pans or pots. When they are allowed to flower in the pots or pans they are not so effective, as some will be in flower, others past their best, and some only just showing their bloom: all this is obviated by transplanting them just before the flowers begin to open.

NOTES ON CONSERVATORY CLIMBERS.

By E. TUCKER, Queenby Hall, Leicester.

As there must be many readers of the GARDENERS' MAGAZINE who are more or less interested in conservatory climbers, a few notes on some under my charge will probably be of considerable service. Having been successful myself, I am desirous of assisting those members of the fraternity who have not as yet had much experience.

Allow me to first state that I have had charge of several conservatories, and have grown almost all kinds of climbing plants, but in no case have I achieved so much success as in the present instance. This I attribute to more careful observation, and to complying with the requirements of the respective subjects at the time most suitable for the plants to derive the fullest possible benefit from the attention received. The climbers grown here, and to which it is my intention to make special reference, are *Bignonia grandiflora*, *Habrothamnus elegans*, *Rhynchospermum jasminoides*, *Jasminum de Poiteau*, *Lapageria rosea*, *Plumbago capensis*, and *Clematis Jackmanni*.

Bignonia grandiflora has been much admired by those who have seen it, and it is not surprising, for when at its best it had fully five hundred blooms expanded at one time. It commenced flowering about the first week in May, and from present appearances will continue in bloom until October. It is planted out and has occupied its present position about twelve years. My practice is to cut away all the old wood as soon as the last of the flowers have fallen, to encourage the production of young growth. Overcrowding is guarded against, and all the young shoots that are removed are cut clean away, and not shortened, as is so often done. With respect to the water supply, I would say that the border is well saturated about every third week during the spring and summer months. Very little water is applied during the winter; in fact, the roots do not receive much moisture beyond what drains from the pot plants on the stage above.

Habrothamnus elegans is also planted out, and blooms equally as well as the bignonia. Indeed, baskets of bloom were cut from last winter for house decoration, and the large vases were hardly ever without its flowers from November until Easter. The *habrothamnus* requires but little pruning, as much of the growth is removed with the flowers. In the spring spurs and weak shoots are cut away, and as much young wood encouraged during the summer as there is room for. Water is applied throughout the year, as more moisture is necessary than in the case of the bignonia, but the supplies are of course less abundant during the winter than at other seasons of the year.

Rhynchospermum jasminoides is planted out over a large soft-water tank, and the flow and return pipes from which the stove is heated pass in front of the border. This has, in the matter of the water supply, much the same attention as a pot plant. It is also supplied rather frequently with liquid manure from the stable and piggery. It commenced flowering about Easter, and is still in bloom, and the quantity of flowers it has produced has been very large. It is pruned but little, as a considerable quantity of the wood is removed when cutting the flowers to send to London.

Jasminum de Poiteau is not so valuable as the *rhynchospermum*, but it is not to be despised. It is now literally smothered with flowers, and its delightful fragrance at once arrests the attention of visitors on their entering the house. It is planted out, and receives but little water during the winter, and at other times the supplies are moderately liberal. The growth is pruned back as soon as it has done flowering, and the only other attention we give it is to tie up the rambling shoots as it becomes necessary.

Clematis Jackmanni is found very useful for supplying cut flowers for London decorations, as it blooms early, and with proper management most abundantly. It commenced flowering in April, and is still in bloom. Immediately its flowering season is over the leaves are all taken off to prevent red spider spreading, as this clematis is very subject to the attacks of that pest when grown under glass. Pruning is deferred until the spring, when it is commencing to make new growth. It is planted out and receives but little water.

Lapageria rosea occupies a twenty-four inch pot, and its shoots, which are trained to a roof trellis, cover a space of about one hundred and fifty square feet. It receives an abundance of water and supplies of liquid manure about once a week when growing freely. I find the roots are lifting the plant out of the pot, which shows that stimulants, considered unnecessary by some growers, are promotive of a vigorous growth. It has made this season shoots fully eleven feet in length, and is now blooming splendidly. All the pruning the *lapageria* receives is to cut away any shoots that do not start well.

Plumbago capensis is very easily grown, provided it has plenty of water when growing. I have this in a pot with its growth trained under the roof. It is now flowering very freely. In pruning I leave the extreme shoots to train up the wires, and spur the others back in the usual way. During the winter it is kept moderately dry.

In conclusion, I would state that I use the syringe freely among

all the climbers during the growing season, and frequently after cutting bloom when the weather has been favourable. I have also used a weak and warm solution of soft soap, syringing afterwards with clear water. The plants on the stages beneath are removed before syringing with the soft-soap mixture. The house, it may be added, is kept rather warm, as there are many stove plants in it.

Calls at Nurseries.

THE LAWSON SEED AND NURSERY COMPANY, EDINBURGH.

THE nurseries of this long-established and well-known firm embrace so many distinct and important features that visitors to the International Horticultural Exhibition, to be held in the Waverley Market early next month, may be advised not to miss them. Situate in an elevated position to the north-west of the city, they command splendid views of the surrounding country, and they are so convenient of access that they can be readily reached from almost any point. The New Golden Acre Nursery, in which the principal collections of stove and greenhouse plants, and the tender subjects generally, are grown, adjoins the Granton Road station of the Caledonian Railway; and the Bangholm and other nurseries, devoted to the immense stocks of ornamental trees and shrubs and fruit and forest trees, are within a few minutes' walk. Granton Road station is on the Leith branch, and trains run between Prince's Street and Leith every hour, about ten minutes being occupied in the journey between Prince's Street and Granton Road. Those who are at all pressed for time may be advised to take a cab; whilst the distance from the Waverley Market to the nurseries is so short that it may be covered in about twenty minutes by an ordinary walker. In walking to the nurseries from the city the best route will be by way of Inverleithen Row, as it is very direct, and when the toll-bar at the farther or northern end is reached the nurseries will be found to the right and left, and hardly a stone's-throw distant.

At the Golden Acre Nursery, which, as already stated, is close to the Granton Road Station, are numerous glass structures, all of large size, substantially built, and exceedingly well filled. In them we find all classes of plants requiring the protection of glass in their cultivation admirably represented, and probably the best idea will be given of the manner in which they are furnished by the brief statement that they contain everything proper to a first-class nursery. Amongst other things well deserving of special notice were immense stocks of azaleas from cuttings, which form a feature of much interest. The plants varied, as a matter of course, in size according to their age, and were dense in growth, in the most vigorous state of health, and admirably set with flower buds. It is sometimes asserted, by those who are so wedded to the worked plants that they cannot see any merit in any other, that azaleas on their own roots do not bloom satisfactorily. But the appearance of the plants on their own roots in this nursery fully supported the statement of the able manager, that they flower as freely as those on stocks, and that they had the advantage of a more pleasing appearance, especially in the young state, and grow with greater vigour. In another cool house was a fine display of zonal pelargoniums, a considerable proportion of the plants being of specimen size, and all neat and well flowered. Tuberous begonias also appear to engage a considerable share of attention, for the collection of named varieties is extensive. The sorts under name were supplemented by many hundreds of seedlings, all bearing flowers more or less good and exceedingly well grown. These beautiful plants do not appear to have as yet been employed very largely in Scotland for the decoration of the flower garden. But they are rapidly acquiring popularity north of the Tweed for the embellishment of the conservatory, and as they suffer less from heavy and continuous rains than the zonals and a few other subjects that could be mentioned, it is reasonable to infer that they will ultimately attain to a high position in the flower garden. Passing on through other cool structures, note is made of the excellent condition of the ericas, camelias, and other hard-wooded plants of more or less importance. In one of the houses the old and interesting, but not generally grown, *Rodochiton volubile* was met with in a condition that showed how attractive it is when, as in this instance, it is properly developed. It is generally recommended for training up pillars and to roof trellises, for which it is well suited; but it makes a charming pot specimen when the elegant growth is trained to feathery sticks from two feet to thirty inches in height, according to the size of the pot. *Eurya latifolia variegata*, one of the most beautiful of the variegated greenhouse plants, was remarkable for the splendid development of its foliage and the bright and effective appearance it presented.

In the stove foliage and flowering plants are equally well represented, and on one hand we find large numbers of crotons, dracaenas, and caladiums, and on the other good stocks of ixoras, dipladenias, and allamandas. To particularize the kinds is not necessary, but it may be mentioned that all the finest of the recent introductions, as well as the best of the old-established kinds, have a place in the several structures, and that neither searchers after novelties nor those who have a predilection for plants that have long been in cultivation will be likely to meet with disappointment. Reference may with advantage be made to *Ficus rugosa*, an indiarubber with small leaves, and extremely elegant in growth. In general aspect, it is not unlike our old friend *Ficus elastica*, but its small growth renders it of much value for decorations where a plant of so large a size and bold habit would be found unsuitable. *Ficus diversifolia* is also of small growth and not without beauty, its greatest point being the freedom with which its small orange-coloured fruits are produced. *Clerodendron fragrans*, a small white-flowered species, is so seldom seen in cultivation that mention may be made of the fact that it was here in full bloom, and presented an attractive appearance. *Coccoloba platyclada* also claimed attention for its comparative rarity in collections, and its singular and decidedly elegant appearance. Amongst the newer caladiums were *Perle des Brésils* and *Mme. Heine*, which are so distinct and beautiful as to well deserve the notice of cultivators. The first-mentioned has large white leaves regularly veined with green and tinted with red; and the leaves of the second are red margined with green and spotted with white. Ferns form a strong feature, and include many good specimen *gleichenias*.

On leaving the Golden Acre Nursery there is a large area of ground to the right, devoted to forest trees in all stages of growth, and to the left, in the direction of Leith, are the Bangholm nurseries in which the ornamental trees and shrubs are grown. The nurseries of the Lawson Company are particularly rich in deciduous and evergreen trees and shrubs, including conifers, every species and variety worth growing having a proper place assigned it. On passing the entrance gates the attention of the visitor is at once arrested by the splendid colouring of the golden-leaved trees,

the golden yows and golden retinosporas glistening like burnished gold, and producing a rich and striking effect in contrast with the more sombre hues of the green forms of these and other conifers. Not less remarkable for their rich colouring were the golden arbor-vitæ and the hollies with gold and silver variegation. The climatic conditions are undoubtedly most favourable to the development of the leaf tints of hardy shrubs and trees, the purity of the air being a prime factor. But something is unquestionably due to the soil of the nurseries being most favourable to the production of an abundance of fibrous roots, and the skill with which the various operations in the propagation and preparation of the stocks are carried out. Coniferous trees of all descriptions are evidently at home, and those who have a partiality for them will not fail to derive much pleasure from a leisurely inspection of the large plantations. Rhododendrons occupy a large space, and comprise vast numbers of the choice named varieties, and many thousands of seedlings of Ponticum. To speak in detail of the many objects of interest to be met with in the various quarters is out of the question at the present moment, but sufficient has, it is hoped, been said to show that visitors who are at all interested in hardy trees will find plenty to interest and entertain them.

MESSRS. JOHN LAING AND CO.'S NURSERIES, FOREST HILL.

Country cousins who are visiting London now may advantageously make note of the fact that there are wonders on view at the three nurseries of Messrs. J. Laing and Co., Forest Hill. These nurseries may be reached in half an hour from Charing Cross, Cannon Street, and Liverpool Street, and Catford Bridge Station is the most convenient, because the walk thence to the land of flowers will consume only from seven to ten minutes. There are three nurseries—Stanstead Park, Rutland Park, and the Vineyard—about five minutes' walk apart, and each has its special features, while all have one feature in common in various shades of expression. We find here all the good stove and greenhouse plants, roses, fruit trees, bedding plants, florists' flowers, grape vines; it matters not in what particular our tastes and fancies take us, Messrs. Laing can afford abundant gratification, and now and then perhaps a surprise, provided only we keep within the domains of horticulture.

As remarked above, all the three nurseries have one feature in common, variously expressed. Thus, in approaching the offices, we encounter a bed of Begonias presenting a magnificent appearance, altogether different to beds of any kind of flowers on what may be called the orthodox bedding system. The plants are of great size and may be described as robust bushes laden with magnificent flowers of the most resplendent colours, but mostly scarlet, crimson, rich rose, and shades of orange, buff, and yellow. One reason of the great size and glorious appearance of these plants is that they were planted in 1881 and remained out and undisturbed all the winter, and are now growing and flowering as they do in the home of the tuberous begonias, which may be Bolivia or anywhere else. No one has seen begonias who has not seen this bed, or one produced by a similar mode of procedure. The finest pot specimens to be seen at Chiswick or anywhere else convey no just idea of the splendour the plant attains under a perfectly natural system of cultivation, being treated as a hardy plant and carried through the winter with just enough protection to prevent the tubers from being frozen, its degree of hardiness being about the same as that of the potato.

At the very first walk round from the offices the feature, with another expression, is again encountered. This is a plantation of yearling Begonias in long beds for stock. They are all small plants, looking very gay with their abundance of flowers of all colours, and the general tone is that of a proper bedding display on the flat system, save that chromatic effect is not intended, for these are all pedigree seedlings flowering for the first or second time. There are eighteen beds thirty yards in length, and four beds fifteen yards in length, and all the beds are four feet wide. The plants in these beds number over 60,000, as any one may soon determine by counting the contents of a square yard or of any one of the beds. They are now in their best condition, and should be seen by all who are interested in begonias, a category that of course includes all who are interested in bedders and bedding. These will be lifted for commercial purposes, and will supply tubers of the size of walnuts, from which great plants may be grown next year.

At another turn we meet with another plantation of Begonias, but on a different plan. This is a smaller plantation of the best selected sorts that are to be named and in due time exhibited, and that are to command higher prices than the general stock. They are of all colours, including pure white, and a few that show a strong shade of blue peeping through the splendid crimson.

Having a mind for a change, we step into a great span-roof house to look at the specimen plants. This big house is entirely occupied with Begonias, and the first thing that strikes one is the simple solution of a problem in begonia culture that must have presented itself to the minds of many, and that probably many have solved in the same way as the Messrs. Laing. A considerable proportion of the very finest tuberous begonias produce pendent flowers on long lax footstalks. As pot plants or bedders these are ineffective, as is often the case with drooping flowers, and yet their beauty is such that it must be our own fault if we cannot display them to advantage. Very well: if you would see how it is done, devote a forenoon to a visit, and the demonstration will be better than any description, because of its multifarious and splendid detail. To sum up the matter for this report it has but to be said that the finest of the drooping varieties are grown in great baskets, and these are suspended from the roof, and thus we learn a new and valuable lesson in begonia culture. As basket plants they are unique, for the growth is natural, and therefore more beautiful than when interfered with by sticks and ties, and we have our reward for natural treatment, for when the plants are above instead of below the eye we see the full faces of the glowing flowers, and the result is a new sensation.

We have occasionally heard whispers of discontent in respect of tuberous begonias. It is not surprising there have been some disappointments, for the plants have had to endure the ordeal to which every novelty is subjected, *that of too much cultivation*. Mr. Laing declares, without hesitation and with some degree of emphasis, that they should never be assisted or hastened by artificial heat at all; they are so nearly hardy, so well able to take care of themselves, and so accommodating in constitution, that protection from frost is very nearly all they need for ensuring a great growth and an abundant bloom. One of their peculiarities is that they may be lifted when full of flowers and replanted without suffering in the smallest degree, provided the work is done with the most ordinary care. Any fairly good loamy soil, in which zonals or calceolarias will grow, will suit them perfectly. Strong manures do more harm than good; but turfy loam and clean leaf-soil will suit them as bread-and-butter suits a healthy child. As for the varieties, space cannot now be spared to speak of them; but the printed catalogue of the firm is always at

command, and the surest way to secure the best for a collection is to see them at home by devoting to the task three hours and two shillings. Then hail for Catford Bridge and secure a cheap feast and an instructive lecture, for if you meet Mr. Laing he will undoubtedly talk about his beloved Begonias.

REDLAND LODGE, BRISTOL,

THE RESIDENCE OF J. C. WALL, ESQ.

REDLAND LODGE is one of the many suburban residences with which the city of Bristol is surrounded. The grounds of these places are not large, but gardening is in many cases well done, showing that it does not follow that good practice can only be met with in large places. If any of the readers of the Magazine think differently, I would advise them to visit some of the smaller gardens in the neighbourhood of Bristol. They will find the gardeners courteous, and the places under their charge well up to the mark.

Redland Lodge is surrounded with a nice breadth of well-dressed lawn and shrubberies, and the grounds contain a few fine trees, which give the place a park-like appearance that one does not expect to find so near a city. The lodge is at the extreme end of the grounds, and leading to the house is a neatly-kept carriage drive with shrubberies on the right, and on the left a line of cedars standing on grass, and beyond them a paddock-like pasture. Surrounding the house are various beds and borders of flowers, in which violas of various kinds are conspicuous. Dividing a portion of the grounds from the kitchen garden is an ivy screen, about six feet high, and over the ivy strong growing roses are festooned on wire frames, which have a very nice effect. The principal roses used for festooning are Gloire de Dijon, Solferino, and Cheshunt Hybrid. A large span-roof house is devoted to hybrid perpetual and tea-scented roses; it is thirty-three feet long and eighteen feet wide, with a walk down the centre, and a border on each side. On the borders are platforms on which to stand the pot plants when they are in flower. The roof of this house is covered from end to end with *Maréchal Niel*, planted in the borders. One side is quite covered with the growth of a single plant, and on the other there are three plants. There is not a foot of space on the roof that is not covered with growth of the most healthy and luxuriant description. It is easier for any one who knows anything about the character of this rose to imagine what a glorious and rich effect must be produced in the spring months, when the plants are in full bloom, than it would be to describe it. That it should form one of the chief attractions of the place no one will wonder, as the house is lofty and substantial. This house also affords another proof, if it was wanted, that in places where *Maréchal Niel* will not thrive in the open air a covering of glass is alone required to ensure its doing well, as the house here alluded to is not heated. Mr. Vallance, the gardener, told me that with him this rose is of no use out of doors, and this is the experience of so many that the fact of its thriving so well in an unheated house is worth recording.

There appears to be a large demand for flowering plants, as I noticed large stocks of Persian lilacs, deutzias, and spiræas quietly resting in the shade of north walls. The stock of *Eucharis amazonica*, which is managed so well, is in fine health and vigour; beside these there is the usual stock of summer-flowering plants in pots, plainly showing that no department in the garden is neglected.

The kitchen garden, although not large, receives its full share of attention. I noticed particularly fine rows of celery, French beans, peas, and other choice vegetables. In the frames were good crops of cucumbers and melons, and on the front wall of the peach house a promising crop of tomatoes, which are grown in pots and trained to the wall, and as they are in constant demand Mr. Vallance pays much attention to them, and cultivates them largely in every available space, both under glass and in the open. His favourite variety is a seedling of his own, selected from Hathaway's *Excelsior*, and it is very plain he cannot well find a better one, for it embraces all the points that a good fruit requires: it is large in size, handsome in appearance, and very fruitful.

Considering the limited space, outdoor hardy fruits are managed with a degree of care that is very creditable. The pyramid pear trees are examples that do justice alike to the grower and the form of trees. Many of them are perfect in form and very fruitful. I saw healthy trees well laden with fruit of such sorts as *Beurré d'Amanlis*, *Beurré Capiaumont*, which bears every year, *Louise Bonne de Jersey*, and *Alexander Lambre*. Of apples there is an especially fine crop of *King of the Pippins*, and Mr. Vallance attributes his success in this department of fruit culture to a regular and systematic practice of root pruning. The results obtained demonstrate that he is right. Strawberries are largely grown in pots for forcing, as well as in the open ground, President being the one selected for forcing, and Dr. Hogg and Sir C. Napier for the open beds, which annually bear fine crops.

The peach house is a most interesting structure. It is one hundred and twenty feet long and ten feet wide; on the back wall peaches and nectarines are trained, and the front border is filled with trees in pots, principally late varieties, as Mr. Vallance finds late peaches do better in pots than planted out. At each end of this house tomatoes are grown in pots, and about half-way up the roof from the front tea-roses are trained on wires at about every ten feet distance from each other, so as not to shut out the light from the trees beneath. I have said this house was very interesting; and it is so, both for the health and happy condition of the trees and the skill with which the selection of peaches and nectarines has been made. By a judicious selection of early and late varieties a regular supply of fruit is obtained from the early part of July until the middle of October. *Hale's Early Poach* is the first which ripens, and then follow *Early Grosse Mignonne*, *Stirling Castle*, *Royal George*, *Barrington*, and several other mid-season varieties. The late kinds consist of *Lord Palmerston*, *Comot*, and *Late Admirable*. The nectarine grown is *Lord Napier*. Altogether I have not seen a more successful poach house anywhere, every tree being in robust health and bearing a good crop of fruit.

The vines are not less skilfully managed. In every stage they bear evidence of a painstaking and thoughtful cultivator. Mr. Vallance quite understands and appreciates the value of a consistent system of regular cropping from year to year. From the condition of the crop at the present time, no experienced hand need be told that the same vines bore equally as good a crop last year, nor is there any fear of their future behaviour in this respect; for, while they are now carrying a good crop of fine and well-finished bunches, they are not unduly taxed. There are three established vineries at present, and some large pine stoves are being converted into early and late grape houses. I have not space to further particularize the different vineries and the varieties with which they are planted, but the reader may rest assured that they contain all the most desirable and useful kinds.

J. C. C.

BEDDING DISPLAY AT JEPHSON'S GARDENS,
LEAMINGTON.

IN our report of the Warwickshire Horticultural Society's show, held here on July 12, reference was made to some remarkably effective flower beds just then at their best. We ventured to make a sketch of the designs and note down the subjects, and the manner in which they were employed.

No. 1 (centre), a six-lobed circle, had *Dracena australis* as a centro plant, carpeted with *Sodium Lydium*; next, two circles of *Iresine Lindenii*, banded with a circle of *Centaurea candidissima*; another band of *Fuchsia Sunray*; round the edges of the lobes two rows of *Echeveria secunda glauca*, then a band of *Alternanthera magnifica*; next, a belt of *Pyrethrum Golden Feather*. In the centre of each lobe a fine specimen of *Chamæpuce diacantha*, carpeted with *alternantheras* of sorts, edged with *Echeveria secunda glauca*, the remaining portions filled in with *Mesembryanthemum cordifolium variegatum*. This bed was a perfect gem.

Beds Nos. 2, 3, 4, and 5 are pear-shaped, with the sharp points leaning to the two upper and two lower lobes of No. 1. No. 2 contained variegated zonal *Sophia Dumaresque*, edged with blue lobelia; Nos. 3 and 5 had zonal *Maréchal MacMahon*, edged with the variegated yellow alyssum; while No. 4 was filled with zonal *Mrs. Pollock*, edged the same as 3 and 5.

Beds 8 and 9 are six-point stars, the centre points parallel with the space between the two upper and two lower lobes of No. 1. They were matched beds, containing as centro plants *Coleus Verschaffeltii*, double row of variegated zonal *Flower of Spring* brought to the points of the rays; the intervening spaces filled in with *Iresine Lindenii*, and edged with *Blue Stone lobelia*.

Beds 6 and 7 are complete circles, smaller than the stars, and are placed right and left on either side of No. 1, filled with *Mentha pulegium gibraltarium*, and being raised six inches above the lawn give a pretty effect.

Nos. 10 and 11 are four-lobed, placed above and below the star-shaped beds, the pattern of No. 10 being a Roman cross in each lobe, formed with *Alternanthera magnifica*, edged with the *Golden Feather*, named *Selaginoides*; the edges are formed with *Echeveria secunda glauca*; inside this a belt of *Alternanthera paronychioides*, the remainder filled with *Mesembryanthemum cordifolium variegatum*.

No. 11 is similar, excepting the central arrangement, which consists of circles of *Alternanthera amena* joined by narrow lines of the same, the circles filled in with *Mentha pulegium*.

Nos. 12, 13, 14, and 15 are diamond squares, placed on either side of 10 and 11. These are filled with scarlet zonal *Vesuvius*, edged with white lobelias.

The above will convey but a faint idea as to the real effect produced by this massing of well-known subjects. But for practical men the details will have some value.

The Jephson gardens were planted in 1845, and are rich in cedars, tulip trees, purple beeches, and several forms of evergreen oak; there are also fine specimens of *Taxodium sempervirens*, *Araucaria imbricata*, *Robinia pseudacacia*, thorns, hollies, &c. The present gardener (Mr. H. Longford) has displayed much taste in the laying-out these beds, and his efforts have received kindly notice from visitors and the local press. Improvements can still further be made in these gardens, especially on the south bank overlooking the river Leam, where the cutting down a few dead or decayed trees, and erecting rockwork and planting a few ferns, would render the place tenfold more beautiful than it is at present.

Oxford.

WILLIAM GREENAWAY.

THE TREATISE ON VINES AND VINE CULTURE, by Mr. A. F. Barron, which has been appearing by instalments during the last three or four years in the *Florist and Pomologist*, will shortly be published in a cheap book form. This will be a great boon to gardeners, especially those of the rising generation, as the practice inculcated is sound, and the instructions particularly full and clear, as was, indeed, to be expected from the well-known high standing of the author. Not the least valuable portion will be found in the copious and complete descriptions of all the better varieties of grapes at present known, many of which are illustrated by characteristic woodcut figures. Indeed, there is no such complete descriptive list of grapes extant.

BEDDING ARRANGEMENTS IN THE LONDON PARKS.

FOR some weeks the displays of summer bedders in the London parks have been at their best, and as the various subjects employed have done remarkably well this season they admirably exemplify the present condition of flower gardening in this country, and, it may be assumed, afford much gratification to the thousands of visitors. In none of the parks is there any new departure in the embellishment of the flower garden; but the system which has found favour of late years is admirably developed, and the effects in all the parks, if differing somewhat in relative merit, are so rich and tasteful as to reflect much credit upon the respective superintendents, and those under them who have the bedding arrangements specially within their charge. In the various parks flowering and leaf plants are grown in due proportions, and in each sufficient palms and other plants of noble aspect are employed to afford a pleasing relief to the brilliant masses of pelargoniums and other plants grown for their flowers and the brightly-coloured carpet or tapestry beds. With reference to the condition of the various subjects employed in the several arrangements, it may be said that on the whole it is most satisfactory. A little additional warmth would doubtless have been most beneficial to some of the bedders, but, assisted by the frequent showers experienced up to the end of July, the growth of the majority has been as vigorous as could be desired, and the increased warmth and sunlight during the current month have developed in a remarkable

manner the flowers of the zonals and similar subjects, and the leaf tints of such things as the *alternantheras* and *coleus*. The weather has been very favourable to the majority of the sub-tropicals, and it is not often that the *solanums*, *wigandias*, and *polymnias* have grown with greater freedom or produced more ample leafage than they have done this season.

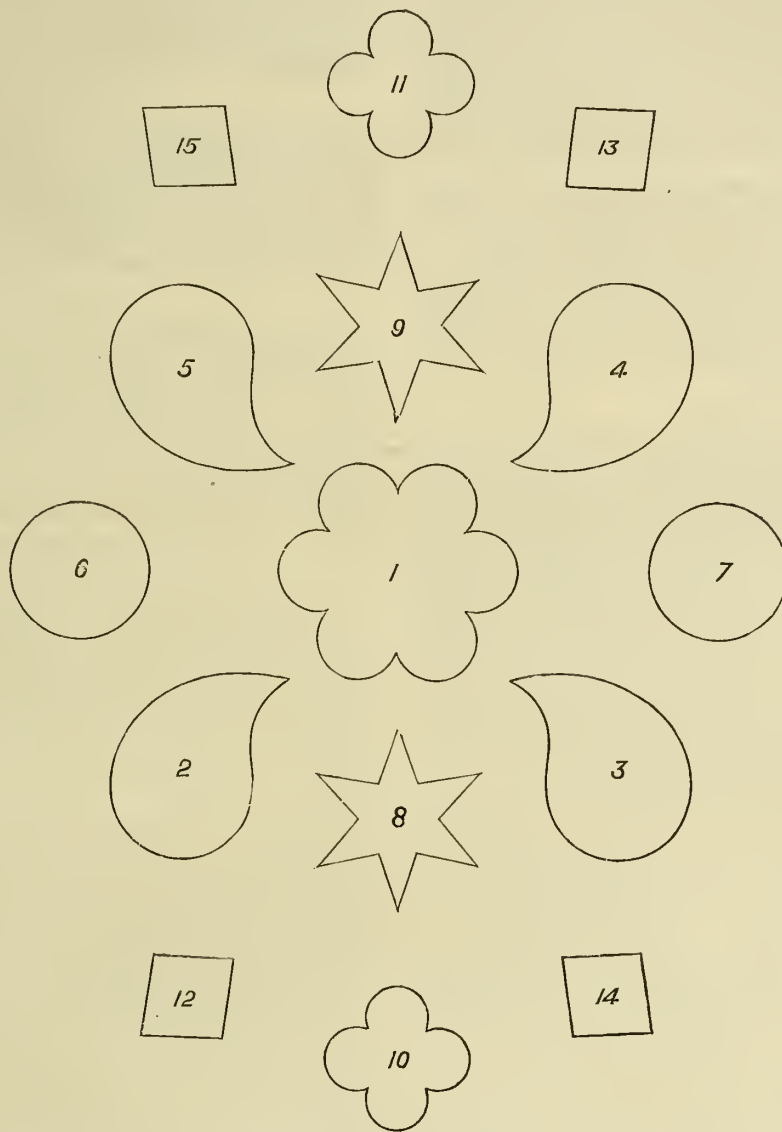
HYDE PARK.

This park well merits first attention both for its extent and the great excellence of the bedding arrangements, which, it is safe to aver, far surpass those of any previous year. The arrangements are indeed so effective and complete in all their details, and the keeping so high throughout, that they well merit special attention, and those who are at all interested in the summer decoration of the flower garden, and cannot spare time to do more than visit one of the parks, should not fail to see the splendid display in this.

As in previous years, the principal arrangements are in the enclosures alongside Park Lane, and from one end to the other we have a continuous succession of beds and borders of the most beautiful description, fittingly relieved with noble palms and handsome bays, the latter so good that they form of themselves a feature of great interest and importance. Proceeding from Hyde Park Corner to the Marble Arch, we have after passing Stanhope Gate two series of beds, one on the grass next Park Lane, and the other on the breadth of turf between the walk and the drive. The beds on the right hand of the walk which intersects the enclosure are filled almost exclusively with flowering plants, and in those on the left are several of the finest examples of carpet bedding that have yet been seen. To the right the beds have a margin of *Blue King lobelia* in splendid condition, an inner band

of *Aristo pelargonium*, a variety in the way of the old *Manglesi*, and with golden variegations and pink flowers. The first contains a splendid block of *Captain Holden pelargonium*, a splendid variety with magenta-crimson flowers. On the same side is a bed containing *Rosamond Wright pelargonium*, a variegated variety bearing pink flowers, and *Brilliantissima iresine* in mixture, which produce a distinct and pleasing effect. *Lizard pelargonium* deserves special mention for its distinctness and effective colouring; the flowers, which are borne in large trusses, and in the most profuse manner, are of a bright shade of salmon-pink, with orange red eye. On the left hand is one of the splendid examples of carpet bedding to which reference is made above. The design is bold and the colours most artistically contrasted; the *alternantheras* are particularly good, and the comparatively new *A. paronychioides aurea* is conspicuous.

A little further on is a fine block of *Olive Carr pelargonium*, a fine pink-flowered zonal. A bed of mixed *abutilons* affords a pleasing variety, and the freedom with which both *Boule de Neige* and *Darwini* are flowering is worthy of note. Other specially good beds on the right are *Rev. F. Atkinson pelargonium*, a splendid scarlet zonal of moderately strong growth; *Lady Bailey pelargonium*, a grand pink variety, deserving of the highest praise; *Zuleika pelargonium*, one of the many fine zonals with purple-tinted flowers raised by the late Dr. Denny, which is free in flowering in the open beds and valuable for its distinct hue.



PLAN OF CARPET BEDDING DISPLAY IN JEPHSON'S GARDENS, LEAMINGTON.

Between South Street and Mount Street the beds on the right have a marginal band of *Königa variegata* and Blue Stone lobelia planted alternately, and an inner band of Golden Feather. In the beds to the right and left are fine blocks of Gertrude pelargonium, an excellent salmon-coloured variety; Little Carr pelargonium, a dwarf form, producing neat trusses of bright crimson flowers; Rebecca pelargonium, deep crimson, very free and effective; Dr. Rawson pelargonium, rich crimson, a fine variety in its colour; Charles Schwind pelargonium, deep glowing crimson, very free and effective, probably the best in its colour, and Bijou calceolaria, the plants literally solid with bloom.

After passing Mount Street the breadth of turf on the left widens considerably, and has two lines of beds with a row of large standard bays arranged alternately, with palms and dracenas along the centre. The bays are remarkable for their large size and robust state of health, and in combination with the palms and dracenas form a pleasing and very effective relief to the brilliant colours in the beds. The large beds on the breadth of turf are in a most magnificent condition, and from any point, either on the walk or drive, they produce a powerful impression. They have for an outer margin *Antennaria tomentosa*, a band of *Lobelia pumila magnifica*, now solid with bloom, and an inner band of Robert Fish pelargonium. They are very properly planted to match, and amongst others deserving of special notice were those containing Mrs. Holden pelargonium, an excellent pink variety; Miss Vincent pelargonium, the flowers scarlet-crimson, and freely produced; Abutilon Boule de Neige, set in a groundwork of abutilon, *Vexillarium variegatum*, *Melanthus major*, with a carpet of *Alternanthera magnifica*; John Gibbons pelargonium, one of the best of those bearing crimson flowers; Miss Kingsbury pelargonium and Blue Bell viola in mixture; Pioneer pelargonium, magenta-red, free and effective; Sir H. S. Stanhope pelargonium, deep crimson, very fine; Lucy pelargonium, pink; *Solanum marginatum*, with a carpet of *Amaranthus melancholicus ruber*, and Abutilon Thompsoni, set in a groundwork of Jean d'Amour heliotropium. The beds on the left are particularly good, but as the varieties are chiefly the same as those already mentioned it is not necessary to speak of them in detail.

Beyond Grosvenor Gate, proceeding northward, are numerous tastefully-arranged beds in capital condition, backed up by an effective ribbon border formed with *Antennaria tomentosa*, Blue Stone lobelia, Albion Cliffs pelargonium, Gaines's Yellow calceolaria, and Waltham Seedling pelargonium.

The groups and beds of sub-tropical plants, and the beds of flowering plants on the lawns between Hyde Park Corner and Albert Gate, and the arrangements in other parts of the parks are all thoroughly good, and form no inconsiderable part of the decorations which Mr. Browne, the able superintendent, and Mr. Chamberlain, his skilful lieutenant, have provided for the delectation of the visitors.

BATTERSEA PARK.

Very bright and pleasing are the arrangements in this park, and those who have a predilection for plants of noble aspect and mixed flower beds will find plenty to interest them. Carpet bedding forms, as usual, an important feature, and contributes its full share to the general display.

Entering the park from the Queen's Road and proceeding towards the lake and the sub-tropical garden two large beds of dwarf roses are passed. Owing to their large size they have a rather flat appearance at this season, but they are worthy of notice for the splendid band of pentstemons with which they are surrounded. The variety employed has very large rich crimson flowers marked with dark veins in the throat, and is perhaps one of the very best that could have been employed for the purpose. Visitors should certainly note how effective the pentstemons are when employed with the skill and judgment made manifest in this instance. Along the front of the pentstemons is a band of Golden Gem calceolaria, which is in such splendid condition as to produce a striking effect of itself, and to bring out the pentstemons to wonderful advantage. There are also good bands of calceolarias and pentstemons in the borders near the beds of roses, that in their way are not less satisfactory.

Passing into the sub-tropical garden from the southernmost point, we have on the walk to the right skirting the lake three beds, two of which afford successful examples of tapestry bedding. The beds, which are oblong in form and separated by a small circle, have in previous years been planted to match, but this season they contain different designs, and it cannot be said that the change is a good one, although both designs represent much taste. In both beds the designs, in part picked out with *Kleinia repens*, and the richly-coloured *Alternanthera versicolor*, *A. amœna*, *A. magnifica*, and *A. paronychioides aurea*, are well employed, and *Mentha gibraltaraica* is used for filling in the spaces between the lines. At the point is an effective group of wigandias and scarlet gladioli, with a carpet of petunias, and immediately beyond is a large bed of tall plants of *Aralia papyrifera*; these are five or six feet high and have clear stems, which are clothed with ipomœas, and set in a carpet of the variegated form of *Veronica Andersoni*, they present a striking appearance. Taking the walk to the left and proceeding to the fern glen, a large number of carpet and mixed beds are passed, all more or less good and reflecting much taste, and some capital groups of sub-tropicals. At the back of the beds on the left are half a dozen or so immense specimens of *Polygonum cuspidatum*, which are now in bloom and have a very bold and decidedly elegant appearance. The fern glen is arranged with even more judgment, and the recess to the left and the vista on the right are both exceedingly attractive, and it is not surprising that they should have become popular amongst the visitors to the park.

Beyond the glen there are two large beds filled with leaf plants, and a combination of *Clematis Jackmanni*, canary creeper, and the white everlasting pea, which is now exceedingly beautiful, is not less worthy of attention than the best of the beds.

VICTORIA PARK.

The chief points of interest in this park, so far as the display of bedding plants is concerned, are the geometrical scheme, on the drive between the Royal Hotel and Shore Place, the beds on the drive between the Crown Hotel and the Royal Hotel, the beds alongside of the lake, and the two mounds in Shore Place. The geometrical scheme appears to be the chief centre of attraction to the great body of visitors, and it is well able to afford attraction to those who have a liking for strong and brilliant colouring. Now that the beds are at their best the effect produced is of the most striking character, and the brilliant colours of the pelargoniums, which are chiefly employed, are nicely relieved by carpet beds along the front. The end beds of each of the semi-circles forming the scheme, with the exception of those of the second from the butterfly or key bed, are filled with leaf plants of various descriptions, and the several arrangements are at once rich and tasteful. There is a very beautiful carpet bed on the triangular grass plat on the north side of the scheme.

Very good also are the scroll and other beds on the drive between the two hotels mentioned above. These are filled with *alternantheras*, sedums, Golden Feather, mentha, and similar subjects, and if the designs do not differ materially from those of previous years they have the merit of attractiveness.

The borders round the two holly mounds in Shore Place are planted with pink and scarlet and variegated pelargoniums, coleus, and iresine, and various subjects of low growth for forming the finish. The beds of sub-tropicals alongside the lake are all more or less good, and the two beds of Golden Fleece fuchsia and the two carpet beds on the same walk must not be overlooked.

REGENT'S PARK.

The display of bedding plants in the flower garden to the south of the road from Chester Gate to the gardens of the Royal Botanic Society is remarkably good, and does not fail to attract the attention of visitors. In the arrangements flowering and leaf plants and sub-tropicals are all represented, and they are so arranged that their respective characteristics appear to the best advantage.

FINSBURY PARK.

The flower garden on the southern side of the lake in this popular park has in no previous year been embellished with greater judgment and taste than this season. Owing to the bleak position flowering plants, such as zonal pelargoniums, ageratums, and lobelias, are chiefly employed, with variegated pelargoniums, centaureas, and echeverias, to give a finish to the beds, and these are just now in the best possible condition. There are several splendid beds of coleus, capital blocks of gold, silver, and bronze zonals, and fine masses of cannas, which afford a pleasing variety, and contribute materially to the general effect. Near the Manor House Gate are several excellent examples of carpet bedding.

HAMPTON COURT GARDENS.

The high degree of popularity which these gardens have acquired of late years for the great excellency of the carpet bedding is fully sustained this season, and Mr. Graham has added considerably to his reputation. The designs are mostly new and all are thoroughly good, and the beds at the present moment afford lessons of the most valuable character in this style of flower garden embellishment. The mixed beds and the blocks of zonal pelargoniums are also exceedingly good, and with the herbaceous borders are well able to provide entertainment for those who prefer flowers to leaves.

CHELSEA HOSPITAL.

In the gardens attached to the Chelsea Hospital we have one of the finest possible examples of promenade planting. The beds on the lower part of the terrace immediately in front of the principal buildings are from end to end of large size and planted in a bold manner without the colouring being overpowering. Flowering plants are employed in furnishing all the beds with the exception of two, and these are filled with leaf plants in a manner that is at once rich and tasteful. The beds are backed up by a capital ribbon border, which also is noteworthy in its way. There are also good examples of carpet bedding in the Ranelagh gardens, which are on the east side of the hospital gardens and are under the same management.

ON THE ARRANGEMENT OF FLOWERS.

THE art of arranging flowers is one among the many things which are supposed to come naturally to most women; but experience would seem to show that the knack of disposing them successfully is a rare gift. In the first place, a fine eye for colour is needed, and even when you have made up your mind what you want to do, it is not always easy to make the flowers lie just as you want them to. Neat deft hands are wanted to put them into their place, and to stick in the leaves and ferns just where they will look the best. It is only by trying different effects that you get to know what will look well, and in this, as in all other things, the road to success is through a series of failures.

No room, however gorgeously appointed, looks furnished and habitable without flowers; and the very humblest and most shabby dwelling receives from them a certain grace. What gives such a look of pleasantness to a meal, whether a fine or a homely one, as a bouquet of fresh flowers on the table? A rose upon the dressing table; what gives a better idea of the refinement of a house you are staying in than that? The bowl of lovely wallflowers in the middle of some humble sitting room gives you on the hottest day a sense of coolness and delight. In some odd way of their own, flowers seem to look at you when you come in, and make you welcome.

But, lovely as these silent messengers are, it is possible to convert them into anything but an adornment—at least to the educated eye—by carelessness or vulgarity of arrangement. The great thing that is wanted is thought. We remember a house where the flowers (for which the mistress professes to have an immenso taste) were invariably badly placed and ineffective. One day we happened to call just as they were being arranged, and we then saw the reason why they always looked so badly. The lady just went on talking, and stuck the flowers absently into a vase one after the other, with no more regard for their colour or kind than if they had been pins she was sticking into a pin-cushion. She could hardly expect them to look well at that rate. It would have been rather remarkable if they had. Besides, you can only dress very small vases in that manner; a large bunch requires to be made up in the hand, and then carefully lowered into the vase when it is just large enough to fit it.—*Household Words*.

Literature.

The Ladies' Gazette of Fashion (4, Ave Maria Lane) for the current month contains an interesting paper on "Continental Holidays," and some floral designs for ladies' work.

The Journal of Forestry (Rider and Son) continues in its useful course, and is very prudently managed so as to render it interesting to those who love trees, and useful to those who plant and manage them. The subject combines the *utile* and the *dulce* in a quite peculiar manner, and it would not be wise to render the *Journal of Forestry* a mere record of specific distinctions and prices and properties of trees, timber, bark, &c. Such a record it is, and a good one. But the picturesque has its place in this well-conducted work, and the notes on old trees, sylvan scenery, and forest laws and customs give it perennial freshness and abiding interest.

ART IN JAPAN.

By C. FROUNDER. Read at a meeting of the Society of Arts.
(Continued from page 416.)

As a fitting supplement to our higher and more æsthetic realization of classic art, Japanese art, colour, and design may be made to teach a useful lesson. It is really wonderful that the art of this people is what it is, considering the many great obstacles they have had to contend with. Ever liable to sudden destruction by shocks of earthquake and the continued alarm of fire, that next most terrible and mischievous enemy to household art, the Japanese thought that if they were not burnt out of house and home more frequently than "once in seven years," as the old adage says, "they were fortunate, indeed." Subject to being roused up frequently in the middle of the night, and obliged to flee to a distance, alarmed by the fire-bell, and taking away hastily all the most valuable moveables, can it be wondered at that these people limited their art to the decoration of certain articles, of which the more valuable are portable, or, at any rate, moveable. If we remember that they are obliged to keep their household treasures carefully packed away in fireproof storerooms, never having in common use any but those employed for the simplest necessities, must we not be surprised with the singularly powerful æsthetic and artistic constitution which has nevertheless preserved and perfected an art that has of late completely overwhelmed us here.

It is not necessary to discuss further the broad question, and to deal with the technical defects or points of excellence in the Art of Japan, nor is it my desire to preach the universal copying of an alien art, but only to point out what is hidden to those who have not had the opportunities I have had to see that art untainted by the natives' recent rage for innovation and change.

I regret much to see the Japanese efforts to copy our art, and I rejoice at the failures in England to copy Japanese art. They fail, as we do, in this copying without understanding the art motive, or having a knowledge of the originals, or comprehending the fitness of things copied. I would not teach any royal road to mere reproduction, but I do think there is a wide field open for an enthusiastic admirer to point out the real value of Japanese art, to indicate the intention of the native artist, and to explain the poem or legend that has formed the inspiration of the sketch. A high authority has said that it would be a noble mission for any one who would devote time and energy to the accomplishment of this task. When the hitherto hidden movements of art-thought of the Japanese are understood their work will assuredly be better appreciated than it has yet been. Any object of Japanese ware, even the commonest, would most probably be found to be decorated with a sketch, however rough, that constitutes a scene in an idyll or a legend, or that illustrates some poetic or historic allusion.

As we are now ignorant of all this hidden meaning, we lose the pleasure that a cultivated native derives from the work. Our mere visual sense only is exercised, and we are often interested merely by the novelty, or blindly follow in the track of a passing fancy and fashion, without being truly pleased by the drawing.

When, however, we come to know that the woman wearily trudging through a snowstorm, with three children, is the mother of the infant she carries, and that that infant became the great Mongol conqueror, Genghis Khan, we desire to know more of the story.

A bird flying across the crescent moon calls to mind the following legend of the brave Yori Masa:—

About the year A.D. 1153, the Emperor Narihito fell sick, and the doctors could not discover the nature of his malady. Every night the emperor was stricken with a horrible nightmare, and some of the night-watch noticed a dark cloud, which appeared to move towards the "Dairi" (Imperial residence). Presently it rested, and above the cloud shone out two fiery orbs. A brave warrior and celebrated archer, Yorimasa, was chosen to destroy the evil thing. For three nights he kept watch, with a powerful bow and a few trusty three-feet shafts, feathered with the plumes of the pheasant, a keen blade in his girdle, and his follower armed with a trusty sword. They awaited the cloud, and, when it appeared, Yorimasa, with steady aim and his full power, bent his bow, and, as he delivered the arrow, breathed after it a soldier's prayer, "Namu Hachiman Dai-bo-Satz" (I pray to the great Hachiman). One of the bright orbs was immediately extinguished, and with horrid noises there fell down a huge animal, and Yorimasa rapidly drove his sword to the hilt into the beast nine times. The people of the palace discovered the dead thing to have a monkey-like head, the body and claws of a tiger, and a tail like that of a huge venomous serpent. The "Shiu-jo," wishing to reward Yorimasa, gave him a celebrated sword, called "Shishi no O" (the king of wild boars). Besides, knowing that he secretly loved Ayame* no Maye†, and that the love was returned, he bestowed her on Yorimasa. The "Kuge," who was appointed "Ben kan," or Imperial deputy, to present the sword to Yorimasa, aware of his reputation as a poet as well as of a brave man, bethought him of trying a verse. Just at that moment a cuckoo was heard, giving him the key-note—

Ho-to-to-gi-su
Na-o mo ku-mo ni ni
I-gn-rn ka-na.

Immediately Yorimasa answered him—

Yu-mi ha-ritsu-ki no
A-ru ni ma-ka-se-te;

making up a complete verse of 31 syllables. His scholarly readiness and wit increased his reputation as a soldier.

The literal rendering of this verse is—

The cuckoo
Above the clouds,
How does it mount?
The waning moon
Sets not at will.

But, in reference to the royal favour won by the archer, it is also taken to imply—

Like the cuckoo
So high to soar.
How is it so?
Only my bow I bent,
That sent the shaft.

* Ayame, the blossom of the *Calamus aromaticus*, or flowing sweet flag. Female names were usually derived from flowers.

† Maye is the ancient affix to female names. Hime was only used for the daughters of men of rank.

A combined triplet-emblem of Bamboo, Pine, and Flowering Plum Tree, is held to be especially suitable for festivals or auspicious occasions, such as marriage. A little bird perched on a blooming plum tree is an allusion to the poem:—

Haru same ni
Shippori nururu,
Urguisu no
Ila kase in ni yo wo.
Ume ga ka no,
Hana ni tawa mure,
Shiwo rashi ya;
Kotori de saye mo,
Hito suji ni
Negura sadamuru,
Ki wa hi totzu.
Watashia uguisu,
Nushi wa umo.

Yagato
Oshiku bai
Ja wa ja na.

With vernal showers,
Wet and drooping,
The nightingale
Fans (with its wings) the fragrant air,
Redolent with perfumed plum.
By the flowers' nectar entranced,
Of all else oblivious.
Tho' but a tiny bird,
Were my future thus
Ever unchanged,
In single mindedness.
Oh, were I but the Nightingale,
And you (my love) the flowers.

Ever like this
The sweet dream of Oshiku,
Ah, indeed, 'twere bliss.

Innumerable instances of this kind might be adduced. It is in the popular literature of the people chiefly that such are to be found. A nation of great readers, with an extensive popular and classical literature, supplied with all the standard works by the numerous circulating libraries, at a charge that is not prohibitory to the poorest even, prince and peasant alike have access to the rich stores of folklore and Eastern tale, and even more solid mental nourishment. Old and young of both sexes eagerly peruse the pages of the popular writers, and the books are brought to the houses for exchange. The connexion between the literature and art of the people is very close. It is, probably, the curiously complex nature of the ideographic Chinese character that establishes this connexion. While the hand becomes accustomed to the use of the brush in forming the complete characters, the eye and mind are trained to the deeper meanings of them. Inversion of its phonetic and its ideographic values are not only common, but their attainment is studiously aimed at in poetical composition.

A literature written in a character that is founded on an elaborate hieroglyphic system, and only to a small extent phonetic, of necessity must have a very powerful influence on the art of the people.

Floral forms have a high importance, and widely affect the minor details of decorative art. The arrangement of flowers is also reduced to a system, taught in progressive lessons; the natural forms of the various plants are altered, but with an art that conceals the effort. Daily accustomed to these floral arrangements, backed with hanging scrolls of a Chinese poem, or with an artist's sketch, in the hallowed nook that exists in every Japanese sitting-room, the mind grows accustomed to these objects. Every house has a little bit of garden; if without room for more, a box is found, containing a miniature garden in the area of a few superficial inches.

It is thus seen that there was, and is, as a deep current, a strong love of nature flowing through this people's art instinct. Periodical holidays furnish but an excuse to dress up and have a day's outing; even a visit to a shrine or a temple is ever attractive. Going to church is no mere dull prosaic routine of duty. The flowers of the season, from spring to autumn, furnish periodical excuse for these festive picnics. Pilgrimages to distant shrines give opportunities to visit beautiful or grand scenery and celebrated places.

Delighting to look at scenery from a high point, the popular pictorial art may have been influenced by this peculiarity. Thus we see that their love of nature, of flowers, and poetry, was so intermingled with their domestic life and their art, their literature and poetry, that it is difficult to draw the line where art begins and ends.

Someone has said he preferred the songs of a people to their history, so I venture to give the literal rendering of a few from Japan. The following is the most ancient poem of Japan, attributed to a pre-historic semi-divine personage:—

Ya kumo tatzn
Idzumo yayegaki
Tsuma komi ni
Ya ye gaki tsknru
Sono yaye gaki wo

Countless piling clouds
Idzumo envelops.
Thus my spouse encase,
A cordon round her raise
That my true love develops.

He rescued a maiden from being sacrificed to the demon of the mountains, and took her to wife.

The son of the Emperor, about A.D. 110, returning victorious from the North, composed the following:—

Ni i bari ya
Tsukuba wo idete
Iku ya ka ne tsu rue

Since o'er the paths
Of Skuba-hill we went,
How many nights in slumber have we
spent?
Count them.

Kaga na yete
His retainer replied—
Yo ni wa ko ko no yo
Hi ni wa to o ka wo.

Nights there were nine,
Days there were ten.

There is a play on words in these poems, which, however, it is utterly impossible to render without the Chinese character and elaborate explanation.

Wa ni, the Chinese scholar, who was the means of Chinese literature becoming popular in Japan, about A.D. 284, composed this:—

Nani wa dzn ni
Saku ya kono hana
Fu yu gomori
Ima wa harn be to
Saku ya kono hana.

In Naniwa (Osaka)
The flowering plum
This winter has not budded;
But now that spring has come,
The trees are blossom-studded.

The lady-love of the Emperor Inkio (412 to 453) wearily waited for his return from the wars. A spider, hanging from the ceiling, gave her a subject for this impromptu:—

Waga seko ni
Kubeki yo nari
Sa saka ni no
Kumo no furu mai
Kanete shirushi mo.

To me my love
This eve should come.
Like tiny crab
This spider moves,
Yet to me presage gives.

Ota Dokwan accosted a rural maiden one winter's day, many centuries ago, in the vicinity of Yed do, and asked for a rain-coat. She replied with the following thirty-one syllable verse. He was so smitten with her wit and rustic

beauty, that her fortune was soon settled, and he became a patron of men of letters through her influence.

Nana yo ya ye
Hana wa sako domo
Yama buki no
Mino no stotzu da ne
Naki yo kanashi

Seven or eight petal
Flowers bloom;
The *keria japonica*
Has no horry or seed—
A sorry sight.

or

What I have not I cannot lend.
Though flowers bud and expand
In this lone mountain valley end,
A rain-coat there is not to hand,
For which I am deeply grieved.

The play, or inversion of sound and sense, in the original contains personal allusion, as well as play upon words.

This is a common spring verse—

Ume wa sai taka
Sakura wa mada kaena,
Yanagi ya nai yo nai yo
Kase shidai,
Yama hukia uwake de
Iro hakari,
Shion gai na.

The plums have blossomed,
The cherries not yet;
The willows sway
As the wind directs.
The *keria* inconstant
Love and colour affects.
Oh! hut it can't be helped.

I will give as a last specimen, an impromptu a Japanese nobleman composed, when I told him my desire to reach the heart and learn the art-thought of his people.

Yamato nta
Oshite shiraruru
Adzusa Yumi
Hiku ya sawa naru
Hito no kodoro mo

Of *Yamato's muse
A knowledge acquire,
The bow string for use
May be bent at desire,
The heart of people is reached.

There is a poem of 31 syllables, in five lines of 5, 7, 5, 7, 7-syllable lines, that may be read in ten different ways by simply altering the arrangement of the lines, each arrangement giving a totally different poetical idea.

(To be continued).

Notes of Observation.

EARLY SUNRISE PEA.

THE notes of "S. H." in your impression, July 15 (p. 370) respecting the above pea calls to my mind some very pleasant events. I was, however, somewhat puzzled over the statement said to have been made by me, namely, "It's a capital pea." I had previously heard it praised by parties interested in pea growing, and it must have been their praise that I rather incautiously repeated. To praise an article the merits of which I have an opportunity of testing for myself because other people praise it is a fault of which I am not likely to be found guilty. I have no distinct recollection of having made the statement myself, but will not for a moment dispute the memory of the writer referred to. I have now very carefully during two seasons compared it in every respect with a great number of new and choice varieties, and although I admit it may be a useful pea for some special purposes, I could not by any means recommend it for general use, as there are other peas that will come in at the same time that are quite as prolific, better in colour, and much better in flavour.

Seed Grounds, St. Osyth.

ROBT. GARDINER.

EARLY MUNICH TURNIP.

This turnip is I find very useful for an early supply, and I can strongly recommend it to the attention of those who are not acquainted with it. It is rather strong, but it is of special value for flavour.

Holme Lacy, Hereford.

A. YOUNG.

TWO GOOD LETTUCES.

I should like to say that I have found the Alexandra White Cos and Jefferies's Little Queen the two best of the several lettuces that I have grown this season. They are certainly worthy of a place in every garden.

Holme Lacy, Hereford.

A. YOUNG.

VEITCH'S EARLY FORCING CAULIFLOWER.

Veitch's Early Forcing Cauliflower has been very fine with us. We have been cutting beautiful compact heads since the beginning of June from seed sown in the end of February and beginning of March in the open ground. It is a sort every gardener should grow.

Goodrich Court, Ross.

THOMAS SPENCER.

VEITCH'S AUTUMN GIANT CAULIFLOWER.

We are now cutting Veitch's Autumn Giant Cauliflower 30 inches in circumference, weighing 4½ pounds, sown August 24, 1881; excellent in quality. Every one having a garden ought to grow it.

Knotts Green, Leyton.

D. DONALD.

PANSY MAGPIE.

This is the most distinct of all the pansies that are suitable for spring bedding, because of its early flowering and the curious markings of its flowers. The plant also grows well, and is quite hardy. We plant it in contrast with *Viola Vestal*, which is white, and we find it most distinct. But this is not all: it begins to bloom early in the month of April, and continues to produce plenty of flowers up to the time we put out our summer bedders. It is rather too late now to strike cuttings for next season's flowering, but there is ample time to order a stock of plants from the nursery.

J. MACDONALD.

MIGNONETTE.

There is a great outcry about the scarcity of mignonette in the beds and borders; many say that they sowed the seed at the right time, but it did not grow, and the quality of the seed is questioned. I do not say that the seed was either of good quality or bad, but I do know that, of all the tender annuals which are grown, mignonette suffers more than anything else if a short period of dry weather occurs just after it is sown, and the ground is not kept moist by regular waterings. We had a fortnight's dry weather in the early part of May, and, according to my experience, that was enough to kill the best mignonette seed that was ever sown.

J. C. CLARKE.

* Yamato, the poetical name for Japan, the province wherein the residence of the Imperial Court was situated, is so named.

SEEDLING VERBENAS.

There is at the present moment a splendid bed of verbenas in my garden, which I raised from seed, and, strange to say, they are making a much more vigorous growth than those in another bed near it which were raised from cuttings. The seedlings are flowering in the most profuse manner, and the diversity of colouring is most charming. There is a pure white, a brilliant scarlet with a white eye, and a lovely maroon with a lemon-coloured eye; besides these there are a great many other colours and intermediate shades; but what surprises me most is that every plant is so vigorous, while the plants from cuttings are so poor. The raising of seedling verbenas is so simple that I shall, I hope to enlarge my practice. Early in the month of April last I purchased a half-crown packet of seed and sowed it in two large pans, and placed them in the warmest end of my little greenhouse; by carefully shading and watering them I managed to secure nearly six dozen plants for bedding-out, with what result I have already told you. I can strongly advise any of your readers who are fond of verbenas to commence raising seedlings.

T. M. P.

CANKER IN MELONS.

More than the usual number of losses have occurred in the melon crop this season through the disease known as canker. I believe that the reason of its being so prevalent and severe is owing to the damp and cold clondy weather which prevailed for so long, the melon being a light and heat loving plant. Many crops in pits and frames have been lost in cases where it is difficult to secure a suitable soil. From what I have seen, more losses have occurred where the plants had to be grown in a light soil than where a suitably heavy loam had been provided. This shows that unless a good strong loamy soil is to be had it will be best to let melon culture alone. If taken in time the canker is not a difficult disease to eradicate or to keep in check, but it is better still to prevent it if possible. The preventive measures are not difficult to understand. The chief point is when watering not to wet the principal stems near the base. After the plants have grown to the length of two or three feet no water should be given within six inches of the stem all round, and when damping or syringing the water should as far as practicable be kept away from the main stem. Should canker show itself, it can be stopped by dusting some dry hot lime over the affected parts; powdered charcoal will answer the same purpose, but the parts where the lime or charcoal is applied must be kept dry.

J. C. CLARKE.

LATE ROSES.

Owing to the cold weather and an unusual quantity of blight, we did not obtain so many good roses early in the season as we are accustomed to have. But of late we have had many splendid flowers, and, what is more remarkable, we never had them in better form and colour. A. K. Williams has been truly splendid, the colour soft and pleasing. Beauty of Waltham has been very remarkable for its full bold flowers and striking crimson colour. Camille Bernardin has been very fine; but I think the best of all in this line of colour has been Charles Lefebvre, for it has been most brilliant in colour and fine in form. Nearly equal to it has been John Bright, a very good rose. Dr. Andry is always good with us. Amongst the light varieties *La France* and *Baroness Rothschild* have been very beautiful; *Madame Victor Verrier* and *Madame Vidot* have also been very fine; but the cream of all in this line of colour has been *Marguerite de St. Amand*, which has produced flowers of the most perfect form and exquisite colour. This is a fine rose, but it does not always attain to such excellence. Reynolds Hole has been the finest of our dark roses, which has much gratified me, for I hold the name of this venerable rose grower in very high esteem.

T. M. P.

NEW NEPENTHES AT CHELSEA.

The other day, in walking through the structures containing the wonderful collection of East Indian pitchers in the nurseries of Messrs. J. Veitch and Sons, at Chelsea, I was much struck with two distinct and beautiful kinds now in splendid condition. One of these is *Nepenthes Northiana*, a very beautiful species producing long and very handsome pitchers; the outside of the pitchers is richly coloured, and the interior is very freely and beautifully marked with red and purple on a yellowish ground. The other is *N. Mastersiana*, which will prove a very formidable rival to *N. sanguinea*, which has for a long time been literally "worth its weight in gold," if it does not entirely surpass it. The pitchers are very similar in shape to those of *N. sanguinea*, and equally rich in colour and more freely produced. Plants of the smallest size are well furnished with pitchers, some not more than six inches in height, bearing five or six pitchers six inches in length and of a proportionate diameter. The strong point in favour of this magnificent hybrid is its excellent constitution, in this respect a striking contrast to *N. sanguinea*, which, as is so well known to cultivators, is of slow growth. *N. Mastersiana*, it may be added, was raised in the nurseries of the Messrs. Veitch and Sons, Chelsea.

VISITOR.

Replies to Queries.

G. Fry.—Your seedling fuchsia "*Mrs. George Groto*" is very distinct and truly beautiful. It is a single light flower with long cylindrical wax-like tube of a delicate flesh-tinted white colour with short calyx segments reflected back upon the tube in ram's horn style; the corolla narrow and closely folded, the colour rich cherry-tinted carmine.

Names of Plants.—J. P.—Yours is the pretty *Fuchsia procumbens*, figured in our issue for June 25, 1881. R. W.—1, *Hibiscus heterophyllus*; 2, *Haworthia limpida*; 3, *Monarda fistulosa*. J. Fisher.—1, *Calanthu bicolor*; 2, *Acridos cylindricum*; 3, *A. zygotactum*, but we must see a flower to give the name correctly; 4, *Phalænopsis amabilis*.

R. Austen, Ramsgate.—Yours is a handsome sample of the gall of *Cynips rosæ*. It deposits its eggs on a young shoot of a rose, and the grubs produce the moss-like galls, which are sometimes very common.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating offervescing Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "Sapo Carbonis Detergens" (as doctors prescribe) impressed on each tablet and wrapper, without which none is genuine.—[ADVT.]

Law.

ENCLOSURES IN THE PURLIEUS OF THE NEW FOREST.

MR. JUSTICE FIELD has delivered a judgment in a case of great importance to the inhabitants of the north-east corner of the New Forest. Outside the legal bounds of the forest, but connected with it by strips of waste and grassy lanes, there lie, on this side of the forest, numerous open commons stretching northwards and eastwards for about a couple of miles, the straggling villages of Bramshaw and Cadnam, with their enclosed farms, forming, in fact, the only dividing line between the forest on the one side and the neighbouring tract of waste on the other. This tract, consisting of poor moorland with boggy bottoms, but not devoid of a certain picturesque wildness, extends into the several parishes of Bramshaw, Minstead, Eling, Wellow, and Plaitford, and anciently ran without break to the edge of the town of Romsey, some six or eight miles from the forest. It extended also still further northward into Lanford parish, but here an enclosure was affected by Act of Parliament some years ago—an enclosure pointed to by the neighbourhood as proving the mischievousness of that process when applied to poor forest land, the land having been converted from useful common into enclosures so worthless that hardly an effort is made to prevent their relapse into furze and heath. The district still remaining open is of the greatest importance to the numerous small freeholders and tenants abounding on the edge of the forest. The run being uninterrupted from the forest to the commons, a commoner's beast has a wide range to choose from, and discriminates wisely between the respective advantages of wood and moor, hill and hollow, in relation to the seasons and the state of the weather. An institution of the locality is the "Shade-pond," not, as the uninitiated would suppose, a pond under the shade of trees, but a pool out in the open, exposed to the breeze. Here on a hot summer's day the cattle congregate from all parts to escape from the flies which make their lives a burden under the forest trees; while at night, or in the winter, they take refuge in some warm wood or protected bottom. The inclosure of a single one of the commons would in a great measure destroy the advantages of the whole, since it would take away some peculiar feature and interrupt the run of the cattle, confining them to their own parish or district.

Poor, however, as the land is, it has not escaped danger; and, had it not been for the presence of one land-owning family in sympathy with the small cultivators of the district, the whole tract would undoubtedly by this time have been enclosed. Some ten or twelve years ago small enclosures were commenced on the commons in Bramshaw parish. Objection was made by Mr. Eyre, by far the largest proprietor in the parish, and further progress in the same direction was checked. A few years later application was made to the Enclosure Commissioners to inclose Plaitford common, a tract of about 300 acres. Mr. Eyre and his son, Mr. Briscoe Eyre (who is a verderer of the New Forest), again objected, and the Enclosure Commissioners decided that not even a *prima facie* case had been made out by the applicants. The next step was to apply to the Enclosure Commissioners for an order for the regulation of the same common. On this occasion a local inquiry was held, and it was elicited that regulation, as understood by the promoters of the scheme, meant the placing of a fence round the whole common, thus cutting off all access to it except at particular points. The usages of the district and the habits of the cattle were explained to the Commissioners, and they decided that there was no ground for proceeding with this application. Then actions were commenced against a number of cottagers accustomed to turn out on West Wellow common. Lord Mount-Temple here intervened, and terms were arranged by which the persons assailed will be secured in the enjoyment of the common for many years. But the most dangerous and determined attack is that which has just been defeated by the judgment of Mr. Justice Field. In the spring of 1880 the Lord of the Manor of Wigley commenced the enclosure of a large common in his manor, anciently known as Wigley common, but recently as Half-moon common, from a commanding clump of fir trees, christened in the last century the Half-moon clump. This common comprises about 450 acres, and abuts on the west on Bramshaw common and on the south on Cadnam; it, moreover, contains the best feed in the whole tract and many sheltered nooks. The Lord asserted that the common was his absolute private property, and that the constant depasturage of cattle upon it proceeded merely from a series of acts of trespass which it had not been thought worth while to stop while the common lay open; and he firmly declined to suspend his operations for a day to allow of a friendly investigation of the legal questions. The Manor of Wigley had, no doubt, long ceased to be a manor, and the whole manor and tithing had come into the hands of the Lord. Fortunately, however, the tenants of the neighbouring Manor of Cadnam had, in the time of Elizabeth, resisted an attempt to exclude them from Wigley, and had obtained a decree from the well-known Sir Christopher Hatton, the Lord Chancellor of the day, affirming their right to depasture on "the waste grounds of Wigley." Mr. Briscoe Eyre is a large tenant of Cadnam Manor. Finding remonstrance useless, he commenced proceedings on behalf of the tenants of the manor to enforce the decree and restrain the Lord from enclosing. The completion of the fencing pending the action was immediately prohibited by the Court, and the case has been thoroughly fought out. The defendant denied the validity of the decree and the identity of the land which he had begun to enclose with the waste grounds of Wigley. Numerous witnesses were examined, and extensive user of the common proved. In the result, Mr. Justice Field, in a long and careful judgment, pronounced for the plaintiff, on all points, directing the removal of the fences and the payment of costs by the defendant. This termination of an anxious controversy will be hailed with delight by the numerous class of small but independent cultivators living about the common; and those who, without being fanatics for *la petite culture*, do not wish to see such specimens of it as remain in England stamped out, will rejoice over a decision which tends to preserve the unique neighbourhood of the new Forest *in statu quo*.—*Times*.

TRADE CATALOGUES.

JAMES VEITCH AND SONS, KING'S ROAD, CHELSEA.—*Catalogue of Hyacinths and other Bulbous Roots.*

JAMES DICKSON AND SONS, 108, EASTGATE STREET, CHESTER.—*Catalogue of Bulbous Flower Roots.*

B. S. WILLIAMS, VICTORIA NURSERIES, UPPER HOLLOWAY.—*General Bulb Catalogue.*

DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Catalogue of Hyacinths and other Bulbous Roots.*

THE COLOURS OF FLOWERS.

By GRANT ALLEN.
From the *Cornhill Magazine*.

BEFORE me, as I write, stands a small specimen vase, containing a little Scotch bluebell, picked upon a bleak open moorside, yet wonderfully delicate and fragile in stem, and leaf, and bud, and blossom. For the bluebells of Scotland, the bluebells of Walter Scott and of all the old ballad poetry, are not our stiff thickod-stemmed English wild hyacinths, but the same dainty drooping flowers which we in the south call harebells. The word ought really to be heather-bell; but the corruption is quite in accordance with a common law of English phonology, which has similarly degraded several other early words by dropping out the *th* between two vowels. Harebell or heather-bell or bluebell, the flower is one of our prettiest and most graceful native forms; and the exquisite depth of its colour has always made it a prime favourite with our poets and our children alike. How it first got that beautiful colour is the problem which I wish, if possible, to settle to-day.

I am not going to inquire at present why the harebell is coloured at all. That question I suppose everybody has now heard answered a dozen times over at least. We all know nowadays that the colours of flowers are useful to them in attracting the insects which fertilize their embryo seeds; and that only those flowers possess bright hues which thus depend upon insects for the impregnation of their ovules. Wind-fertilized blossoms, in which the pollen of one head is carried by chance breezes to the stigma of another, are always small, green, and comparatively inconspicuous. It is only those plants which are indebted to bees or butterflies for the due setting of their seeds that ever advertise their store of honey by bright-hued petals. All this, as I say, we have each of us heard long ago. So the specific question which I wish to attack to-day is not why the harebell is coloured, but why it is coloured blue. And, in getting at the answer to this one test-question, I hope incidentally to answer the wider question why any given flower whatsoever should be blue, let us say, or red, or lilac, rather than orange, yellow, white, or any other possible colour in nature except the one which it actually happens to be.

Briefly put, the general conclusion at which I have arrived is this: all flowers were in their earliest form yellow; then, some of them became white; after that, a few of them grew to be red or purple; and finally a comparatively small number acquired various shades of lilac, mauve, violet, or blue. So that, if this principle be true, the harebell will represent one of the most highly-developed lines of descent; and its ancestors will have passed successively through all the intermediate stages. Let us see what grounds can be given for such a belief.

In the first place, it is well to observe that when we speak of the colours of flowers we generally mean the colour of the petals alone. For in most cases the stamens and other central organs, which form, botanically speaking, the really important part of the blossom, are yellow, or at least yellowish; while the petals may be blue, red, pink, orange, lilac, or even green. But as the central organs are comparatively small, whereas the petals are large and conspicuous, we naturally speak of flowers in every-day talk as having the colour of their petals, which form by far the greater and most noticeable part of their whole surface. Our question then narrows itself down to this—Why are the petals in any particular blossom of one colour rather than another?

Now petals, as I have more than once already explained to the readers of this magazine, are in all probability originally enlarged and flattened stamens, which have been set apart for the special work of attracting insects. It seems likely that all flowers at first consisted of the central organs alone—that is to say, the pistil, which contains the ovary with its embryo seeds; and the stamens, which produce the pollen, whose co-operation is necessary in order to fertilize these same embryo ovules and to make the pistil mature into the ripe fruit. But in those plants which took to fertilization by means of insects—or, one ought rather to say, in those plants which insects took to visiting for the sake of their honey or pollen, and so unconsciously fertilizing—the flowers soon began to produce an outer row of barren and specialized stamens, adapted by their size and colour for attracting the fertilizing insects; and these barren and specialized stamens are what we commonly call petals. Any flowers which thus presented brilliant masses of colour to allure the eyes of the beetles, the bees, and the butterflies would naturally receive the greatest number of visits from their insect friends, and would therefore stand the best chance of setting their seeds, as well as of producing healthy and vigorous offspring as the result of a proper cross. In this way, they would gain an advantage in the struggle for life over their less fortunate compeers, and would hand down their own peculiarities to their descendants after them.

But as the stamens of almost all flowers, certainly of all the oldest and simplest flowers, are yellow, it would naturally follow that the earliest petals would be yellow too. When the stamens of the outer row were flattened and broadened into petals, there would be no particular reason why they should change their colour; and, in the absence of any good reason, they doubtless retained it as before. Indeed, I shall try to show, a little later on, that the earliest and simplest types of existing flowers are almost always yellow, seldom white, and never blue; and this in itself would be a sufficient ground for believing that yellow was the original colour of all petals.* But as I am personally somewhat heretical in believing, contrary to the general run of existing scientific opinion, that petals are derived from flattened stamens, not from simplified and attenuated leaves, I

* In a part of this article I shall have to go over ground already considered in a valuable paper read by Sir John Lubbock before the British Association at York last August, and I shall take part of my examples from his interesting collection of facts as reported in *Nature*. But, at the same time, I should like at the outset to point out that I venture to differ on two points from his great authority. In the first place, I do not think all flowers were originally green, because I believe petals were first derived from altered stamens, not from altered sepals or bracts, and that modern green flowers are degraded types, not survivals, of early forms. And in the second place, I think yellow petals preceded white petals in the order of time, and not *vice versa*. I may also perhaps be excused for adding that I had already arrived at most of the substantive conclusions set forth in this article before the appearance of Sir John Lubbock's paper, and had incidentally put forward the greater part of them, though dogmatically and without fully stating my reasons, in an article on the Daisy's Pedigree, published in the *Cornhill Magazine*, and in another on the Rose Family, published in *Belgravia*, both for August, 1881. At the same time, I must express my indebtedness for many new details to Sir John Lubbock's admirable paper. Of course this note is only appended for the behoof of scientific readers.

shall venture to detail here the reasons for this belief; because it seems to me of capital importance in connexion with our present subject. For if the petals were originally a row of stamens set apart for the function of attracting insects, it would be natural and obvious why they should begin by being yellow; but if they were originally a set of leaves, which became thinner and more brightly coloured for the same purpose, it would be difficult to see why they should first have assumed any one colour rather than another.

The accepted doctrine as to the nature of petals is that discovered by Wolff and afterwards rediscovered by Goethe, after whose name it is usually called; for of course, as in all such cases, the greater man's fame has swallowed up the fame of the lesser. Goethe held that all the parts of the flower were really modified leaves, and that a gradual transition could be traced between them, from the ordinary leaf through the stem-leaf and the bract to the sepal (or division of the calyx), the petal, the stamen, and the ovary or carpel. Now, if we look at most modern flowers, such a transition can undoubtedly be observed; and sometimes it is very delicately graduated, so that you can hardly say where each sort of leaf merges into the next. But, unfortunately for the truth of the theory as ordinarily understood, we now know that in the earliest flowers there were no petals or sepals, but that primitive flowering plants had simply leaves on the one hand, and stamens and ovules on the other. The oldest types of flowers at present surviving, those of the pine tribe and of the tropical cycads (such as the well-known zamias of our conservatories), have still only these simple elements. But, if petals and sepals are later in origin (as we know them to be) than stamens and carpels, we cannot say, it seems to me, that they mark the transition from one form to the other, any more than we can say that Gothic architecture marks the transition from the Egyptian style to the classical Greek. I do not mean to deny that the stamen and the ovary are themselves by origin modified leaves—that part of the Wolfian theory is absolutely irrefutable; but what I do mean to say is this, that, with the light shed upon the subject by the modern doctrine of evolution, we can no longer regard petals and sepals as intermediate stages between the two. The earliest flowering plants had true leaves on the one hand, and specialized pollen-bearing or ovule-bearing leaves on the other hand, which latter are what we call stamens and carpels; but they had no petals at all, and the petals of modern flowers have been produced at some later period. I believe, also, they have been produced by a modification of certain external stamens, not by a modification of true leaves. Instead of being leaves arrested on their way towards becoming stamens, they are stamens which have partially reverted towards the condition of leaves. They differ from true leaves, however, in their thin, spongy texture, and in the bright pigments with which they are adorned.

All stamens show a great tendency easily to become petaloid, as the technical botanists call it; that is to say, to flatten out their filament or stalk, and finally to lose their pollen-bearing sacs or anthers. In the water lilies—which are one of the oldest and simplest types of flowers we now possess, still preserving many antique points of structure unchanged—we can trace a regular gradation from the perfect stamen to the perfect petal. In the centre of the flower, we find stamens of the ordinary sort, with rounded stalks or

filaments, and long yellow anthers full of pollen at the end of each; then, as we moved outward, we find the filaments growing flatter and broader, and the pollen-sacs less and less perfect; next, we find a few stamens which look exactly like petals, only that they have two abortive anthers stuck awkwardly on to their summits; and, finally, we find true petals, broad and flat, yellow or white as the case may be; and without any trace of the anthers at all. Here in this very ancient flower we have stereotyped for us, as it were, the mode in which stamens first developed into petals under stress of insect selection.

"But how do you know," some one may ask, "that the transition was not in the opposite direction? How do you know that the water lily had not petals alone to start with, and that these did not afterwards develop, as the Wolfian hypothesis would have us believe, into stamens?" Well, for a very simple reason. The theory of Wolff and Goethe is quite incompatible with the doctrine of development, at least if accepted as a historical explanation (which Wolff and Goethe of course never meant it to be). Flowers can and do exist without petals, which are no essential part of the organism, but a mere set of attractive coloured advertisements for alluring insects; but no flower can possibly exist without stamens, which are one of the two essential reproductive organs in the plant. Without pollen no flower can set its seeds. A parallel from the animal world will make this immediately obvious. Hives consist of three kinds—the queens or fertile females, the drones or males, and the workers or neuters. Now it would be absurd to ask whether the queens were developed from an original class of neuters, or the neuters from an original class of fertile females. Neuters left to themselves would die out in a single generation; they are really sterilized females, set apart for a special function on behalf of the hive. It is just the same with petals; they are sterilized stamens, set apart for the special function of attracting insects on behalf of the entire flower. But to ask which came first, the petals or the stamens, is as absurd as to ask which came first, the male and female bees or the neuters.*

(To be continued.)

Obituary.

On the 14th inst., at St. Ann's-road, Stamford Hill, HANNAH WINCOTT, aged 78. On the 16th inst., at his residence, St. Leonards, Sir WOODBINE PARISH, K.C.H. and F.R.S., in the 86th year of his age. In his early days he had the experience of the Foreign Office, under Lord Castlereagh, and was afterwards variously employed as a diplomatic agent of the British Government. He travelled much and acquired high scientific attainments. He brought home to this country from South America the megatherium, the glyptodon, and other great fossils, and contributed largely in various ways to our knowledge of the botany and natural history of Buenos Ayres and Rio de la Plata.

* I must add that I do not in the least doubt the truth of Wolff's great generalization in the way in which he meant it—the existence of a homology between the leaf and all the floral organs; I only mean that the conception requires to be modified a little by the light of later evolutionary discoveries.

DUTCH FLOWER ROOTS.



JAMES VEITCH AND SONS

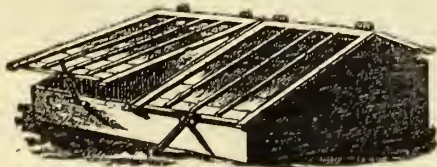
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- 30 Incomparable, yellow, double.
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An inspection is invited.
All the Classes will be represented at the Great Show at the Crystal Palace, September 8 and 9.

CHARLES TURNER,
THE ROYAL NURSERIES, SLOUGH.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. this week.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. After.	London Bridge.		Liverpool Dock.					
			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	UFG.			
1882			5 16	0 46	6 42	9 27	—	5 25	5 45	2 28	2 50	59.6	Anemone japonica alba, H.	White.	1882
3	S	13th Sunday after Trinity.	5 16	0 46	6 42	9 27	—	5 25	5 45	2 28	2 50	59.6			
4	M	4 Last Quarter, 1h. 26m. afternoon.	5 13	1 6	6 40	10 17	1 38	6 10	6 35	3 10	3 35	59.5	Bouvardia Alfred Noeuer, G.	White.	246
5	Tu	Malta captured, 1800.	5 20	1 26	6 37	11 12	2 31	7 2	7 32	4 0	4 27	59.4	Begonias in variety, G.	White.	247
6	W	Flight of the King of Naples, 1860.	5 21	1 46	6 35	Morn.	3 16	8 7	8 15	4 57	5 32	59.3	Dendrobium chrysanthemum, S.	Yellow.	248
7	Th	Dr. Johnson born, 1709.	5 23	2 6	6 32	0 12	3 52	9 30	10 17	6 10	6 55	59.1	Helianthus rigidus, H.	Yellow.	249
8	F	Nativity of Virgin Mary.	5 25	2 26	6 29	1 16	4 23	10 57	11 32	7 42	8 22	59.0	Senecio speciosus, G.	Magenta.	250
9	S	Sebastopol taken, 1855.	5 26	2 46	6 27	2 21	4 48	—	0 5	8 57	9 30	58.9	Tigridia pavonia, H.	Scarlet.	251

The Gardeners' Magazine.

SATURDAY, SEPTEMBER 2, 1882.

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ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (23 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a copy (post free, 2d.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

Exhibitions and Meetings for the Ensuing Week.

WEDNESDAY, SEPTEMBER 6. — ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY. — Autumn Exhibition.

WEDNESDAY, SEPTEMBER 6, AND THURSDAY, SEPTEMBER 7.—BATH.—Floral Fête.

FRIDAY, SEPTEMBER 8.—BURY ST. EDMUNDS HORTICULTURAL SOCIETY. — Autumn Exhibition.

FRIDAY, SEPTEMBER 8, AND SATURDAY, SEPTEMBER 9. — MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Cottagers' Show.

FRIDAY, SEPTEMBER 8, AND SATURDAY, SEPTEMBER 9.—CRYSTAL PALACE. — Great National Dahlia Show and Exhibition of Fruit.

Auction Sales for the Ensuing Week.

MONDAY, SEPTEMBER 4.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Bulbs from Holland.

WEDNESDAY, SEPTEMBER 6.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs; Established Imported Orchids.

THURSDAY, SEPTEMBER 7.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, SEPTEMBER 9.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Bulbs from Holland.

THE BULB CATALOGUES are "dropping in," according to the custom of the time, and, like the falling leaves, they remind us that our flowers, like ourselves, "have here no continuing city." It is cruel of the merchants to compel us to recognize the near approach of winter when we have as yet scarcely tasted the warmth of the summer. But there is some kindness in the cruelty, for if the bulbs tell us there is a cloud coming they also offer a silver lining for it, so that in the dark days we may have flowers if we will; and when the curtain rises on the opening spring we shall be compelled to have them, whether we will or no. The bulb catalogues are delightfully suggestive; they appeal to a something within us that appears to be not easily defined, but it may be a compound of hope and a consciousness of present power, for it is delightful to handle the clean heavy bulbs just now and meditate on what is inside them, and at the same time feel that they are purchasable, and need but a very moderate amount of care to ensure astonishing results by-and-bye. There is nothing in an ordinary hyacinth or tulip bulb to arrest the attention of the philosopher hardened by familiarity with the ways of nature, but the unhardened casualist—who of course is not a casuist—experiences a certain degree of astonishment as the conviction "comes home" that in the middle of this thing, that may be likened to a turnip or an onion, there is concealed a mass of glowing flowers, or, at all events, the raw material from which glowing flowers will be manufactured by the sunbeams if the bulb is provided with a few very simple necessary conditions. The philosopher is accustomed to that sort of thing; to him an acorn is as much a matter for delightful wonder as a tulip bulb, and in the seed of a century plant he can, by the aid of his prophetic eyes, see the gigantic flower spike, tall and stout enough for a telegraph pole, that will come forth from the century plant when it has outlived two or three generations of men. Nevertheless, a hyacinth or tulip bulb is a wonderful thing; equally so is a snowdrop, or a narciss bulb, or a crocus corm, or the half-fleshy tuber of a winter aconite. Commonplace as these things may be to us, and very many of our readers, they are really wonderful things, because of the rapidity of

their change from dead roots to lively flowers, and the contrast of the unattractive character of the roots with the brilliant colours and, in many instances, the deliciously spicy fragrance of the flowers. If spring-flowering bulbs are much appreciated already, as most certainly they are, it cannot be doubted that there awaits them a larger market than they have entered as yet. People are beginning to discover that it needs but a moderate outlay, and the command of comparatively humble appliances and average horticultural talent, to ensure a glorious display of spring flowers, towards which a judicious purchase of bulbs is the first necessary step. Time was when the luxury was a costly one, but times have changed: an order for bulbs may be sent through the post for a halfpenny, and the best of the bulbs, the most resplendent of the exhibition varieties, to say nothing of bedding and border sorts, are really within reach of popular purses.

The bulbs that are now coming into the market are of excellent quality. We have rummaged over many stocks, and have not found any light bulbs or any trace of disease. As regards prices there is noticeable a reasonable reduction all round. We say "reasonable" advisedly, because it appears that the producers have studied the prevailing tastes, and have given their attention to the production of large stocks of a certain few first-rate sorts in the place of wasting their energies on extensive collections comprising many second and third class sorts that very few will buy. Certain it is that the bulbs are hard, and heavy, and clean, and the prices are somewhat below the averages that have prevailed for some years past, and we speak of reasonable reductions because unreasonable reductions do not last, whereas we now see a prospect of reduced rates to be continued in the far future, and the consequent diffusion of delightful flowers, not only figuratively amongst the thousands, but literally amongst the millions. The catalogue prices have been steadily declining for several years past, and it is possible they are now near to the proper commercial minimum, and we may say, without risk of error, that they are certainly very near to it. A greatly-increased demand may be looked for, and in the end this may be better for all parties than the maintenance of prices restricting purchases to a very select and wealthy few.

A certain number of bulbs and corms, as snowdrops, crocuses, hyacinths, tulips, and narcissi, will always obtain attention, and will be grown increasingly. But it would be well for the genuine lover of the garden to scan the lists of miscellaneous bulbs, and indulge in a few of the least-known beauties of the bulb garden. In a catalogue now before us we note that the lovely Chionodoxa Luciliae may be secured at half-a-crown a dozen; Winter Aconites, that make a shower of gold in February, at three shillings per hundred; Dog's-tooth Violets at one to two pence each; Lachenalias at five shillings per dozen; the delicate Tritoleia uniflora, a most proper companion to the Chionodoxa, at four shillings a hundred; and the ethereal Zephyranthes carinata at one shilling each—cheap enough to eat, if the "vile body," as St. Paul calls it, could really subsist on such spiritual food. But it will never do to plunge in medias res with the catalogue of miscellaneous bulbs before us, because we could not draw the line at the few things we have named. There are anemones, ixias, cyclamens, amaryllis, crown imperials, belladonnas, irises, alliums, anthericums, bulbocodiums, calochortus, and a hundred more good things that variously claim to be classed with them, and for which room can be found in any garden where the presiding spirit desires to look beyond the commonplace. Whatever the provisions made for keeping greenhouses and conservatories gay during winter and spring, they can scarcely be complete without an assortment of bulbs and corms in pots, and many of the hardiest and cheapest are as welcome when flowered under glass as by any other method, more especially when the weather prohibits exploration of the garden, and the beautiful spring flowers are associated with nobler subjects, "where blooms exotic beauty, warm and snug."

Bulbs and corms are peculiarly convenient for carriage by any method whatever, and the Parcels Post should exercise a beneficial influence on the trade in such things. Growing plants do not travel well in closed parcels, but these dormant forms, without roots or leaves to be injured, and with a self-contained sort of personality, like Jack-in-the-box, may be carried anywhere, so long as they are safe against frost on the one hand and fire on the other. The merchants will not be slow to discover the best means of trans-

mission, and in many remote and lonely places spring bulbs will be seen where they have never been seen before, and their pretty flowers will speak eloquently of the splendid management of Mr. Fawcett at St. Martin's-le-Grand. On that point, however, there is time for consideration, but as regards the purchase of bulbs there is less time than to many may appear. The month of September, like Wombwell's show, is "about to begin," and the people who are smart in buying bulbs will assuredly have the first pick.

WIMBLEDON AND DISTRICT CHRYSANTHEMUM SHOW will be held in the Lecture Hall, Wimbledon, November 22.

NATIONAL DAHLIA SHOW entries must be forwarded to Mr. Thomas Moore, Botanic Garden, Chelsea, on or before Monday next.

MR. W. WELSH, late of Park Hatch, Godalming, has taken charge of the gardens of Knowle Hill, Cobham, the residence of J. E. Cook, Esq.

THE NATIONAL DAHLIA SHOW AT THE CRYSTAL PALACE will open on Friday next and be continued on Saturday; entries close on Monday next, September 4.

INTERNATIONAL POTATO EXHIBITION.—Entries close on September 12. Those who are wise will, if intending to enter, do so at once, to avoid the possible danger of overlooking the date. All entries should be addressed to the secretary, Mr. Pretymann, 23, Upper Thames Street.

THE LECTURES ON HORTICULTURAL BUILDINGS delivered by Mr. F. A. Fawkes, F.R.H.S., at the Crystal Palace, and reported verbatim in this Magazine, in the course of March and April last, have been reproduced in a translation, with the whole of the figures, in the last issue of the *Belgique Horticole*.

THE "PICTORIAL WORLD" appears in a permanently enlarged form, and with every material promise of greatly-extended popularity. There is to be a coloured supplement every week, the first series being portraits of the generals commanding the forces in Egypt. The name of Messrs. Dalziel will guarantee the excellence of the engravings on wood.

THE ROYAL GARDENS, KEW, have been enriched by a contribution to the museum of 170 specimens illustrative of the lacquer industry of Japan. Several terebinths contribute to the laes, varnishes, and resins of commerce. *Schinus molle* produces a fragrant resin; *Semecarpus anacardium* supplies materials for a black varnish; and *Stagmaria (Rhus) verniciflua* produces the black hard varnish known as the Japan lacquer.

THE TRANSACTIONS OF THE ESSEX FIELD CLUB appear to acquire increased importance with every fresh publication. Part VI., now before us, is a substantial record of work by the club, and contains a series of original essays on the Distribution of the British Flora; the Molluscs of the Colchester District; the Galls of Essex; the Mammalia of Essex, and the Fungi of Epping Forest. East-enders who love the country may be advised to join the club for good fellowship and the pursuit of knowledge without difficulties.

A SO-CALLED GARDENER named William Keith was a few days since brought to two months' hard labour for stealing shrubs from a garden in Brixton. Mr. Saunders, when pronouncing the sentence, said the prisoner was a gardener, and that seemed a somewhat suspicious thing. We can assure the worthy magistrate that, although gardeners are human and fallible, it is but rarely they get into what is called "trouble," and the fact proves that at the very least they are as good as other people. And we incline to the opinion that sometimes they are somewhat better.

INTERNATIONAL POTATO EXHIBITION, announced to be held at the Crystal Palace, September 20 and 21, promises to be an attractive affair for those who take a special interest in the noble tuber. Since the publication of the schedule an additional series of prizes has been adopted, the classes now numbering nineteen, and the value of the prizes amounting to £132 11s. An improved method of judging seedlings has been adopted. It includes the threefold test of trial by cropping, cooking, and staging for exhibition, and varieties certificated will have to pass the ordeal of judgment on the ground, on the table, and on the exhibition stage.

THE BOTANICAL DEPARTMENT of the British Association has not made any special demonstration this year. At the opening of the section Professor Lawson delivered an address on the progress of systematic botany, in the course of which he paid a respectful tribute to the character and the labours of the late Charles Darwin. Sir Joseph Hooker, in proposing a vote of thanks, said Miss North had gone to South Africa, the only part of the world she had not visited, and whose flora she had not illustrated, for the purpose of adding to the collection already at Kew on her return. She would visit Madagascar and Zanzibar for the same purpose.

THE NATIONAL ASSOCIATION FOR THE PROMOTION OF SOCIAL SCIENCE will hold its twenty-sixth meeting in Nottingham, September 20 to 27. Amongst the many subjects to be discussed we note the following—Is it expedient to make the Devolution of Real Property in cases of Intestacy follow that of Personality? How can Technical Training be best associated with Primary Schools, Intermediate Schools, and Local Colleges? In what way and to what extent is the Endowment of Research practicable and desirable? What are the comparative advantages, social and economic, of large and small Farms? What action should be taken on the Report of the Select Committee on Railways, 1882? All these questions are of importance, but the first and last we think of pre-eminent importance.

VAN GEERT'S ICONOGRAPHY OF INDIAN AZALEAS is very gay this month with pictures of fine flowers. The subjects figured are three in number, and the figures are extra good. *Sigismund Rücker* is a large single show flower of superb properties, the colour spread in rays from the centre, earmine-red on a ground of warm flesh, the margin white. *Concordia* is a double of the largest size, the colour deep rich self red. *Cordon Bleu* is a single flower, full red suffused with a peculiar lavender or slaty blue tone; a fine variety to associate with light kinds.

CHANNEL ISLANDS VINERIES AND EARLY PRODUCE COMPANY.—In our issue for July 22 (p. 375) we announced the formation of this company. We have now received the prospectus and list of directors. The object of the company is stated to be the supply of the markets with grapes, asparagus, tomatoes, potatoes, broccoli, &c., the produce of the Channel Islands. The company, it appears, "have secured suitable positions in the salubrious island of Guernsey, and are now treating for favourable positions in the sister island of Jersey." Mr. George Monro, of Covent Garden, is the company's receiving agent for London. The offices are at 18, Adam Street, Adelphi, London, W.C.

THE AMERICAN HONEY CROP is reported to be much below a fair average. Last year was a total failure. The present crop in California is reckoned to reach 90 tons, in 1878 it amounted to about 360 tons. The spread of sheep farming is in part accountable for the diminution of honey, as of necessity the flowers are eaten down over great extents of country. Fires also have been injuriously prevalent, and doubtless the seasons have been adverse to the busy bee. It has been the custom to abuse the British peasantry for producing so little honey while the United States produced so much. But, as farming progresses in the States the honey harvest will diminish, and the calumniators of the British will have to eat their finger-ends.

"NEW COMMERCIAL PLANTS AND DRUGS" are periodically reported on by Mr. Thos. Christy, F.L.S., in a periodical so entitled, published by Messrs. Christy and Co., of 155, Fenchurch Street, London. In No. 6, just issued, are reports of Fibres and Drugs. The Ekman process of treating fibres is described at length, and the book itself is a practical illustration of its usefulness, being printed on paper made from wood by the Ekman process. Amongst the drugs that obtain attention, the famous Coca leaf of Peru has a conspicuous place. Another drug of importance is Papaine, prepared from the Papaw tree (*Carica papaya*). This has long been known as a promoter of digestion, but is only now brought within the domain of scientific consideration. This No. 6 is the most interesting, so far as we have seen, of the series of "New Commercial Plants and Drugs."

AGRICULTURAL RETURNS.—The returns annually prepared by Mr. R. Giffen, of the Board of Trade, in respect to the area under cultivation and the live stock in Great Britain, were collected this year on June 5. The acreage is as follows:—3,003,915 under wheat, an increase of 7.1 per cent. over 1881; barley, 2,255,139 acres, a decrease of 7.7 per cent.; oats, 2,833,815, decrease 2.3 per cent.; potatoes, 541,064, decrease of 6.6 per cent.; hops, 65,676, increase 1.1 per cent. Compared with 1880 the present year shows an increase of 3.2 per cent. in the acreage under wheat, and of 1.3 per cent. under oats; and decreases of 8.6 per cent. in barley, 1.8 per cent. in potatoes, and 1.5 per cent. in hops. The number of live stock showed a decrease in cattle and sheep and an increase in lambs and pigs, compared with 1881. Cattle number 5,807,591, decrease 1.8 per cent.; sheep, 15,571,964, decrease 3.5 per cent.; lambs, 8,746,814, increase 3.7 per cent.; and pigs, 2,510,374, increase 22.6 per cent.

British Association.

ELECTRIC LIGHTING AS COMPARED WITH GAS LIGHTING.

By DR. SIEMENS.

In the course of the important address at the opening meeting of the British Association, Dr. Siemens spoke at some length on the prevailing methods of measuring electric power, and then proceeded to compare the relative cost and relative values of electric lighting and gas lighting. He said:—

Assuming the cost of electric lighting to be practically the same as gas, the preference for one or other will in each application be decided upon grounds of relative convenience, but I venture to think that gas lighting will hold its own as the poor man's friend. Gas is an institution of the utmost value to the artisan; it requires hardly any attention, is supplied upon regulated terms, and gives with what should be a cheerful light a genial warmth, which often saves the lighting of a fire. The time is, moreover, not far distant, I venture to think, when both rich and poor will largely resort to gas as the most convenient, the cleanest, and the cheapest of heating agents, and when raw coal will be seen only at the colliery or the gasworks. In all cases where the town to be supplied is within, say thirty miles of the colliery, the gasworks may with advantage be planted at the mouth, or still better at the bottom of the pit, whereby all haulage of fuel would be avoided, and the gas, in its ascent from the bottom of the colliery, would acquire an onward pressure sufficient probably to impel it to its destination. The possibility of transporting combustible gas through pipes for such a distance has been proved at Pittsburg, where natural gas from the oil district is used in large quantities. The quasi monopoly so long enjoyed by gas companies has had the inevitable effect of checking progress. The gas being supplied by meter, it has been seemingly to the advantage of the companies to give merely the prescribed illuminating power, and to discourage the invention of economical burners in order that the consumption might reach a maximum. The application of gas for heating purposes has not been encouraged, and is still made difficult in consequence of the objectionable practice of reducing the pressure in the mains during daytime to the lowest possible point consistent with prevention of atmospheric indraught. The introduction of the electric light has convinced gas managers and directors that such a policy is no longer tenable, but must give way to one of technical progress; new processes for cheapening the production and increasing the

purity and illuminating power of gas are being fully discussed before the Gas Institute; and improved burners, rivalling the electric light in brilliancy, greet our eyes as we pass along our principal thoroughfares. Regarding the importance of the gas supply as it exists at present, we find from a Government return that the capital invested in gasworks in England, other than those of local authorities, amounts to £30,000,000; in these 4,231,048 tons of coal are converted annually, producing 43,000,000,000 cubic feet of gas, and about 2,500,000 tons of coke; whereas the total amount of coal annually converted in the United Kingdom may be estimated at 9,000,000 tons, and the by-products therefrom at 500,000 tons of tar, 1,000,000 tons of ammonia liquor, and 4,000,000 tons of coke, according to the returns kindly furnished me by the managers of many of the gasworks and corporations. To these may be added say 120,000 tons of sulphur, which up to the present time is a waste product. Previous to the year 1856—that is to say, before Mr. W. H. Perkin had invented his practical process, based chiefly upon the theoretical investigations of Hoffman, regarding the coal-tar bases and the chemical constitution of indigo—the value of coal-tar in London was scarcely a halfpenny a gallon, and in country places gas makers were glad to give it away. Up to that time the coal-tar industry had consisted chiefly in separating the tar by distillation into naphtha, creosote, oils, and pitch. A few distillers, however, made small quantities of benzine, which had been first shown—by Mansfield, in 1819—to exist in coal-tar naphtha mixed with toluene, cumene, &c. The discovery, in 1856, of the mauve or aniline purple gave a great impetus to the coal-tar trade, inasmuch as it necessitated the separation of large quantities of benzine, or a mixture of benzene and toluene, from the naphtha. The trade was further increased by the discovery of the magenta or rosaniline dye, which required the same products for its preparation. In the meantime, carbolic acid was gradually introduced into commerce, chiefly as a disinfectant, but also for the production of colouring matter. The colour industry utilizes even now practically all the benzene, a large proportion of the solvent naphtha, all the auriferous, and a portion of the naphthalene resulting from the distillation of coal-tar; and the value of the colouring matter thus produced is estimated by Mr. Perkin at £3,350,000. The demand for ammonia may be taken as unlimited, on account of its high agricultural value as a manure; and, considering the failing supply of guano and the growing necessity for stimulating the fertility of our soil, an increased production of ammonia may be regarded as a matter of national importance, for the supply of which we have to look almost exclusively to our gasworks. The present production of 1,000,000 tons of liquor yields 95,000 tons of sulphate of ammonia, which, taken at £20 10s. a ton, represents an annual value of £1,947,000. The total annual value of the gasworks by-products may be estimated as follows:—Colouring matter, £3,350,000; sulphate of ammonia, £1,947,000; pitch (325,000 tons), £365,000; creosote (25,000,000 gallons), £208,000; crude carbolic acid (1,000,000 gallons), £100,000; gas coke, 4,000,000 tons (after allowing 2,000,000 tons consumption in working the retorts), at 12s., £2,400,000—total, £8,370,000. Taking the coal used, 9,000,000 tons, at 12s., equal £5,400,000, it follows that the by-products exceed in value the coal used by very nearly £3,000,000. In using raw coal for heating purposes these valuable products are not only absolutely lost to us, but in their stead we are favoured with those semi-gaseous by-products in the atmosphere too well known to the denizens of London and other large towns as smoke. Professor Roberts has calculated that the soot in the pall hanging over London on a winter's day amounts to 50 tons, and that the carbonic oxide, a poisonous compound, resulting from the imperfect combustion of coal, may be taken as at least five times that amount. Mr. Aitken has shown, moreover, in an interesting paper communicated to the Royal Society of Edinburgh last year, that the fine dust resulting from the imperfect combustion of coal is mainly instrumental in the formation of fog, each particle of solid matter attracting to itself aqueous vapour; these globules of fog are rendered particularly tenacious and disagreeable by the presence of tar vapour, another result of imperfect combustion of raw fuel, which might be turned to much better account at the dye-works. The hurtful influence of smoke upon public health, the great personal discomfort to which it gives rise, and the vast expense it indirectly causes through the destruction of our monuments, pictures, furniture, and apparel, are now being recognized, as is evinced by the success of recent Smoke Abatement Exhibitions. The most effectual remedy would result from a general recognition of the fact that wherever smoke is produced fuel is being consumed wastefully, and that all our calorific effects, from the largest down to the domestic fire, can be realized as completely, and more economically, without allowing any of the fuel employed to reach the atmosphere unburnt. This most desirable result may be effected by the use of gas for all heating purposes, with or without the addition of coke or anthracite. The cheapest form of gas is that obtained through the entire distillation of fuel in such gas producers as are now largely used in working the furnaces of glass, iron, and steel works; but gas of this description would not be available for the supply of towns owing to its bulk, about two-thirds of its volume being nitrogen. The use of water-gas, resulting from the decomposition of steam in passing through a hot chamber filled with coke, has been suggested, but this gas also is objectionable, because it contains, besides hydrogen, the poisonous and inodorous gas carbonic oxide, the introduction of which into dwelling houses could not be effected without considerable danger. A more satisfactory mode of supplying heating separately from illuminating gas would consist in connecting the retort at different periods of the distillation with two separate systems of mains for the delivery of the respective gases. By resorting to improved means of heating the retorts with gaseous fuel, such as have been in use at the Paris gasworks for a considerable number of years, the length of time for effecting each distillation may be shortened from six hours, the usual period in former years, to four, or even three hours, as now practised at Glasgow and elsewhere. By this means a given number of retorts can be made to produce, in addition to the former quantity of illuminating gas of superior quality, a similar quantity of heating gas, resulting in a diminished cost of production and an increased supply of the valuable by-products previously referred to. The greater efficiency of gas as a fuel results chiefly from the circumstance that a pound of gas yields in combustion 22,000 heat units, or exactly double the heat produced in the combustion of a pound of ordinary coal. This extra heating power is due partly to the freedom of the gas from earthy constituents, but chiefly to the heat imparted to it in effecting its distillation. Recent experiments with gas-burners have shown that in this direction also there is much room for improvement. The amount of light given out by a gas flame depends upon the temperature to which the particles of solid carbon in the flame are raised, and Dr. Tyndall has shown that of the radiant energy set up in such a flame, only the 1.25th part is luminous: the hot products of combustion carry off at least four times as much energy as is radiated, so that not more than 100th part of the heat evolved in combustion is converted into light. This proportion could be improved, however, by

increasing the temperature of combustion, which may be effected either by intensified air currents or by regenerative action. Supposing that the heat of the products of combustion could be communicated to metallic surfaces, and be transferred by conduction or otherwise to the atmospheric air supporting combustion in the flame, we should be able to increase the temperature accumulatively to any point within the limit of dissociation; this limit may be fixed at about 2,300 deg. C., and cannot be very much below that of the electric arc. At such a temperature the proportion of luminous rays to the total heat produced in combustion would be more than doubled, and the brilliancy of the light would at the same time be greatly increased. Thus improved, gas-lighting may continue its rivalry with electric lighting both as regards economy and brilliancy, and such rivalry must necessarily result in great public advantage.

SNEYD PARK, BRISTOL,

THE RESIDENCE OF J. DERHAM, ESQ.

SNEYD PARK is one of the numerous residences situated near the Clifton Downs, and is therefore in a highly fashionable and pleasant suburb of Bristol. I am not so much interested in the residence or its particular surroundings as in the gardens which belong to it, but in passing I may, however, say that the mansion is of no second-rate description. It is commodious and thoroughly substantial, and so situated that it commands fine views of sea and land. The house is nicely surrounded with its own grounds, in which all kinds of coniferous trees and choice shrubs do remarkably well. In the grounds also are some well-filled and tastefully-designed flower beds, which have a very cheerful appearance.

As the house stands on rising ground, we have to descend a gradual declivity to reach the fruit and plant houses, which form such an important feature in this fine suburban residence. At the lower end of the pleasure grounds stands a fine ornamental span-roof orchard house one hundred feet long and thirty feet wide. This house was built by Mr. Cranston some years since, and is very roomy; in the centre is a large bed with a walk round it, and between the walk and the front glass there is a broad border. On each side, as well as at each end, there are two rows of four-inch hot-water pipes for affording the requisite degree of heat. To the rafters on one side and at intervals of six or eight feet vines are trained, and these Mr. Rye, the able gardener, told me do fairly well. The vines were in capital health and carrying a good crop of medium-size bunches. On the opposite side clematis and roses are trained in the same way. At the time of my visit the clematis made a grand display, and the roses were growing vigorously and evidently quite at home. No doubt the roses in their flowering season give a charm to the house, and without any serious detriment to the other occupants. Very striking are the two circular peach trellises that occupy a position on each side of one of the doors. The diameter of these trellises is about four feet, and the height probably nine feet; three trees are trained cordon fashion on each of the circular wire frames, and that they are quite at home is borne out by the fact that they are perfectly healthy and bearing a moderate crop of fruit. In a structure of this size I like to see some ingenuity displayed in providing fresh features, as they unquestionably add materially to the enjoyment. All the trees in the house are planted out, and those occupying the bed in the middle are grown as standards. Those in the borders in the front are trained to wires, about eight feet high, and within about one foot of the glass. From this statement it will be understood the glass reaches down to within a few inches of the ground line. There are capital crops of peaches and nectarines, and the trees are perfectly clean and healthy. A good supply of water is laid on, so that it is simply necessary to attach a hose to the pipes and the whole can be syringed or watered without any great outlay of manual labour. This is a convenience that is much required in many other large houses.

To reach the principal range of glass we pass along the main walk of the kitchen garden, and, viewed from the rising ground above, it has an imposing and massive appearance. The range is 180 feet in length, with a central dome and three-quarter span houses on each side. There are six houses in addition to the dome, and they are all substantially built and glazed without any putty. The system of glazing adopted differs somewhat in the details from the patented systems in use, and after a careful examination I could see that it was capably done; if not new, it is equal to any other system of glazing without putty that I have seen.

The central compartment with the dome roof is of course the most striking. It has a handsome fountain in the centre, surrounded by an ornamental pond and tree ferns. Palms and other ornamental plants are tastefully arranged round the building. To give breadth and space to this portion, the roof is supported by iron pillars, which are clothed with graceful creepers, all of which contribute in no small degree to the general effect. Round portions of the sides and ends, as well as in the lobby flowering plants make the place gay with colour. On the top of the recess opposite the doorway, a reservoir is formed, which contains a sufficient service of water for the supply of all the houses in this range. The compartments on each side of the central portion are devoted to plants. On the right-hand side we enter first what is called the greenhouse division. This is gay with some fine specimen fuchsias and many other similar plants. The next division is used as an intermediate house, in which are some well-grown coleus, ornamental-leaved begonias, and other subjects. On the roof are trained dipladenias and other tender climbers. The end house is not yet quite finished, but it is intended for an orangery. On the left-hand side, the first division we enter is devoted to stove plants, comprising numerous fine specimens.

The next division is devoted to vines, the varieties being Black Hamburgs, showing a good crop; Golden Champion very fine, much better than usual, and Alicante, also very good. Altogether the crop in this house is in a very satisfactory condition. The end house is devoted to late grapes, in which Mrs. Pince's Black Muscat was in fine condition, as is also Madresfield Court Muscat. The Syrian is carrying some noble bunches. The roots of the vines are partly inside and partly outside. The whole of the houses are heated by one of Weeks's Upright Tubular boilers, and Mr. Rye speaks of it in the highest terms of praise. As I am interested in the heating of horticultural buildings, I asked the gardener if he felt any difficulty in obtaining sufficient heat for so large a space, and in answer he assured me that although he had gone through the late severe winters with this boiler he had not the least anxiety with it. I was not surprised to hear this, as I have lately met with this form of boiler doing its work well in many places. Another remarkable feature in the heating of the houses is that all the hot-water pipes are put together with india-rubber joints, and although many of the joints have been in use ten years not the least signs of a leakage anywhere had occurred. This is very valuable testimony in favour of india-rubber joints and worthy of

attention, for in many cases they are preferable to either iron cement or red lead. A very little skill is necessary to put together long lengths of hot-water piping when india-rubber rings are used.

There are several other houses and large pits which served the purpose of the garden before the new houses were built. The earliest crop of grapes is still forced in one of these; in another is a fine crop of melons, the favourite varieties being William Tillery and Malvern Hall. Two iron-roof lean-to houses are devoted to stove plants and ferns; in the first-named is a splendid lot of *Eucharis amazonica* and *calanthes* for winter flowering, also a good batch of poinsettias and bouvardias, and also several very pretty table plants of *Reedia glaucescens*, which Mr. Rye told me he propagated from root cuttings, the same as he does the bouvardias.

I now turn to the kitchen garden and hardy fruit department with much interest. On the south-west wall there is a nice selection of pear trees trained in the cordon style, and bearing good crops of fruit, the most fruitful varieties being *Beurré d'Amanlis*, *Beurré Diel*, *Easter Beurré*, *Chaumontel*, *Doyenné d'Été*, *Doyenné du Comice*, and *Duchesse d'Angoulême*. Near to the walks which run round the kitchen garden a large number of pyramid pear trees are grown, from which a fair crop is obtained every year. About one-fourth of the trees are lifted every year, so that every tree is lifted once in four years. Along the principal walk is a wire arch, over which are trained apple and pear trees, pears on one side and apples on the other. The shelter and shade afforded by the arch renders the walk a comfortable promenade in hot weather. Even in this bad fruit year some of the trees were moderately fruitful. I was much struck with the high-coloured fruit of the *Red Astrachan*, and the generally vigorous condition of all the trees. I need hardly say that the culinary department was in a very satisfactory condition, as indeed are all the other departments of this interesting garden. J. C. C.

INSECTS INJURIOUS TO PLANTS.

THE following letters appeared in the *Times* of August 30: The writer of the accompanying letter has kindly given me permission to forward it for insertion, and as the subject is all-important, and the letter deals with it in a practical manner, I hope you will be able to find room for its insertion in full. I am glad to say that since the insects disappeared the trees have recovered to a remarkable extent, and if only a fine autumn follows to ripen the late-made growths, the injury will be much less than it threatened at one time to be; nevertheless, a repetition of it cannot fail to leave its mark, besides disfiguring the landscape during the best half of the summer. I sincerely hope the wet weather may have had the effect of destroying some of the caterpillars before they reached maturity, and that at least we may not see any increase in the extent of their ravages next spring. The plan proposed [by Miss Ormerod for isolating the trees is certainly practical, as far as favoured specimens are concerned, and now that we know what our enemy is, together with its habits, we have a better chance to try experiments for its destruction.

A NOBLEMAN'S GARDENER.

"Dunster Lodge, near Isleworth, June 19.

"I have examined the injured oak sprays and caterpillars that you have been good enough to forward me, and my opinion is that the trees are suffering from the attack of the exceedingly destructive caterpillar of the winter moth—the *Cheimatobia brumata*.

"This grub frequents almost all our common deciduous fruit and forest trees, and will clear the soft part of the leaves, and then finish off as food gets scarcer with everything eatable, including the buds; consequently they are quite exceptionally injurious, and are a perfect scourge in some of the Continental forests. Other caterpillars were present with them, but I did not find any traces, nor more than one specimen of the caterpillar of the 'common leaf-roller moth'—the *Tortrix viridana*—which is the other great enemy of our oaks.

"The leaf-roller moth has bright green fore-wings, and its caterpillars are leaden or greenish colour; the winter moth has greyish brown and ochry fore-wings, and the caterpillars are green or dingy, with whitish lines along the sides, and form a loop when they walk.

"Apparently nothing can be done on the large scale of operation needed to check forest attacks by the 'leaf-roller,' excepting to protect the birds; but, as far as my own opinion goes, I would not include the sparrow; I believe investigation of the food in its crop proves it to be by no means a helper, and its habit in driving away other helpful birds makes it a very doubtful good.

"The winter moth, now under discussion, lies much more in our power, from the females having such abortive wings that they are obliged to creep up the tree trunks to lay upon the branches. They appear in early winter—November and December—and from sundown to about ten in the evening may be seen at their work. Therefore, if in good time a number of haybands or bands of any rubbish were twisted up, and when the season comes two men were sent round with directions to soak these in anything preferred of the nature of tar—tar and cart-grease, tar and oil—or anything the moths could not cross, and to lay one of these bands round the stem of each tree, the tree would be isolated.

"This remedy is one found to act practically, it is not expensive, and a couple of men would soon apply it to a very large number of trees. If preferred fresh gas-lime might be thrown in a ring round the trunk. This should not touch the bark, neither should the tar; but so long as something is laid round the tree which the moths cannot cross so long is the tender leafage within as safe from attack of these caterpillars as lambs in a fold-yard from the fox outside the enclosure.

"The amount of attack of this moth depends very much on the weather; if the ground is frozen hard in November, it is manifest it cannot come up through it; also much rain when the caterpillars are moulting is bad for them, and also such wet weather as will thoroughly soak the ground in which the chrysalides lie will destroy them.

"ELEANOR A. ORMEROD, Consulting Entomologist
of the Royal Agricultural Society."

The horrible insect plague which in some districts has destroyed so many Scotch firs has made its appearance in this neighbourhood. I saw on Saturday on some grounds adjoining our heath several trees killed by it, and on looking nearer home found a fine Scotch fir in front of our garden badly attacked. The pest shows itself not only in the withering foliage, but in the trunk of the tree being riddled with small holes, as in "worm eaten" old furniture. I believe the only way to stamp it out is to cut down infected trees and burn them with their inhabitants.

Heatherbank, Weybridge Heath, August 28.

GEORGE F. WILSON, F.R.S.

Calls at Nurseries.

MESSRS. IRELAND AND THOMSON'S, EDINBURGH.

THE extensive and conveniently-situated nurseries of this enterprising firm are rich in all classes of plants, tender and hardy, proper to a first-class establishment, but their strongest feature is, perhaps, that formed by the collection of stove and greenhouse plants which are remarkable, not only for the splendid condition of the whole of the plants, but for the admirable representation of the leading novelties. To the cultivator of any of the classes of plants usually grown in the stove and greenhouse these nurseries will be found to have special attractions, and in other respects they are so interesting that horticulturists generally who are in Edinburgh for the International Exhibition, on the 13th and 14th inst., may be advised to take advantage of the opportunity for visiting them.

Messrs. Ireland and Thomson's two principal nurseries are at Lynedoch Place and Comely Bank, and to reach either or both from the Post Office, which may be mentioned as a very convenient centre, or from the Waverley Market, will be a very simple matter. The Lynedoch Place nursery is at the west end of Princes Street, and any of the trams passing along that magnificent thoroughfare will put the visitor down within four or five minutes' walk of the docks. The Craigleith nursery at Comely Bank is on the south-west of the city, and can be reached by two distinct routes from the Post Office in about twenty minutes. The first by way of Princes Street to Lynedoch Place and thence to Comely Bank. From one nursery to the other it is a pleasant walk of about ten minutes, and in passing over Dean Bridge the visitor may be advised to pause and enjoy the very beautiful view of the north side of Edinburgh and the surrounding country obtained from that point. The second, or alternative, route is by way of Stockbridge, for which place omnibuses start from the Post Office every quarter of an hour. The journey by omnibus occupies about ten minutes, and the distance between the Stockbridge terminus and the nursery may be easily covered in a like period of time. Of the two the Princes Street route is preferable; but the best course for those who are not hardly pressed for time will be to proceed by one way and return by the other, as by so doing they will see more of the city and its suburbs than when the journey is the same in both directions.

At the Royal Exotic Nursery, Lyndoch Place, are large collections of palms and ferns in the best possible condition, and comprising the kinds most in demand, supplemented by numerous other subjects by no means wanting in importance. Amongst the palms the kentias are conspicuous, and it was not surprising to hear that they had acquired a high degree of popularity throughout Scotland, so elegant in appearance and useful are they for decorative purposes. *Kentia Fosteriana* and *K. Wendlandi* are two exceptionally valuable species, and well deserve special mention. Amongst kinds that cannot be too widely known are *Geonoma gracilis*, a very formidable rival to *Cocos Weddelliana* for table decoration, if it does not surpass that elegant palm for the purpose indicated; *Hyophorbe Verschaffeltii*, *Phoenix rupicola*, the most elegant of all the date palms, and *Chamaerops ciliaris*, a slender-growing species with plummy leafage. The ferns include such beautiful species as *Adiantum aneitense*, *A. Williamsi*, *Nephrolepis Duffii*, *Gymnogramma naviun*, one of the most beautiful of the "silver" ferns; *Gleichenia Mendeli* and *G. rupestris glaucescens*, two of the most valuable of the *gleichenias*, their vigour of growth being by no means the least of their many good points, and *Lastrea aristata variegata*, one of the most distinct and attractive of variegated ferns, and of much value because of its thriving in a cool fernery or greenhouse. Mention must also be made of *Adiantum Flemingi*, a very distinct form in the way of *A. concinnum*, from which it is supposed to be a seedling, but differing from that species in the pinnules being so closely arranged as to give the plants a very massive appearance.

In the Craigleith Nursery at Comely Bank, trees, shrubs, and hardy plants generally are well represented; and dahlias, herbaceous phloxes, violas, and other subjects of much value for flower garden decoration are grown in large quantities and with much success. Here are also the principal plant houses, and in these are large and excellent stocks of all classes of plants suited for the decoration of the plant stove and the conservatory, and for the formation of exhibition groups. Although orchids are not made a special feature of, there is a good representative collection, comprising numerous specimens and many hundreds of examples of the more popular kinds, such as *Odontoglossum Alexandre*, *Cypripedium barbatum*, and *Cattleya Mossie*, and all are in the most thrifty condition. The collections of stove and greenhouse plants are remarkable for their richness in specimens and half-specimens, more especially of such important subjects as the *ixoras* on the one hand, and the *crotons* on the other. The latter are in very strong force, for not only are all the finest of the kinds distributed by metropolitan houses represented, but the collection includes several very beautiful novelties either raised or introduced by Messrs. Ireland, Thomson. These latter, numerous as are the good *crotons* in cultivation, deserve to be generally known amongst cultivators for their beauty and distinctness. *C. Archibaldi* is very a beautiful narrow-leaved form, richly variegated with golden yellow on a deep green ground. *C. Houldsworthii*, a bold variety, with leaves about ten inches in length by three inches in width, and brilliantly coloured with orange and crimson. *Lord Chelmsford*, a striking form with narrow leaves, having a red midrib and yellow veins and margin. *C. Thomsoni*, a distinct and handsome form; the leaves very large, slightly lobed, and brilliantly coloured; highly ornamental in a small state, and likely to prove of much value for exhibition specimens. *C. Weismanni superba*, a splendid form of the well-known *C. Weismanni*, in which the leaf-stalks and base of the midrib are of a brilliant crimson colour. *C. Etua*, a comparatively small-leaved kind, is also highly effective, and must not be overlooked.

In the various structures were much that might be referred to with advantage, did space permit; but mention must be made of the large specimens of *Bertolonia Van Houttei*, which in size and the splendid development of the beautiful leaflets have as yet not been surpassed, if they have been equalled. The fine examples of the elegant *Reedia glaucescens*, one of the most charming of table plants, were also conspicuous objects amongst a host of good things. In other structures pot roses and vines form features that do not fail to engage the attention of visitors interested in the respective subjects. The pot roses consist chiefly of tea-scented varieties, and under the combined influence of skilful management and the pure air of Comely Bank they were making a growth from which a splendid crop of flowers next season may be safely anticipated.

The House, Garden, and Apiary.

LOVE'S DEPTH.

Love's height is easy scaling; skies allure;
Who feels the day-warmth needs must find it fair;
Strong eagles ride the lofty sunlit air,
Risking no rivals while their wings endure.
Yet is thy noblest still thy least secure,
And failing thee—shall then thy love despair?
Shall not thy heart more holily prepare
Some dophth unfathomable,—portent-pure?
Say that to thee thoro come love's dreadful call
The downward swiftness of thy Best to see;
Say that ho sin or sicken, what of thee?
Are thine arms deeper yet to stay his fall?
Scarcely love's utmost may in heaven be;
To hold it reacheth so 'tis love at all.

L. S. BEVINGTON.

THE HOUSE.

As the days shorten and damp increases it is necessary to be more sparing in the use of the watering pot in the management of all plants employed in the decoration of indoor apartments. Flowering plants will not require nearly so much water as was necessary a few weeks since, and fern cases must be kept rather dry. The cases ought also to be more freely ventilated, and dead fronds should be removed to prevent an attack of mildew, which at this season of the year would do much mischief, especially to the adiantums and others with fronds of delicate texture. India-rubber plants, which are simply invaluable for the decoration of indoor apartments, must from the present time until the beginning of next spring be kept rather dry or many of the roots will perish.

THE GARDEN.

AURICULAS to be housed for the winter, and watered very sparingly. Look over the stock in removing them to the frames; see if slugs are hidden in the hole next the crocks; and if the surface of the soil in the pots has moss or liverworts growing on it you may be sure there is something the matter with the drainage, and that it should be seen to at once.

BEDDERS to have every necessary attention to keep them in proper order. Take cuttings of zonal pelargoniums in plenty, if a sufficient stock has not been propagated, and to save further trouble put them in pots or boxes as they are to remain for the winter. Use plenty of drainage and a rather light compost.

CABBAGE to be planted out for spring supply on ground well manured. Coleworts planted close will now be getting crowded; so draw for use as soon as possible every other one, and ply the hoe between them.

CELERY.—It appears necessary to state that systematic earthing should not be commenced until the plant is pretty well full grown, for the process checks growth very materially. The earthing up should be done in dry weather, and great care must be taken to keep the mould out of the hearts of the plants. The late crops must, whether full grown or not, be well earthed up in time to protect them from frost; and in low-lying districts it is advisable to take up the best celery in time to save it from frost and store it in dry earth in a shed. For a gentleman's table celery should be of moderate size, very neat, and wax-like in texture. When extra large, it often happens that it has but that one quality, being coarse in texture, hollow, watery, and flavourless.

CARNATIONS.—Layers to be potted or transplanted, as soon as rooted, in sandy soil; avoid rich soil or stimulating manures, as they must not be encouraged to make much growth, or they will have a gross habit, which will be very detrimental during winter, for then it is necessary that they should rest. Place the pots in a close frame for a few days till fresh roots are made.

CAULIFLOWERS to be pricked out into frames for the winter, and to be kept as hardy as possible.

CROPS OF APPLES AND PEARS to be gathered now as they ripen, always selecting a dry sunny day for the purpose if possible. Be careful to preserve them from bruises.

GREENHOUSE AND CONSERVATORY must be cleaned thoroughly at once, and made ready to receive the plants which are standing out of doors, for as boisterous winds, heavy rains, and sudden changes are to be expected now, it would be well to stage the choicest and tenderest of them at once. When arranging them, have an eye to a general pleasing effect; put them so far apart that the air can circulate freely all round them, and do not shut them up close. Give all the air possible, and only reduce the ventilation when there is an unfavourable change in the weather.

LETTUCES.—If not already done, sow the hardiest kinds to stand over winter. Preserve these in frames and other makeshift sheltered beds, as well as in the open ground. If the winter is not severe, those in the open quarters will be scarcely thinned by frost. A portion of the latest sowing should be planted out on some warm sheltered border.

ONIONS that are late may be assisted to ripen by sweeping over the tops with a rod or the back of a wooden rake, to break them down. As soon as the leaves turn yellow the crop should be lifted, after which the onions should be placed in a dry airy place. When thoroughly ripe all the leaves should be removed except those required for ropping. If there is any danger of the crop finishing off badly through wet weather, draw the bulbs, let them lie on the ground for a few days, and then put them into a cool oven for several hours. By this management good store onions may be obtained in a season unfavourable to their perfect ripening.

PINKS.—Plant out the old stock plants that have been grown in pots into borders, and keep the beds of young ones perfectly clean and free from weeds.

ROSES may be propagated now by inserting cuttings in a bed of light soil made up in a frame or pit.

SPINACH must be thinned till the plants are about six inches apart; vacancies to be filled up by transplanting, and if the ground is heavy or trodden during the operation, loosen it with care, so that the roots may have the benefit of the air.

VIOLETS for bloom during the winter and early spring should be taken up now with good-sized balls, and potted in five or six inch pots, in a mixture of loam, leaf-mould, and road-sand, and then placed in a pit or frame near the glass.

THE APIARY.

At the present moment the most important work demanding the attention of the apiarian is undoubtedly the harvesting of the honey which the bees have been storing up during the summer, that is now rapidly passing away. With reference to the taking of honey from the old-fashioned skeps, it may be said with advantage, that the old and barbarous practice of destroying the bees with brimstone previous to the removal of the combs from the hives ought not to be adopted. If the hives are of an ordinary degree of strength, the best course will be to take the honey from one half the number, and to leave the others for stock, and to unite the occupants of the honey hives, which will be thus rendered houseless, with the occupants of the stock hives. As a matter of course those hives which on examination are found to contain the finest honey should be taken up. One of the queens must be caught and destroyed before the two stocks are united, and just before sunset is the best time for accomplishing the work. If all the hives are well filled, those in which it is intended to put additional stocks may have a portion of the honeycomb removed previously. When hives of the Woodbury type fitted with sectional supers are employed, the taking of the honey is a very simple matter.

New Plants, Flowers, and Fruits.

MASDEVALLIA ROSEA (*Belgique Horticole*, 1882, pl. 3).—A good figure of this pretty and peculiar terrestrial orchid.

QUESNELIA RUFA (*B. H.*, 1882, pl. 4, 5, 6).—A noble bromeliad, tree-like in growth, attaining a height of ten to twelve feet. In leafage bold and beautiful, the leaves channelled, clasping, finely toothed, glaucous green banded with deep green. The inflorescence is a huge spike of flowers, deep blue, enclosed in brilliant light scarlet bracts, with a few floral leaves of a pale fawn colour.

CATALPA KEMPFERI (*Botanical Magazine*, 6,611).—A Japanese representative of the well-known *Catalpa syriaca*. The leaves are broadly ovate, pale green; the flowers pale yellow, sprinkled with red spots. The tree attains a height of twenty-five to thirty-five feet.

MASCARENHASIA CURNOWIANA (*B. M.*, 6,612).—An apocynaceous plant, native of Madagascar. The leaves are ovate, opposite, dark green; the flowers in terminal heads, with slender tube and large spreading limb; the colour lively rosy red. A fine stove plant.

WAHLENBERGIA SAXICOLA (*B. M.*, 6,613).—A New Zealand campanula, of curious slender habit; the flowers pale lilac or pale slaty blue.

TALAUINA CANDOLLEI, v. GALEOTTIANA (*B. M.*, 6,614).—A fine tree allied to *Magnolia*; native of Java; the flowers pale yellow.

SCUTELLARIA HARTWEGII (*B. M.*, 6,615).—A handsome species, with richly-coloured leaves of an elegant ovate form, and flowers of a purplish-red colour.

ANTHURIUM ANDREANUM (*B. M.*, 6,616).—A good figure of this fine plant. It is described as a native of Choco, in New Granada, at an elevation of 4,000 feet, and was discovered there many years ago by M. Triana, previous to M. Andre's visit.

ANDROSACE ROTUNDIFOLIA, v. MACROCALYX (*B. M.*, 6,617).—A beautiful primula-like plant, native of the Himalayas. The flowers are produced in a leafy head, and are of a pale pink colour.

AMORPHA CANESCENS (*B. M.*, 6,618).—This is the "lead plant" of the United States, so called because it is supposed its presence indicates lead ore in the soil. It is a peculiar leguminous plant with long pinnate leaves and long spikes of small purple flowers.

PEPEROMIA RESEDEFLORA (*B. M.*, 6,619).—A singular stove herb with elegant leaves and light spikes of feathery-looking flowers.

ALOE ABYSSINICA, v. PEACOCKI (*B. M.*, 6,620).—A fine aloe with pale yellow flowers.

BAUHINIA CORYMBOSA (*B. M.*, 6,621).—A handsome leguminous plant, native of Hong Kong. The flowers are of a soft rose, the stamens deep red.

PHALANOPSIS STUARTIANA (*B. M.*, 6,622).—A fine orchid allied to *P. amabilis*. The sepals are pale green, the petals white, the labellum yellow, sprinkled with red dots.

STIGMAPHYLON LITORALE (*B. M.*, 6,623).—A tall leafy climber, native of South Brazil. The leaves are orbicular ovate, the flowers in terminal corymbs, five-petalled, golden yellow.

PINGICULA CAUDATA (*B. M.*, 6,624).—A Mexican butterwort, producing large handsome purple flowers.

SATYRIUM NEPALENSE (*B. M.*, 6,625).—An unattractive sweet-scented terrestrial orchid from Sikkim. The flowers are of a pale pink colour.

GLOEBA ATRO-SANGUINEA (*B. M.*, 6,626).—An elegant Bornean plant, bearing light panicles of yellow and red flowers.

APHELANDRA CHAMISSONIANA (*B. M.*, 6,627).—A fine plant, native of South Brazil. Nees describes a species under the same name as having scarlet flowers, but the subject of this figure has flowers of a clear rich lemon-yellow colour.

CELIA BELLA (*B. M.*, 6,628).—A pretty orchid that has been long in cultivation. The flowers are funnel-shaped, white with purple tips.

SCROPHULARIA CHRYSANTHA (*B. M.*, 6,629).—A species allied to *S. vernalis*. It is a native of Asia Minor; the flowers are yellow.

DRACENA GOLDIEANA (*B. M.*, 6,630).—The figure represents a head of smallish white flowers scarcely adding to the sumptuous beauty of the leaves of this fine plant.

STACHYRUS PRÆCOX (*B. M.*, 6,631).—An interesting plant, native of Japan, allied to the camellias and teas. The leaves are elegantly ovate, the flowers unattractive in pendent spikes.

BILBERGIA EUPHEMIA (*B. M.*, 6,632).—A grand species first described and figured by Professor Morren, who named it in compliment to Madame Morren. The inflorescence consists of flowers with violet-blue limb and yellow tube accompanied by fawn-coloured bracts.

COLUMNEA KALBREYERI (*B. M.*, 6,633).—A magnificent gesneriacean plant of gigantic growth, the leaves brilliant green above and glowing blood-red on the under side; the flowers orange-yellow.

ARISARUM PROBOSCIDEUM (*B. M.*, 6,634).—A singular aroid, native of Southern Italy. The leaves are sagittate on long footstalks, the spathes slaty blue, terminating in long green spurs.

TULIPA BORSZCZOWI (*B. M.*, 6,635).—A pretty little tulip from the Karakum steppe; the flowers are red and yellow.

PONTHIEVA MACULATA (*B. M.*, 6,637).—A handsome terrestrial orchid, native of Venezuela; the flowers are in a loose raceme, white with black spots, and deep yellow.

TROPÆOLUM POLYPHYLLUM.

THIS very distinct tropæolum has been quite recently catalogued as identical with *T. edule*, figured by us in our issue for June 24. This is simply the perpetuation of an old error often exploded; for in the year 1839, when *T. polyphyllum* first flowered in Mr. Knight's Exotic Nursery, Chelsea, it was reported to be the same as *T. edule*, and a year or two afterwards, when *T. edule* first flowered, the identity was again insisted on. The figuring of the two plants in *Paxton's Magazine of Botany* (IX., 127, and X., 175) should have sufficed for permanent correction, but such was not the case, for in a catalogue only lately

plant is dense and stiff, with nothing of the lightness of *T. edule*. And as regards the flowers many differences are observable; in the plant before us they are inclined to a closely-packed angular form, all the lines being somewhat hard and devoid of the free grace and lightness characteristic of *T. edule*.

The figure that accompanies this note was prepared from a sketch made at the Hale Farm Nurseries, Tottenham, where *Tropæolum polyphyllum* has for many years been cultivated as a hardy plant. As it is not adapted for what is termed "specimen" culture, being too rigid to be trained advantageously, Mr. Ware has allowed it to run riot on a sunny bank, and display its natural characters without restraint or hindrance. And thus it happens that *T. polyphyllum* proves



TROPÆOLUM POLYPHYLLUM.

published we find them bracketed as but two names for one and the same plant.

The differences between the two plants are too many and too striking to warrant any doubt of their specific distinction. The flowers of both are of a deep orange or full yellow stained with orange, but that is the only point in which they agree. *T. edule* is light in form and of twining character, the leaves consisting of narrow fingered segments, and the flowers being borne on partly twining stems. In *T. polyphyllum* the leaves approach a trefoil form, or are five to seven divided, the lobes short and broad, and borne on rigid branches; while the flowers are borne on upright rigid stalks, and the whole

itself a most interesting and attractive subject, flowering freely in the height of the summer, and readily lending itself to what may be termed architectural effects.

The propagation of this plant is a very simple matter, as it may be increased to any extent by means of cuttings, which should be taken before the flower buds appear, as at that time they become too much hardened to root readily. If a great quantity of cuttings is required the principal stem may be cut down, soon after which an abundant crop of young shoots will appear. The tubers formed at the root also afford a ready means of multiplication, and for all ordinary purposes are sufficient.

ESCALLONIA RUBRA.

THE fortunate folks who have escaped from inland towns to rest awhile by the sad sea waves are likely to behold the escallonia flowering freely, as it will but rarely do at any inland station. On the east coast perhaps we may search often and find it but rarely, but on the southern and western coasts escallonias and shrubby veronicas and red admiral butterflies are often to be seen associated in the most happy manner. Perhaps the best displays of the kind are to be found at Ventnor, but Torquay and Budleigh and Sidmouth, and a hundred more of the happy havens, share fully in these delights. For the sojourners they often have a dark side, for on returning home they inquire about the planting of such things (not including the red admirals) in their own gardens, and then they learn with dismay that they are scarcely hardy enough to be trusted. But there are many inland localities where with a little management escallonias may be grown with success. Generally speaking, on the cold heavy soils of

learn from *Botanical Magazine*, under t. 6,599, that *E. rubra*, var. *punctata*, flowers freely in the open air against a south wall in the Royal Gardens, Kew, and though not so handsome as *E. macrantha*, is a very attractive plant. Under favourable circumstances it will attain a height of six to eight feet, and being an elegant evergreen shrub is worthy of a place wherever there is a reasonable prospect of its wintering safely.

Those who are especially interested in subjects of this class, which are so well adapted for the "kind climates" of Cornwall, Devon, and Dorset, may be advised to look after *E. floribunda*, which grows in the style of an arbutus, and produces white flowers, and *E. pterocladon*, the flowers of which are white and pink.

EUCHARIS AMAZONICA.

WHEN I penned my last notes on this I did not think that it would result in my receiving a score or more letters from widely different sources, much less



ESCALLONIA RUBRA, V. PUNCTATA.

the northern and eastern suburbs of London they are too tender to be treated as hardy plants. But they thrive at Kew, and a good wall is sufficient to protect them in all ordinary winters on sandy, well-drained soils. But an extra severe winter like that of 1860—which cleared off a plantation of our own—or 1879-80, which did the like with many others, will likely enough always prove fatal to these plants in places remote from the sea.

When doing well they are extremely beautiful, and *E. macrantha* is the best of the series. The *E. rubra* was first flowered by Mr. Cruickshanks in the Botanic Gardens, Liverpool, in the year 1828, and was figured rather poorly in *B. M.*, 2,890. The one now before us is a variety with rich purplish red flowers, and much dotted on the under sides of the leaves with resinous glands, which emit a powerful odour. It is not often, however, that these glands are produced in this country, except, perhaps, in a quite rudimentary form, our summers being too cool to promote the full development of this Chilean species. We

did I think that so many amateur growers were so much interested in the subject. From the correspondence before me it appears very plain that this eucharis can be grown as well without bottom heat as with it, which I never doubted. But according to my own experience and what I have seen in my travels I am satisfied that it cannot be flowered with the same degree of regularity as it can where bottom heat is applied; moreover, I am satisfied that to flower it successfully and regularly it must have 10 deg. to 15 deg. more heat in what we gardeners call top heat than is necessary when bottom heat is given. To put it plainer, when the plants are grown without bottom heat it is necessary to keep the house 10 deg. warmer than when they have the advantage of bottom heat. This, I think, will explain to some of my correspondents why they have failed to flower their plants more than once a year. Given a temperature in the house (without bottom heat) of 65 deg. by night and 80 deg. by day without the aid of the sun from the middle of February to the end of October, there should be no difficulty in getting the plants to flower at least twice in the year.

At the present moment I am more interested in the success of the small

grower than the large one, as the adepts can be advantageously left to themselves just now. From what I can learn of the inquiries before me, it would appear that many attempt to grow this eucharis, but fail to flower it more than once a year. The majority of the small cultivators, it appears, have to grow it without the aid of bottom heat, which I am satisfied need not be a matter of regret if they are prepared to give it a corresponding increase of temperature without it. When this increase of temperature is to be applied is the next question?

Looking at the case broadly, I should say the middle of February is a good time to commence for the first flowering, and continued until the first week in May. If they do not show signs of flowering remove them to a cooler temperature for four or five weeks, and reduce the water supply at the same time. At the expiration of the five weeks put them into the stove again, and in four or five weeks they ought to flower. In any case they must remain in the stove until they do flower. But strong bulbs will flower in most cases under the treatment I have described.

Assuming that the plants flower in June under this treatment, and when done flowering they are immediately placed in a high temperature again, they should produce another crop of flowers in November and December. Of this I feel certain: the plants want a good high temperature nine months out of the twelve, and the other three months a quiet rest with a reduction in the supply of water.

But these two periods must be divided into two parts, and although it is not a serious obstacle when the resting periods take place, nevertheless as much as possible it should be during the winter months, and the growing time should be during the time the days are longest and the sun has the most power.

The eucharis is somewhat deceptive in its habit, and has not the same power of resisting the action of the cultivator as many other bulbous plants have. The hyacinth, for instance, will show in a marked degree any attempt on the part of the cultivator to keep it always growing. This eucharis, on the contrary, will always keep growing if regularly kept in a high temperature. But it does not flower regularly any more for that. This is why it is misleading. Inexperienced cultivators think they are on the right tack because their plants are always growing, whereas a season of rest in a lower temperature and with less water is conducive to the production of flowers.

I have so recently referred to other matters relative to its culture that I need not now enlarge on any further details, and I think I have sufficiently indicated the course to be pursued by those who have written to me on the subject.

J. C. C.

Exhibitions and Meetings.

TAVISTOCK COTTAGE GARDEN SOCIETY.

THIS thriving and well-managed society held its thirty-fifth annual exhibition on August 9, and it was in every way a grand gathering, most creditable to the executive committee, who, one and all, laboured hard to make it a success. The exhibitors were evidently of the same mind as the committee, for they produced a display of a kind that has never before been approached in the good old town of Tavistock. This is just as it should be, for every encouragement is given to them by the society, ably seconded by his Grace the Duke of Bedford, who, when he builds cottages for his tenants, looks well to the point that a good large garden is attached to each. As the land around Tavistock consists of a rich deep loam, it is not to be wondered at that vegetables in good seasons are unrivalled, and as such it has been our pleasure to record the fact year after year. But the present season has proved an exception to the rule, for the cold wet weather and stormy winds have kept everything in check, so that what has been in former years up to the mark at the date of the show has been all behind and undeveloped. I refer more particularly to such things as spring-sown onions, carrots, parsnips, and scarlet runners. On the other hand, such things as peas, broad beans, cabbages, and lettuces were never staged in better condition. Potatoes also were very good indeed considering the season, and although disease has been playing sad havoc with them in the neighbourhood, those staged were fine and free from any taint whatever.

PLANTS were shown well by cottagers and amateurs of the neighbourhood, and the best fuchsias I have seen this season were at this show. Other subjects staged were very good indeed; but the finest things in this way that have been seen in Tavistock for many years came from the gardens of the nobility and gentry for miles around, an example that can be followed with advantage by others who have hitherto held aloof from exhibitions. The plants from this source were arranged around the sides of the spacious market-house, whilst, to form a central attraction, some eighty or more specimen and half-specimen fine-foliage and flowering plants were arranged by Mr. Yole, gardener at Grenafon House, and a fine display they made. The same also must be said in praise of the collections from Carpentier Garnier, Esq., M.P., of Mount Tavy, and those from Mr. F. Bradshaw, Lifton Park, whose gardener, Mr. Mounsdon, exhibited his skill as a plant grower of the highest order. Each of the collections named had certificates of the first class conferred on them, there being no money prizes offered. Certificates and high commendations were also awarded to the collections from R. B. E. Gill, Esq., Bickham, who staged a neat lot of plants, including begonias, lilies, fuchsias, ferns, coleus, and other good things. A similar group came from M. Bere, Esq., Horrabridge, a credit to him and his gardener, Mr. Parker; but best of all was it to see for the first time a collection of plants from a Tavistock nurseryman. Yes; it has come to this at last, and a grand lot of plants and cut flowers they were, occupying about 60 ft. run of staging, and about 6 ft. in depth. There was everything, from the newest tuberous-rooted begonia to the choicest fern; his cut blooms also were a sight to see, especially his magnificent stand of gladiolus, set up in the Langport style; and the wish of all who saw that collection was that Mr. Yole, of the Tavistock Nurseries, would go on and prosper.

In the competitive classes Mr. F. H. Fuller took first honours for forty stove and greenhouse plants with nicely-grown examples. The Rev. W. J. Tait also took first prize for twenty-five kinds, Mr. S. Waldron being a good second in each class. For six ferns the prize was also taken by Mr. Fuller, the prize for six fuchsias being well won by Mr. S. Waldron; his geraniums were also good, and received first honours. There was a spirited competition for the prizes offered for a specimen plant. Mr. Fuller, Mr. W. J. Monk, Mr. Waldron, and the Rev. W. J. Tait competed with spirit in this class.

VEGETABLES were of course the principal feature of the show, and as the prizes here are on the most liberal scale the competition was as usual very keen and

spirited, especially for the collections exhibited in baskets; also the potatoes, for the examples staged were indeed wonderfully fine for the season. For the collections of vegetables Messrs. W. Millman, W. Bone, W. Thorne, S. Miles, J. Gale, S. Waldron, J. Garland, and W. Horn received the prizes in the order of their names. The prizes for smaller collections were awarded to Messrs. F. Cock, W. Craze, T. Freeman, and J. Gartell, respectively. For potatoes, of which there were about 150 dishes staged, the principal honours went to Messrs. J. Edwards (first in the two chief classes), G. H. Drew, W. Bone, F. Cocks, T. Brown, J. Garland, S. Miles, and W. Craze. For peas, which were very fine, Mr. J. Garland first. For beans, both shelled and in the pod, Mr. J. Edwards was first with excellent examples. The same names appear again in other classes of vegetables, which they staged creditably and successfully.

FRUIT.—If there was a falling off in anything this year it was in the fruit, for apples, the glory of the Devonshire shows, are very scarce indeed; in fact, for miles around there is scarcely an apple to be seen. This is to be regretted, for the cottagers in this part depend upon their apple crop as an adjunct to their daily food. There were a few dishes only staged and those were only moderate in quality. Pears were good; gooseberries very fine; Morello cherries and currants fair; whilst raspberries, plums, and grapes were all but conspicuous by their absence. These remarks apply to the cottagers only. From Mr. Cocks, of Plymouth, came dishes of peaches and nectarines well ripened and finished.

CUT BLOOMS were well represented by Messrs. Curtis, Sandford, and Co., of Torquay, with several boxes of cut roses and single dahlias. These were set up in the usual excellent style of this firm, and were very much admired. Mr. Dingle, of Saltash, sent collections of cut flowers of all kinds, and they came in for a share of admiration.

The day was fine and the attendance good, and the arrangements for the comfort of all concerned were admirable. The secretary, Mr. H. E. Monk, and his able committee did their work well, and for their kindness to judges I hope they will accept the thanks of

Hereford Road Nursery, Bayswater.

JOHN BURLEY, F.R.H.S., &c.

LAUNCESTON AND DISTRICT COTTAGE GARDEN SOCIETY.

THIS useful and well-managed society held its thirty-ninth annual exhibition on August 10 in the town Market Hall, a large building in every way adapted for the purpose, being cool and clean, and illuminated with a softened light that showed the exhibits off in the best manner. The show was a large one and varied, for on the benches around, as well as the central stands, there were exhibits of some kinds to please the mind and gladden the eye. And although it has nearly reached the fortieth year of its existence, the society evidently gathers strength by age, and appears year after year more vigorous and useful than ever. Now this is just as it should be, for many of the present committee have stood by it and helped it in purse and person for many years; and it must be gratifying to them to find that success is the result of their well-doing. Now Launceston itself is one of those dear old towns that has carved its name on the roll of time, and its sons have earned fame in many a clime; and it is really like treading on sacred ground to visit the old castle, and St. Mary's Church, for how old the castle is none can tell with accuracy. If you ask for information, you will get a tale about King Arthur and the Round Table; and how he resided here, and at times at Tintagel Castle, on the North Cornwall coast, and at last you give up the question, although you have not done with the castle. Although it is old and crumbling to decay in places, still it is a grand place and likely to last for centuries yet. At any rate, I hope so, if only to serve as a monument to Sir Bevil Glanville, the great Cornish Royalist commander, who held his own and the castle as well against all the forces that the Parliamentarians could send against him, and who finally routed the Roundheads on Stamford Hill, near Stratton, on May 16, 1643, and this in spite of the two to one that were sent against them. This is a digression somewhat, but it only illustrates that the pluck of the Cornishmen was, and is still, in existence, and in the case now under notice, viz., the Cottage Garden Show, they have pegged away for many years to make it a success and a boon to the town and neighbourhood; and the wish of all concerned is, that it may still go on and prosper.

VEGETABLES formed as good a display as ever, and when I state the fact that there were over 371 entries, some idea may be formed of the extent of the present exhibition. Of late years, and last year in particular, the vegetables were wonderfully fine and fresh looking. Prizes were offered for collections in baskets, and, to accommodate both the large and small growers, there were classes with fifteen sorts down to six kinds. This brought out altogether a great quantity of very fine vegetables indeed, all clean and crisp looking, and nicely arranged. The principal prizetakers were, R. Crepper, W. Lagg, J. Werring, H. Kingsland, J. Steed, J. Haines, and G. Veale. There was also a very spirited competition for the prizes offered for potatoes, and they formed a fine feature, for they were staged in large quantities and in capital condition, being large, handsome, and free from disease. There were about forty prizes offered altogether in the different classes for them, which ranged from a bushel of kidneys and rounds down to the modest dish of twelve. The principal prizetakers for bushels and half-bushels were, R. Wright, J. Reed, and J. Haines. For smaller quantities and collections in dishes the following exhibitors were well to the front: R. Wright, J. Haines, W. Buckingham, J. Reed, T. Landry, J. Werring, W. Fennimore, and H. Jasper. Mr. R. Wright particularly distinguished himself, being first in every class he exhibited in with specimens that did him great credit. The carrots and parsnips at this show were the finest I have seen this season in any part of the country. The same remark will also hold good as regards scarlet runner beans. The onions, both spring and autumn sown, were also above the average, whilst the potato onions and shallots were perfection itself. The turnips, leeks, and celery were quite up to the average, and the cabbages very large and free from insects, whilst the large specimens of Scotch kale were beautifully crisped and curled, rivalling in that respect the best crested fern in cultivation. There was a capital show of peas, and about seventeen lots were staged for the four prizes offered for a gallon of any kind. The winners were, J. Ruse, followed by W. Lagg, J. Landry, and W. Buckingham. The other vegetables from the cottagers call for no special remark beyond the fact that much taste had been bestowed in setting them up, and every kind was scrupulously clean and fresh-looking. There were prizes offered for vegetables grown by gentlemen's gardeners, also for collections of fruit from the same source. Mr. R. Hancock first, T. Walke second in the former, and in the latter the names were reversed—T. Walke being first and R. Hancock second. Their productions were highly creditable indeed.

FRUIT was very fair, but I have seen better at Launceston; but as the season has been bad for it, allowance must be made on that score; but

T. Master's apples, and R. Symons' gooseberries were very good; the other fruits only moderate.

WILD FLOWERS were plentiful and nicely arranged by the children, and as there were nine prizes offered, and three extras as well added, the little ones were somewhat rewarded for their pains. The day was fine, and the volunteer band did its best to cheer us all up. Nothing could have been better than the way the hon. secretaries, Messrs. White and Ching, ably led by the treasurer, Mr. Ching, performed their several duties to make all a success, and study the comfort of the judges and exhibitors, for which I hope they will accept the thanks of

Hereford Road Nursery, Bayswater.

JOHN BURLEY, F.R.H.S., &c.

READING HORTICULTURAL SOCIETY, AUGUST 24 AND 25.

Owing to the destruction of the society's large tent on the Wednesday by the gale which swept over the town on that day, the exhibition of the Reading Horticultural Society on the above dates was held in the municipal buildings instead of in the Abbey Ruins, as in previous years. Although of course not equal to the charming site on which the society has held its exhibitions for so many years past, the municipal buildings are admirably adapted for the purpose to which they were put on this occasion, and as the weather was cold and wet during the greater part of the time the loss of the charming promenade afforded by the Forbury Gardens was less felt than would otherwise have been the case. That the energetic committee and secretaries turned the space at their disposal within the buildings to the best possible account may be taken for granted. But it must in justice be said that, as they had to be engaged and fitted up within a few hours of the various productions being brought in by the exhibitors, the arrangements were such as to reflect the highest possible credit upon Messrs. Webb and Crutchley, the courteous honorary secretaries, and Mr. Phippen, the very able manager of the exhibition. The Reading municipal buildings, which have been recently completed at an outlay of between £50,000 and £60,000, include, in addition to a large library and a considerable number of offices and places of meeting for the transaction of the corporation business, two town halls, which are known respectively as the old and the new. Both are very spacious, and in the old Town Hall the soft-wooded plants in bloom, the fruit, of which there was a splendid display, and the cut flowers were judiciously arranged, and in the new Town Hall the stove and greenhouse plants, the ferns, and the groups arranged for effect, were placed. In the latter hall the whole of the plants were placed on the floor, the specimens round the sides, and the groups in the centre. Vegetables were arranged in the corridor, and as usual they formed a very strong feature. Altogether the exhibition was highly satisfactory to all concerned, and fully sustained the high reputation the society has so long enjoyed for the excellence of its exhibitions.

STOVE AND GREENHOUSE PLANTS in bloom were presented in grand style for so late in the season. In the open class for nine Mr. Mould, Pewsey, Wilts, was first with large well-flowered specimens of *Allamanda Hendersoni*, *Erica cerinthoides coronata*, *Ixora Williamsi*, *I. regina*, *Erica Irbyana*, and *Lantana Don Calmet*. Mr. Lees, gardener to Mrs. Marsland, The Wilderness, Reading, a good second with fine examples of *Bougainvillea glabra*, *Rondeletia speciosa*, splendidly flowered; *Tabernaemontana coronaria* fl. pl., which is hardly effective enough for an exhibition specimen, and *Ixora Williamsi*. The competition was good also in the class for four, and in this Mr. Mortimer, gardener to Major Storer, Purley Park, Reading, was first with splendidly-flowered specimens of *Allamanda Hendersoni*, *Ixora Williamsi*, and *Stephanotis*. Mr. Hope, gardener to the Hon. R. Boyle, Purley, a close second with *Tabernaemontana coronaria* fl. pl. and *Plumbago capensis*. In the class for a specimen plant in bloom the competition was very keen, and Mr. Bennett, Cressingham, was first with a beautifully-flowered example of *Erica Irbyana*, and Mr. Hope was second with *Allamanda Hendersoni* well furnished with its large golden-yellow flowers. Mr. Lees was awarded an "extra" for a good specimen of the interesting *Stigmaphyllon ciliatum*, a twining plant with yellow flowers, in form not unlike those of one of the large-flowered oncid.

ORNAMENTAL-LEAVED PLANTS were admirably represented both in number and quality. At the head of the competitors in the class for six was Mr. C. Ross, gardener to C. Eyre, Esq., Welford Park, Newbury, with superbly-finished specimens of *Alocasia metallica*, *A. macrorrhiza variegata*, *Maranta zebra*, *Cyperus alternifolius*, *Croton Weismanni*, and *Buonaparte juncea*. Mr. Mortimer a close second with a collection in which *Croton majesticum* was conspicuous. Mr. Mould third. For four Mr. Bezzant and Mr. Lees were first and second respectively with capital groups. In competition for the prizes for six table plants Mr. Ross was first with admirable examples, including two seedling crotons with highly-coloured narrow gracefully-arching leaves. Mr. Burgess, gardener to Major Clayton, Maidenhead, second with an excellent collection. Mr. Howe, gardener to Sir R. Sutton, Benham Park, Newbury, also exhibited well in the class. Coleus were remarkably good, the specimens large, and the leaf-tints well developed. For six Mr. Burgess was first with excellent specimens, amongst which Mrs. George Simpson was conspicuous. In a fine group from Mr. Sumner, gardener, to — Millard, Esq., Reading, occurred a new and remarkably fine variety with dark highly-coloured foliage under the designation of *Herbert*. In the class for a new and rare plant Mr. Howe was first with a fine specimen of *Croton Truffautianum*, a distinct and handsome form with rather narrow and drooping leaves, of a clear yellow and dark bronzy green. The second prize was awarded to Mr. Ross for a medium-size example of *Cycas circinalis*, which, if not either new or rare, was well deserving of the award.

FERNS AND SELAGINELLAS were of a high degree of excellence, the latter being so good as to necessitate the award of two equal firsts in the class for sixes. For six ferns Mr. Mortimer was first with large and beautifully-developed specimens of *Dicksonia antarctica*, *Adiantum carduchianum*, *A. pendactylon*, *Cibotium australis*, *Davallia bullata*, and *D. Mooreana*. Mr. Ross second with a collection in which *Pteris argyrea* was remarkable for its superb development. In the class for four ferns Mr. Lees occupied the post of honour. In competition for the prizes for six selaginellas Mr. Hope and Mr. Mortimer were placed equal first for large pyramidal specimens remarkable for their finish and freshness. The leading kinds were *Selaginella stolonifera*, *S. Mertensi variegata*, *S. cesia*, *S. denticulata variegata*, *S. denticulata aurea*, *S. apoda*, and *S. cesia arborea*.

GROUPS ARRANGED FOR EFFECT sufficed to fill the centre of the new Town Hall, and as they were all more or less good they formed a very important feature. The first place was occupied by Mr. Lees, whose plants were exceedingly good and most tastefully arranged. Mr. Phippen, nurseryman, Reading, was a close second with an excellent group, in which the fine and useful *Hydrangea paniculata grandiflora* was conspicuous; Mr. Powell,

gardener to J. Black, Esq., Reading, third with a collection, including *Valotta purpurea*. Mr. Turtan, gardener to J. Hargreaves, Esq., was awarded an extra prize for a group in which was a specimen of *Peristeria elata*, with two splendid spikes of flowers, and some good *Colosias*. Extra awards were made also in favour of Mr. Mayno and Mr. Sumner.

SOFT-WOODED PLANTS in bloom were very satisfactory, and contributed their share to the success of the exhibition. Lilies were shown in superb style in both classes, by Mr. Bridge, his specimens being of extra large size and well flowered. Dahlias in pots were admirably shown by Mr. Uphill, gardener to R. Gerrard, Esq., Wokingham, Mr. Bridge, and Mr. Mortimer, who were first, second, and third respectively. Fuchsias were admirably represented by collections of six from Mr. Hope and Mr. Jones, Henley-on-Thames, who were first and second, and by other exhibitors. Zonal pelargoniums were particularly good, and produced a splendid display of colour. Mr. Ashby was first with immense and well-flowered specimens, which had received but little training, and presented a natural and very tasteful appearance. Mr. Mortimer and Mr. Hope were second and third with good collections.

CUT FLOWERS and TABLE DECORATIONS were fully up to the high average of previous years. In competition for the prizes for three vases Mrs. Sands, Reading, was first, and Miss Kate Phippen second, with admirable arrangements differing but little in merit. For a basket of flowers Miss Phippen was first with an arrangement evincing much taste, and for a bridal bouquet Mr. Phippen occupied the first place, as in former years: Mr. Bennett second. The leading prizes for dahlias and roses were taken by Mr. C. Turner, Slough, who staged, in accordance with his usual custom, flowers of high class merit. In other classes for flowers Mr. Powell, Mr. Darman, and Mr. Phippen were most successful.

FRUITS formed an attractive and important feature, so numerous were the contributions and high the quality throughout. In the class for eight dishes the competition was very strong, and the first place was occupied by Mr. Austen, gardener to Sir G. Smythe, Ashton Court, Bristol, with Madresfield Court and Muscat of Alexandria grapes, Barrington peaches, Pine-apple nectarines, Brown Turkey figs, Smooth Cayenne pine, a melon, and Williams's Bon Chrétien pears; Mr. Miller, Road Ashton Park, second, and Mr. Atkins, Lockinge Park, Wantage, third. For six dishes Mr. Hammersley, Bourne End, Mr. Lockie, Oakley Court, and Mr. Mortimer were the prize-takers in the order of their names. Grapes, for which four classes were provided, were admirably shown, the most successful of the numerous exhibitors being Mr. Ashby, Mr. Austen, Mr. Atkins, Mr. Miller, Mr. Heath, Henley, Mr. C. Everest, Mr. Wells, and Mr. Robinson. Peaches were admirably shown by Mr. Pound, Caversham; Mr. Paxton, Taplow; and Mr. Ashby, who were first, second, and third, with Bellegarde, Late Admirable, and Noblesse respectively. In the class for nectarines Mr. Osborn was first with Pitmaston Orange, and Mr. Atkins second with Prince of Wales. Melons were staged in capital style by Mr. Ross, who was first in both classes, Mr. Lockie, and Mr. Austen. Mr. Tanner presented a capital dish of dessert apples, for which he was awarded the first prize, and Mr. T. S. Cocks, Marlow, contributed a fine collection of plums. The prizes offered by Messrs. J. Carter and Co., for a brace of Blenheim Orange melon were awarded to Mr. Lockie, Mr. Mortimer, and Mr. Burgess, in the order of their names.

VEGETABLES were both plentiful and good. About twelve competitors entered for Messrs. E. Webb and Sons' prizes for six kinds, and the most successful were Messrs. Lockie, Mr. Bezzant, and Mr. Bradford. The competition was also very strong for the prizes offered by Messrs. J. Carter and Co. for their Model cucumber, a variety of great excellence, and the awards were made in favour of Mr. Lockie, Mr. Burgess, and Mr. Mortimer. The exhibitors above-mentioned, and Mr. Ross, Mr. Read, Mr. Ashby, and Mr. Howe, were the most successful of the exhibitors in other classes.

SEVENOAKS HORTICULTURAL SOCIETY, AUGUST 24.

The annual exhibition of this society was held in the grounds of Montreal, the residence of Earl Amherst, and in its extent and the high class quality of the productions was fully up to the average. The weather, unfortunately, was most unfavourable, and at one time during the day the wind was so boisterous that the tent containing the fruit and table decorations was blown over and much damage done.

STOVE AND GREENHOUSE PLANTS in bloom and remarkable for the beauty of their foliage were very largely shown, and in a condition that reflected much credit upon the exhibitors. The leading competitors in the class for six flowering plants were, Mr. Gibson, gardener to J. F. Burnaby Atkinson, Esq., Halstead Place; Mr. J. Burt, Shoreham Place, and Mr. J. Bolton, Sundridge; and in that for four Mr. Vallings, Riverhead, and Mr. F. Knight, Riverhead, were first and second. The most successful of the exhibitors in the two corresponding classes for ornamental-leaved plants were Mr. Burt, Mr. Vallings, Mr. Goodman, Sevenoaks, and Mr. Talmage.

ORCHIDS were well shown by Mr. Cook, Mr. Bolton, and Mr. Burt. SOFT-WOODED PLANTS in bloom were both plentiful and good. Mr. Meakin, Mr. Vallings, and Mr. Don had the finest collections of fuchsias, which, on the whole, were remarkably good. Zonal pelargoniums were admirably represented by collections from Mr. F. Knight, Mr. Letchford, Sevenoaks, Mr. Hutton, Sevenoaks, and Mr. Meakin. Particularly good were the achimenes from Mr. G. Sears and Mr. Huntley.

FERNS included capital collections of exotic kinds from Mr. Hutton, Mr. Bolton, and Mr. Goodman, and British kinds were represented by the excellent contributions of Mr. Talmage and Mr. Hutton.

CUT FLOWERS formed, as usual, a feature of great importance and attractiveness. Roses were staged in capital style by Messrs. Bunyard and Sons, Maidstone; Mr. Standen, Sandown Park, Tunbridge Wells; Mr. W. Blundell, Westerham; Mr. Gray, and Mr. J. Hollingsworth, Maidstone. Dahlias were staged in considerable numbers and in splendid style. At the head of the competitors in the open class for twenty-four were Messrs. H. Cannell and Sons, Swanley, with grandly-developed blooms of the leading varieties; Mr. Seale, Sevenoaks, second. Mr. Meakin, Mr. Bolton, and Mr. S. Huntley were the prizetakers in the other classes for dahlias. Gladioli were contributed by Mr. Woollard, Maidstone, Mr. Bolton, Mr. F. Cattell, Sevenoaks, and Messrs. Bunyard and Sons. Asters included fine stands from Mr. Blundell and Mr. Meakin. Collections of cut flowers made a large and attractive display, the principal stands being those from Mr. J. Bolton, Mr. Gibson, Mr. Burt, Mr. Vallings, Mr. Neal, and Mr. Talmage.

FRUITS were fully up to the average, both in quantity and quality. Two classes for collections were provided, and in these the prizetakers were Mr. J. Staples, Chipstead Place, Mr. Waterman, Mr. Fennell, Mr. Noble, Seven-

oaks, and Mr. Warton, Tunbridge Castle. Chief amongst the competitors in the several classes for grapes, which were on the whole highly meritorious, were Mr. G. Fennell, Mr. G. H. Goldsmith, Hildenborough; Mr. Recks, Wadhurst; Mr. R. Gray, Mr. C. Goldsmith, Bletchingley; Mr. Goodman, Mr. A. Roberts, and Mr. C. Noble. Peaches and nectarines were well shown by Mr. Huntley, Mr. Cox, Mr. J. Abbott, Lullingstone Castle, and Mr. Staples. The foregoing exhibitors and Messrs. Waterman, Staples, and Hutton were also most successful in the other fruit classes.

VEGETABLES in collections were admirably shown by Mr. Bolton, Mr. G. H. Goldsmith, Mr. J. Abbott, Mr. Noble, and Mr. Dow.

EAST TOWER HAMLETS FLORICULTURAL SOCIETY, AUGUST 28 AND 29.

The annual exhibition of this excellent society was held on Monday and Tuesday last, in the assembly room and garden of the Sir John Cass, Victoria Park Road, and, regarded as a whole, was one of the most successful held for many years past. The dahlias and asters, which are usually shown by the members of the society in large numbers and splendid style, were hardly up to the mark, but the plants were exceptionally good, and the table decorations and miniature flower gardens far surpassed those of any previous years.

The whole of the classes for fuchsias were exceedingly well filled, and in that for three specimens from spring-struck cuttings there were no less than eight competitors, all of whom staged highly meritorious specimens. The first prize for the plants from spring-struck cuttings consisted of a five-guinea cup, and this was awarded to Mr. R. Anderson, who staged pyramidal specimens about three feet in height, perfect in contour, and densely flowered. Mr. W. Sharp was second with specimens a size smaller, but splendidly flowered and finished. The remaining prizetakers in the class were Mr. A. Farmer, Mr. S. Farmer, Mr. E. Farmer, Mr. W. Baynton, and Mr. A. Chartres.

The competition was also very strong in the class for three plants of any age, and Mr. W. Sharpe, Mr. R. Anderson, Mr. E. Farmer, Mr. A. Farmer, Mr. J. K. Chartres, Mr. S. Farmer, Mr. H. Farmer, and Mr. J. C. Chartres were awarded the nine prizes in the order of their names. There were six or seven entries in the class for six fuchsias, and the first prize was awarded to Mr. R. Anderson for large and splendidly-flowered specimens, and the second and third awards were made in favour of Mr. E. Farmer and Mr. W. Sharp, both of whom also had collections of a high degree of excellency. Chief amongst the fuchsias shown were *Arabella*, Mrs. Marshall, *Scarcity*, one of the finest dark fuchsias for towns, and *Conspicua*. Zonal pelargoniums were considerably above the average in numbers and quality, and considering the difficulties under which town cultivators of these flowers labour they were highly creditable to the several exhibitors. The prizetakers for three were Mr. A. Farmer, Mr. E. Farmer, Mr. H. Farmer, Mr. J. K. Chartres, Mr. J. C. Chartres, and Mr. A. Chartres, and in the class for six the premier award was made in favour of Mr. J. K. Chartres.

Collections of miscellaneous plants formed an interesting and pleasing feature. For three miscellaneous plants Mr. W. Sharpe was first, and the remaining prizetakers in the class were Messrs. E. Farmer, J. K. Chartres, Cook, R. Farmer, S. Farmer, A. Chartres, J. C. Chartres, and Mr. W. Baynton. The most noteworthy plants in the collection were *Plumbago capensis*, of which several large well-flowered specimens were staged, *Sedum spectabile*, fuchsias, *Aralia Sieboldii*, and *Begonia weltoniensis*. The competition was spirited also in the class for collections unlimited in number, and the prizetakers were Mr. E. Farmer, Mr. Sharpe, Mr. Cook, and Mr. J. K. Chartres, in the order of their names.

There was a considerable falling off in the classes for asters and dahlias, and this was attributed to the lateness of the season rather than to any lack of interest in these flowers. The first prizes for twelve and six German asters were awarded to Mr. E. Corderoy. For twelve reflexed asters Mr. A. Farmer was first, and for six blooms Mr. Cook occupied the first place. In competition for the prizes for six incurved asters Mr. T. Rutter, Mr. R. Farmer, and Mr. A. Farmer were first, second, and third respectively. The miniature flower gardens were exceptionally good, and that exhibited by Mr. S. Farmer was one of the most tasteful designs of its kind ever exhibited, and that from Mr. A. Baynton, who was second, was considerably above the average; Mr. Rutter and Mr. A. Farmer were equal third with good designs. The whole of the table decorations were good, and the stands, which were shown in threes, formed a very pleasing and attractive feature. The prizetakers were, Mr. A. Farmer, Mr. W. Baynton, Mr. R. Farmer, and Mr. S. Farmer.

A large and excellent collection of plants was contributed by the Victoria Park authorities, and, judiciously arranged at one end of the room, it added much to the interest of the exhibition.

The arrangements were such as to reflect much credit upon Mr. G. Knope, the courteous secretary, and the executive committee. The judges were, Mr. J. Collier, Mr. Bullen, Mr. Rainbow, and Mr. George Gordon.

BANBURY FLORAL FETE, AUGUST 29.

This important annual re-union of North Oxon horticulturists took place on the above date, and in point of quality and extent fully maintained the high character so long accorded to the Banbury flower shows.

The exhibition was held in the beautifully-arranged grounds of W. Munton, Esq., West Bar Street, where for many successive seasons the shows have been convened the only break having occurred in two or three wet summers, when the prettily-designed flower beds, in which Mr. Munton takes such pride, have not been up to the usual standard of brilliancy. On this occasion the productions filled five large marquees, all being liberally furnished with horticultural productions.

PLANTS in tent No. 1 we noticed as specially good, the groups open to all England. In the class for nine Mr. J. Cypher, Cheltenham, held the post of honour (prize £10) with large, fresh, and splendidly-grown examples of *Croton Queen Victoria* and majesticum, *Allamanda nobilis* and *Hendersoni*, *Erica amula*, *Irbyana*, and *Marnockiana*, *Ixora Williamsi*, and *Clerodendron Balfouriana*. Colonel North, M.P., Wroxton Abbey, Banbury (gardener Mr. Finlay), second, with smaller specimens of *Bougainvillea glabra*, *Dipladenia boliviensis*, and *anabilis*, *Rondeletia speciosa* major, magnificently bloomed; *Aphellexis macrantha* purpurea, thin; *Stephanotis floribunda*, *Allamanda cathartica* and *Schottii*, and *Croton pictum*. Mr. F. Perkins, Leamington, staged in this glass good three-quarter specimens of *Lapageria alba* and *rosea*, *Dipladenia anabilis*, *Allamanda Hendersoni* and *nobilis*, *Gloriosa superba* Planti, *Statice Pattersoni*, *Begonia Vesuvius*, and *Cassia corymbosa*.

In the "members' class" for six specimens W. M. Foster-Melliar, Esq., North Aston Park, Oxon (gardener Mr. C. Pearce), secured the first card for an interesting group, embracing *Clerodendron fallax*, *Alceasia metallica*, *Croton Weismanni*, *Dipladenia amœna*, and *Vinca alba* and *rosea*; Colonel North second with *Bougainvillea glabra*, *Yucca aloifolia variegata*, *Stephanotis floribunda*, *Cassia corymbosa*, and *Statice profusa*. Mr. Perkins's group comprised *Ixora crocata*, *Allamanda Hendersoni*, *Begonia Sedeni*, *Statice Butcheri*, *Russelia juncea*, and *Clerodendron fallax*.

EXOTIC FERNS were limited to splendid groups, W. M. Foster-Melliar's first-prize group including grand plants of *Gymnogramma sulphurea*, *G. peruviana argyrophylla*, *Adiantum tenerum*, *A. farleyense*, *A. assimile*, and another. Colonel North second with *Davallia elegans*, *Adiantum farleyense*, *A. decorum*, *A. trapeziforme*, *Polystichum capense*, and *Cheilanthes elegans*.

FUCHSIAS were also a somewhat limited display, the six of Colonel North being fair, in varieties known as *Charming*, *Enchantress*, *Champion of the World*, *Tower of London*, *Nabob*, and *Conspicua*. For three Mr. J. Malsbury, Banbury, was awarded premier honours for dense dwarf bushes (in tubs, grown out of doors) of *Sir Colin Campbell*, *Wave of Life*, and *Rose of Castile*; Mr. E. Thorne, Laburnum Cottage, Woodstock Road, Oxford, second, with well-flowered examples of *Warrior Queen*, *Beacon*, and *Alba coccinea*.

ZONAL PELARGONIUMS were really good though few, Colonel North being awarded a first for very dwarf fairly-bloomed though perhaps small trusses, of Mrs. Whitley, Lucy Bosworth, Wonderful, Ellen, Madame Thibaut, and White Venus. In the class for four Mr. E. Thorne led with *Acme*, Mrs. E. Bennett, *Asteroid*, and *Circulator*.

VERBENAS trained to flat trellises were superb as staged by Colonel North, and although generally well done here, we have not looked on the equals of these. The varieties were *Lady Radnor*, bright crimson; *Sunny Thought*, pink, flaked crimson; *Grand Duke de Gorade*, dazzling scarlet; *Adelina Patti*, light crimson; *Lovely Blue*, purplish mauve, and *Lashlake Pink*, deep crimson.

A group of decorative plants numbering one hundred specimens, was staged by Mr. F. Perkins, Leamington, "not for competition."

CUT FLOWERS.—In this department specially good were the table decorations. For three pieces several competitors had arranged very tasty sets, the card going to Mr. George Hopkins, Banbury, Mr. J. Cypher being second, and Mr. F. Perkins third. For the size of the designs we considered No. 1 a little overdone at the bases, No. 2 just a shade too thin, and No. 3 altogether too light for a dinner table. In the class for six button-hole bouquets eight sets were staged, all in character, though materially varying in style, Mr. Cypher leading; Mr. George Jacob, Barton, Headington, Oxford, second, and Miss Thorne, Oxford, third. Hand bouquets were few, the premier in the open class falling to Mr. F. Perkins for a real beauty, in which *eucharis*, *gardenia*, *tuberose*, *parcratums*, *bouvardia*, small white and cream rosebuds, were relieved by delicate young shoots of deep bronzy red drooping foliage of *Maréchal Niel* rose. In the amateur division Mr. E. Thorne had the card. Thirty-six bouquets produced three sets. The first place was filled by Mr. F. Perkins; Miss Watson-Taylor, Headington, Oxford, and Mr. George Jacob, being adjudged equal seconds.

ROSES for the season were good. For twenty-four and twelve Mr. Perkins had the best; his leading blooms were *Comtesse d'Oxford*, *Général Jacqueminot*, *Princess Beatrice*, *Dr. Andry*, *Mme. E. Verdier*, *Charles Lefebvre*, *Comtesse de Serenye*, *Rev. H. Eaton*, *Mme. H. Jamain*, *Baroness Rothschild*, *Duke of Edinburgh*, *La France*, *Maurice Bernardin*, *Mme. Victor Verdier*, *Antoine Mouton*, *Mlle. A. Wood*, *Mlle. M. Finger*, *Alfred Colomb*, *Belle Lyonnaise*, *Beauty of Waltham*, *Gloire de Dijon*, and *Marie Baumanu*; Miss Watson-Taylor second. In the amateur division Mr. Thorne had a fine box of stout blooms, fully maintaining the character of the "Oxford roses," comprising *Charles Lefebvre*, *La France*, *Star of Waltham*, *Baroness Rothschild*, *Pierre Notting*, *Niphetos*, *Louis Van Houtte*, *Marie Baumann*, *Mlle. M. Finger*, *A. K. Williams*, and *Mme. Verdier*. Mr. Thorne also staged the only collection of twenty-four varieties of garden flowers in bunches.

DAHLIAS.—In the absence of two or three large growers in the neighbourhood, the best box came from Mr. D. Shelswell, farmer, near Banbury, who had well-finished blooms of *W. Rawlings*, *Emily Edwards*, *Amy Robsart*, *John Wyatt*, *Charles Lidgard*, *Prince of Denmark*, *Toison d'Or*, *Julia Wyatt*, *The Countess*, *Charles Wyatt*, *Rosy Morn*, and *Johnny Ludlow*. In this section a brilliant display was made by the boxes staged by Mr. Charles Turner, Slough, who in his usual good form put up blooms of the following standard varieties: *Alexander Cramond*, maroon; *Champion Rolls*, orange, shaded lighter; *George Rawlings*, blackish maroon; *Burgundy*, dark puce, shaded maroon; *Constance*, yellow, edged lake; *Goldfinger*, yellow tipped red; *Royal Queen*, primrose-yellow, edged purple; *William Rawlings*, purplish crimson; *Herbert Turner*, French white, tinged lilac; *John Standish*, brilliant red; *Rev. J. Godday*, maroon, shaded; *Joseph Green*, rich crimson; *Hon. Mrs. P. Wyndham*, yellow, edged purple; *James Vick*, maroon, purple shade; *John Bennett*, yellow, edged scarlet; *John Wyatt*, crimson-scarlet; *Julia Wyatt*, cream-white; *John Neville Keynes*, yellow; *Joseph Ashby*, orange shaded; *Prince Bismarck*, puce purple; *Prince of Denmark*, dark maroon; and *H. W. Ward*, yellow, heavily shaded with crimson. In addition to the above, Mr. Turner also staged a collection of

SINGLE DAHLIAS in bunches in the following varieties:—*Paragon*, rich maroon, with distinct purple band round each petal; *Foxhall*, glowing crimson; *Atrosanguinea*, deep crimson; *Canary Bird*, canary-yellow, a telling flower; *Dash*, very dark crimson; *Firefly*, orange-scarlet; *Le Baron*, purplish crimson; *Mauve Queen*, very rich mauve; *Yellow Queen*, pale yellow; *Duke of Teck*, deep rose; and *Cervantesi*, brilliant scarlet; this exhibit was honoured with a first-class cultural certificate. One other floral extra was a collection of bunches of trusses of double and single zonals grown by Mr. Slarke, gardener to Earl Ellesmore and staged by Mr. H. Deverill, seedsman, Banbury.

FRUIT was always a great feature at Banbury, and on this occasion was in profusion, the collections being altogether choice. Very superior grapes were staged, the varieties being *Black Hamburg*, *Alicante*, *Duke of Buccleugh*, *Buckland Sweetwater*, *Bowood Muscat*, *Muscat of Alexandria*, and *Gros Guillaume*. Peaches embraced fine dishes of *Lord Palmerston*, *Royal George*, and *Noblesse*; Nectarines were *Pitmaston Orange* throughout. There were many fine dishes of *Moor Park* apricots; *Pond's Seedling*, *Magnum Bonum*, *Jefferson*, *Orleans*, and *Greengage* plums; very fine dishes of *Bourré d'Amanlis*, *Williams's Bon Chrétien*, *Jargonelle*, and *Windsor pears*; while dessert and kitchen apples were large and in plenty. Some good pines and vines in pots completed the list.

VEGETABLES filled two large tents, the cottagers' collections being displayed on the turf outside. Space forbids a too minute reference to all the good things. Suffice it to remark that cucumbers, peas, beans, carrots, and parsnips were

never better shown than on this occasion, the pansies by Colonel North being unusually good.

ONIONS have for the past thirty years been a feature here, and although the competitors of late have lacked the keenness that once pervaded this particular August show, still there has always been sufficient interest taken to maintain the character and perfect form of the strain known in commerce as the "Banbury Onion." Mr. T. A. Taplin, Banbury, who formerly devoted much time to this particular "fancy," has again taken up the matter. At present the "Rousham Park Hero" is in the field; this is said to be a cross between the Banbury and White Globe. On this occasion Mr. H. Deverill, Banbury, staged a very large number of ripe bulbs, grown by Henry Wingrove, Rousham Park, Oxon, the raiser of the variety.

POTATOES.—As we have had to remark in previous reports, the "noble tuber" finds great favour in this neighbourhood, and although the disease has made, and is still making, sad havoc in the gardens in and near the town, by decimating the crop, there were close on 3,000 really handsome, clean specimens staged in competition. In the class for nine dishes, nine tubers each, A. R. Tawney, Esq., was awarded the post of honour for Snowdrop Kidney, Red Walnutleaf, Woodstock Kidney, American Purple, Mona's Pride, Lye's Favourite, Grampian, Pride of Ontario, and King Noble, all handsome and bright; Mr. Tom Tooley, second, with Woodstock Kidney, American Purple, International, Mr. Bresee, Magnum Bonum, Queen of the Valley, Triumph, Beauty of Kent, and Bresee's Peerless; Mrs. Willes third with Suttons' Hero, Trophy, International, Beauty of Kent, Edgecote Seedling, Blanchard, Vicar of Laleham, Schoolmaster, and Bresee's Prolific. The other sets contained, in addition to the above-named, Fiftyfold, Porter's Excelsior, Ashleaf, Garibaldi, Reading Russet, Radstock Beauty, Wonderful Red, and Peerless Rose. In the competition for single dishes the awards were: White Kidney—first, A. R. Tawney, Esq., with Woodstock Kidney; second, Captain Bynon, with Woodstock Kidney (the two dishes were splendid samples); third, Colonel North, M.P., with Edgecote Seedling. Red Kidney—first, Mrs. Willes, with Trophy; second, A. R. Tawney, Esq., with American Purple. Red Round—first, Mrs. Willes, with Vicar of Laleham; second, A. R. Tawney, Esq., with Grampian. White Round—first, Mrs. Willes, with Excelsior; second, A. R. Tawney, Esq., with Schoolmaster. In the amateur section, for White Kidney—first, Mr. John Baker, Bampton, with International (a little discoloured); second and third, Mr. W. P. Ellis and Mr. Tom Tooley, with the same variety. White Round—first, Rev. C. T. Porter, with Peerless; second and third, Mr. J. Baker and Mr. S. Gulliver, with Schoolmaster. Red Kidney—first, Mr. R. Gunthorpe, Buckingham, with Trophy; second, Mr. George Barnes, with Beauty of Hebron. Red Round—first, Mr. J. A. Taplin, Horse Fair, Banbury, with Red Emperor; second, Mr. W. P. Ellis, with Grampian. In the cottagers' division the leading dish of Kidneys was staged by Anthony Tustain, Barford, Banbury, with International; in a corresponding class (not kidney) the card went to John Eden for Peerless. The collections of potatoes by cottagers were not so numerous, but we give the varieties of the winning collections; the first card going to Eli Lee, Bodicotte, who staged very bright dishes, nine tubers each, of Magnum Bonum, Garibaldi, Climax, Red Emperor, Pride of America, Black Albany, a deep purple kidney, Woodstock Kidney, Triumph, International, Pride of Ontario, Trophy, Schoolmaster, Beauty of Kent, Radstock Beauty, Reading Russet, Bresee's Peerless, Early Rose, Blanchard, Prizetaker, Beauty of Hebron, Vicar of Laleham, Mr. Bresee, Queen of the Valley, and American purple, grown on a brassy soil; the second prize falling to Jonas Horton, Tysoe, Warwick, who had dishes (nine tubers each) of Early Rose, International, Johnston's Downshire, King Noble, Manhattan, Satchel, King of the Kidneys, Woodstock Kidney, Ice Cream, Brownell's Beauty, Myatt's Ashleaf, Bourbank's Kidney, Prolific, Grampian, Early Coldstream, Blanchard, American Purple, Bread Fruit, Snowflake, Triumph, Schoolmaster, Early Snowdrop, Vicar of Laleham, and Bresee's Peerless and Prolific, grown on heavy land, yet bright.

The judges for the day were—flowers and fruit, Mr. C. Turner, Slough, and Mr. W. J. Daniells, Swyncombe Park, Oxon; and for vegetables—Messrs. W. Crump, Ranelagh Nursery, Leamington, and Mr. Hope, gardener to Earl Jersey, Middleton Park, Oxon. The arrangements were under the direction of Mr. E. J. Hartley, the hon. sec., and went smoothly.

The attendance was very large, although previously to the hour of opening the show very heavy rain had fallen.

Mr. H. Deverill, Cornhill, Banbury, entertained the judges and gentlemen's gardeners, fully sustaining the character of "Gaius mine host" on the occasion.

Oxford.

WILLIAM GREE WAY.

SHAFTESBURY PARK GARDEN IMPROVEMENT SOCIETY.

The second annual exhibition of the society was held a few days since in the Board Schools on the Shaftesbury Park Estate, and was so far superior to that of last year as to afford the best possible proof of the good work that is being done in the district in the development of a taste for floricultural pursuits. Provisions were made in the schedule for almost all classes of plants suitable for cultivation in windows and gardens in town districts, and the whole of the prizes were contested with much spirit. Not only was the competition much keener than at the first show, but the whole of the specimens were much finer, and they produced a display of great interest.

The productions of the residents on the estate, to whom the competition was confined, were supplemented by the contributions from several nurserymen. Messrs. J. Veitch and Sons, Chelsea, exhibited a very large and most attractive collection of flowering and ornamental-leaved plants, which included several of the most beautiful nepenthes and sarracenias. Messrs. J. Laing and Co., Forest Hill, sent a beautiful group, and from Mr. Charles Turner, Slough, and Messrs. H. Cannell and Sons, Swanley, came numerous boxes of double and single dahlias, which produced a very attractive display.

In justice to Mr. B. Wynne, the honorary secretary, it must be added that the arrangements were as complete and as satisfactory as could well have been wished.

DESERTED PROPERTY IS NEVER SACRED.—A piece of garden land at Upton, West Ham, having been set apart for building purposes, many people in the neighbourhood conceived the idea that the potatoes and onions growing thereon were to be had for the taking, and some two hundred women and children proceeded to help themselves in a liberal way. As a means of dispelling this notion, the proprietor summoned a large number of the women and children who had thus helped themselves, and they were fined by the local magistrates.

ART IN JAPAN.

By C. PFUNDEN. Read at a meeting of the Society of Arts.
(Concluded from page 470.)

THE folk-lore furnishes a fruitful source of artistic motive, but I necessarily leave what I desire to say concerning that for the pages of a volume that I have in preparation.

The proverbial lore is also a prolific field, as is characteristically shown in the following specimens:—

SELECTION OF JAPANESE PROVERBS.

- "If dogs go about, they must expect the stick."
- "Before argument, proof."
- "Before flowers, dumplings."
- "Hated children fear not the world."
- "Thankless labour gains fatigue."
- "To speak loud, and purse the lips."
- "Rubbish accumulated, a mountain arises."
- "Lepers are envious of those with sores."
- "Through the hollow of a rush to view the heavens."
- "Good physic is bitter."
- "Be careful to be careful."
- "Offensively-smelling people are unconscious of it."
- "Cheaply purchased, money thrown away."
- "To give in and to win."
- "Above the eye a wen."

Domestic felicity and contentment must have been important factors in the art-thought of the people; the æsthetic artistic constitution may never have been very highly stimulated, as it is often with our artists, yet the natives of all classes were ever within the circle of refining influences. The sons and daughters of the lowly were constantly holding intercourse with the cultivated, and it was common for those of wealth and position to have a numerous retinue of their social inferiors, who accept the nominally semi-menial positions for the sake of the culture to be gained by such intellectual home-life.

That home-life and domestic felicity varied very much from ours is not to be wondered at, but I must do the people of Japan the scanty justice to say that, with all the freedom and much talked of laxity, there was a very high tone of social morality practised. The Japanese have never been unclean birds, defiling their own nests. There has always been a perfect system of discipline, an unflinching courtesy, and mutual considerations, and the somewhat public life, even indoors, precluded the exercise of that selfishness in the home circle but too sadly common in many other civilized lands.

Art patrons and art workers were alike surrounded with the means of thoroughly enjoying life; youthfulness was not suppressed, and age was dignified, yet ever happy, on seeing the young happy also. At an early age in Japan the heir is appointed, and the senior retires from the active participation in the cares of life as soon as the successor is capable of conducting the business, or of filling the official position. The poor gentleman, and the humbler class of officials and pensioners of old supplemented their income with the proceeds of some occupation, and it was such as these who produce much of the curious and beautiful art works now becoming most scarce in the land of their production.

Art at home in Japan penetrated beyond the mere heirlooms and treasures rarely seen; the living rooms, garden, and even out-offices exhibited an artistic good taste suitable to the position of the family. An appreciation of the fitness of all things was ever most markedly observable. The articles of daily use were not the beautiful lacquer and porcelain ware of festive occasions, for utility and economy were first considerations. Keeping up appearance was never very popular in Japan, save and except the rivalry between the softer sex in the matter of wardrobes.

The love of nature and rural surroundings prompted a garden, or, at least, a miniature of one, and pots of flowers of the season were plentiful and cheap, so that the poorest could, to some extent, satisfy their intense craving for beautiful natural objects. The architecture can only be passingly alluded to, but the illustrations of it exhibited on the walls will give a better idea than any elaborate word-picture could. The interior decoration was always most chaste; the family cognizance usually formed an integral part of the design of the pattern of the paper, the metal fittings, and other details. Partitions being sliding panels, six feet high, in pairs and fours, filling spaces of six, nine, or twelve feet; the inner slides were papered, and often decorated by hand, while the outer slides were covered with a thin paper: glass has only very recently been used to any extent. The space between the slides and the ceiling was, between suites of rooms, filled with carved ornamental woodwork; the ceiling itself of Cryptomeria. Furniture proper there was none; the mats formed bed and lounge; it was made of thick straw padding, with a finely woven mat of *Juncus effusus*, *Isolepis* and *Cyperus rotundus*, neatly bordered. There was in each room an alcove, in which to hang a picture and place a vase of flowers, and a recess with shelves was sometimes added. All household and domestic conveniences, table ware, &c., were moveable, and brought from the out-offices as required. In summer a small box, with charcoal for the smokers, and in winter large braziers to heat the apartments, being used, there was little smoke, and no fireplace and dust and coal. Chests of drawers were placed in recesses in the women's apartments, while in the smaller houses cupboards were concealed by neatly papered sliding doors.

The decoration of costumes of ladies of the palace, and the gala robes of the young girls of all classes, but more especially of dancers and singers, gave ample room for the display of the art of the dyer, embroiderer, and painter. The materials being purchased in the piece uncoloured, pattern books were furnished—the more artistic had special designs—colours being selected by the ladies of the establishment, after much discussion, very much like that which takes place here at home; this feminine delight had its chief reward when the wardrobes were periodically aired under the eyes of admiring, and often envious and critical, neighbours. Some of these robes are elaborate and beautiful works of artistic skill. The family crest is sometimes figured on either three or five places, the chieftain wearing it about the size of a florin, and the retainer much larger, on back, sleeves, and breast. Nude art has had no place in Japan; robes were worn as an ornament, rather than as something to conceal the figure: an accidental display of charms carried no immoral consciousness with it, and there was a blissful ignorance of the utility of prudery. Indeed, apart from foreign influence, the purity of thought, of even the common people, is very remarkable. The fancy articles of personal wear or ornament were never numerous, costly rings and jewellery not being in use. The ladies delighted in amber-coloured tortoiseshell hair-pins and a comb; beads of pure pink coral and of amber were worn on silver or silver-gilt hair-pins; but it was the tobacco pipe, pouch mountings, and pocket-book clasps where display was most common

The *Inro* (*chateleine*) we know, as the little medicine boxes in five pieces, were universally worn; but all these were hung from the girdle by the *netzukies* (buttons), which, of late, have grown to such a large size in response to the universal foreign demand for these curious carvings.

A mere enumeration of the art-productions of Japan would occupy a very large space; but of the old ware, not specially made for foreign markets, the bulk of the lacquer we have received consists of portions of the bridal outfits of the noble and wealthy maidens of Old Japan. Vases and other articles were rarely made in pairs; this is purely a foreign taste. Of the innumerable household articles of daily necessity, or of luxury in Japan, few things come to us, and of the articles most commonly met with here, few are to be seen amongst the natives who are fortunate in not having as yet acquired foreign tastes and doubtful habits.

Japanese ware, no doubt, found its way West long before the advent of Europeans there; coming through China, the Arabs, and India. Any account of the modern art-productions would be out of place here, in speaking of the art of Japan as seen in the homes of the people. The evil influences I have already more than once alluded to, as exercising such very baneful effect on Japanese art, it appears to me have risen in the advice of the low and illiterate class of natives, who have had the trade with foreigners in their hands. These men formerly peddled their wares amongst the foreign shipping and the residences of foreigners. They were, unfortunately, credited by their countrymen—who kept aloof from the detested foreigners—with having a knowledge of the predilections of their customers; the tastes of the man-of-war's-men, and of the merchant seamen, were confounded with the ideas picked up from the better class, which were most frequently misunderstood. The result is, as we see, a hybrid meretricious class of work, that is by no means a credit to, or likely to sustain the reputation of, this people, hitherto the most artistic nation in existence.

This wholesale production of cheap ware is destroying the old art, and has already proved fatal to much that was most beautiful in the indigenous art of Old Japan.

Concluding this somewhat lengthy communication, I proceed to describe the designs of some of the articles before the meeting, which I am enabled to exhibit through the kind liberality of Mr. Cornelius Pare, of Messrs. Londo and Co., London Wall, and also to draw attention to about three hundred sketches that I have selected from my own collection, as well as several scrap books filled with popular sketches and scraps, artistic and pictorial.

Of these designs, there are many that are most frequently met with, and regarding which some erroneous ideas are being perpetuated:—The Plum, the first flower of spring, is mistaken for the hawthorn; the carp is erroneously described as a salmon; the long-nosed gnomes are not understood, they are simply a caricature of pedantry. But the greatest mistake is confounding China with Japan. We might as reasonably associate France and Germany, or Italy and Scandinavia together. Even those who have lived in Japan frequently blunder in this way.

The interest of any work must be enhanced when we know the motive of the artist; but the fire of our enthusiasm of necessity expires where there is want of fuel. There has always been great difficulty in obtaining any authentic detailed information; residents abroad are most apathetic, and the native students who come here have not the information we seek. Those who visit the country get into the wrong groove, and fail, in consequence, to obtain the particulars we most want. A good book on these subjects is much needed, for the tyro has to wade through hundreds of volumes, and finally becomes bewildered before finding "the ha'porth of bread amongst so much sack."

Lord Derby is said to have once remarked, at Liverpool, that there were not six men in England competent to speak on art. What must such art be, when it goes so far over our heads that we cannot even see it in its flights? Rather, like the art of Japan, let our art become popular, let it appeal to our feelings, and make us better men. I say, let art descend, that it may reach the lowliness of our nature, and rise once more, bearing us with it. Such is the lesson I would ask you to learn from the art of Old Japan.

THE DAISY ON THE LAWN.

UPON a spot, which once had been
A green and velvet lawn,
A daisy, like a pigmy queen,
Open'd its eye at dawn.

And there, with sacrilegious mirth,
It sow'd its seed around,
Until a colony came forth,
And occupied the ground.

The gardener saw it—scratched his head

(Superfluous, 'twas indeed),
And this he to the daisy said:
"You are a worthless weed."

"You've spoilt my lawn, you little scrub,
The lawn I kept so nice,
You're wuss than any fly or grub,
Or warmint rats and mice."

"Thom nettles has a nastly sting,
A-growing everywhere:
You're wuss than them—like anything
You make a fellow swear."

"Dogs is a thing I always call
Nastly trub-hull-sum curs:
You're wuss than them—more plague
than all,
My precious kew-kum-bors."

"You please the childer, some folks say,
And when I was a brat,
Wolsten."

I loved you in a sorter way;
But now what matters that?
"I thirst for blood! Revenge I'll take,"
Between his teeth he said;
He did a desperate effort make
To crush its shining head.

He raised his ponderous blucher high
Above its hapless crown;
He swung it up towards the sky,
And brought the monster down.

And with such force did it rebound,
That in his passion's pitch,
It lifted him from off the ground,
And roll'd him in the ditch.

MORAL.

Kind reader, I a moral give
(Don't twist your thumbs and yawn),
All daisies will for ever live,
And some upon the lawn.

In vain you crush them, all in vain,
Unless same poet lies:
"The rose has but a summer's reign,
The daisy never dies."

So when you see one, passing by,
Don't raise your foot, I beg;
And if you've taken drink don't try
To stand upon one leg.

G. BRYAN.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London. [ADVT.]

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "Sapo Carbonis Detergens" (as doctors prescribe) impressed on each tub et and wrapper, without which none is genuine. [ADVT.]

Obituary.

ON the 24th August, at Atherton Grange, Wimbledon, Mr. JOHN DILLWYN LLEWELYN, F.R.S., of Penllergare, near Swansea, in the seventy-third year of his age. He was the eldest son of the late Mr. Lewis Weston Dillwyn, some time M.P., for Glamorganshire, by marriage with Mary, daughter and heiress of the late Mr. John Llewelyn, of Penllergare, whose name he assumed. He was a magistrate and deputy-lieutenant for Glamorganshire, of which county he served as high sheriff as far back as the year 1834. He was also a magistrate for Carmarthenshire and Brecknockshire. He was a man of high scientific attainments, like his father, and one of the oldest members of the Royal Society.

Markets.

COVENT GARDEN.

FRUIT.

Apples.....per ½ sieve	3s. 0d. to 4s. 0d.
Figs.....per doz.	2s. 0d. „ 3s. 0d.
Grapes.....per lb.	1s. 0d. „ 3s. 0d.
Lemons.....per 100	5s. 0d. „ 8s. 0d.
Melons.....each	2s. 0d. „ 4s. 0d.
Peaches.....per doz.	2s. 0d. „ 3s. 0d.
Pears.....per 100	1s. 0d. „ 2s. 0d.
Pine-apples, Eng. „ per lb.	3s. 0d. „ 4s. 0d.
Plums.....per ½-sieve	5s. 0d. „ 7s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Beans, French „ per lb.	0s. 2d. „ 0s. 3d.
Beet „ „ per doz.	1s. 0d. „ 1s. 6d.
Cabbages.....	0s. 9d. „ 1s. 6d.
Carrots.....per bunch	0s. 4d. „ 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. „ 3s. 0d.
Cucumbers.....each	0s. 4d. „ 1s. 0d.
Endive.....per doz.	1s. 0d. „ 1s. 6d.
Garlic.....per lb.	0s. 10d. „ 1s. 0d.
Herbs.....per bunch	0s. 2d. „ 0s. 4d.
Horse-radish, per bundle	3s. 0d. „ 4s. 0d.
Lettuces, Cabbage, per dz.	0s. 6d. „ 1s. 6d.
Lettuces, Cos.....	0s. 6d. „ 1s. 6d.
Mushrooms.....per basket	1s. 0d. „ 3s. 0d.
Onions.....per bushel	3s. 6d. „ 4s. 6d.
Onion Spring.....per bunch	0s. 4d. „ 0s. 6d.
Parsley.....	0s. 4d. „ 0s. 6d.
Peas.....per quart	1s. 6d. „ 2s. 6d.
Radishes.....per bunch	0s. 1d. „ 0s. 2d.
Small Salading „ per pun.	0s. 3d. „ 0s. 4d.
Spinach.....per bushel	2s. 6d. „ 3s. 0d.
Tomatoes.....per lb.	0s. 6d. „ 1s. 0d.
Turnips.....per bunch	0s. 4d. „ 0s. 6d.
Vegetable Marrows „ doz.	2s. 6d. „ 3s. 0d.

FLOWERS.

Abutilons, per doz. blooms	0s. 2d. to 0s. 4d.
Bouvardias „ per bunch	0s. 9d. „ 1s. 6d.
Calceolarias, per doz. bun.	5s. 0d. „ 10s. 0d.
Eucharis „ per doz.	2s. 6d. „ 6s. 0d.
Fuchsias „ per doz. bun.	5s. 0d. „ 6s. 0d.
Gardenias, per doz. blooms	2s. 6d. „ 6s. 0d.
Glaudioli „ per doz. bun.	7s. 6d. „ 10s. 0d.
Heliotropiums „ sprays	0s. 6d. „ 1s. 0d.
White Jasmine, doz. bun.	4s. 0d. „ 7s. 0d.
Lapagerias, per doz. bims.	1s. 0d. „ 5s. 0d.
Liliums „ per doz. blooms	2s. 6d. „ 4s. 0d.
Marguerites, per doz. bun.	3s. 0d. „ 5s. 0d.
Mignonette „	3s. 0d. „ 5s. 0d.
Sunflowers, per doz. bims.	1s. 0d. „ 2s. 6d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d. „ 0s. 6d.
Roses „ „ per doz.	0s. 6d. „ 2s. 6d.
Roses, Tea „ „	1s. 0d. „ 1s. 6d.
Stephanotis, per doz. sprays	3s. 0d. „ 6s. 0d.
Stocks „ per doz. bun.	3s. 0d. „ 4s. 0d.
Tropeolum „ „	1s. 0d. „ 2s. 0d.

HAY MARKET.

WHITECHAPEL.

Prime Clover.....per load	120s. to 145s.
Interior do.....	75s. „ 90s.
New do.....	90s. „ 110s.
Prime Meadow Hay „	100s. „ 128s.
Interior do.....	55s. „ 90s.
New do.....	70s. „ 95s.
Straw „ „	30s. „ 45s.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.

Kent Regents, per ton	90s. 0d. to 0s. 0d.
„ Kidneys „	100s. 0d. „ 0s. 0d.
Essex Regents „	80s. 0d. „ 90s. 0d.
„ Magnum Bonums „	90s. 0d. „ 100s. 0d.
Lincoln Kidneys „	90s. 0d. „ 100s. 0d.
„ Magnum Bonums „	90s. 0d. „ 100s. 0d.

CORN.—MARK LANE.

Wheat, Red, new.....per qr.	33s. to 50s.
Wheat, White, new „	33s. „ 52s.
Flour, town-made whites, per sack of 280lbs.	33s. „ 45s.
Flour, households „	35s. „ 37s.
Flour, country households, best makes „	34s. „ 40s.
Flour, Norfolk and other seconds	30s. „ 32s.
Barley, Malt „ per qr.	30s. „ 50s.
Barley, Grinding „	20s. „ 30s.
Malt, English „	35s. „ 50s.
Malt, Scotch „	35s. „ 43s.
Malt, old „	35s. „ 35s.
Malt, brown „	30s. „ 32s.
Oats, English „	22s. „ 30s.
Oats, Irish „	22s. „ 26s.
Oats, Scotch „	22s. „ 30s.
Rye „	42s. „ 45s.
Beans, English, Mazagan „	30s. „ 40s.
Beans, Tick „	33s. „ 44s.
Beans, Winter „	33s. „ 44s.
Peas, Grey „	30s. „ 36s.
Peas, Maple „	40s. „ 45s.
Peas, White „	30s. „ 44s.

METROPOLITAN MEAT MARKET.

Beef, prime small, per 8 lbs. 5s.	0d. to 5s. 4d.
Beef, prime large „	4s. 8d. „ 5s. 0d.
Beef, middling „	4s. 0d. „ 4s. 6d.
Beef, inferior „	3s. 0d. „ 3s. 8d.
Mutton, prime „	5s. 6d. „ 6s. 4d.
Mutton, middling „	4s. 4d. „ 5s. 4d.
Mutton, inferior „	3s. 6d. „ 4s. 0d.
Lamb „	6s. 4d. „ 6s. 8d.
Veal „	5s. 0d. „ 5s. 4d.
Pork, small „	4s. 8d. „ 5s. 0d.
Pork, large „	4s. 0d. „ 4s. 6d.

GAME AND POULTRY.

LEADENHALL.

Turkey poults.....	5s. 0d. to 7s. 6d.
Geese „	5s. 0d. „ 7s. 0d.
Ducks „	1s. 0d. „ 2s. 6d.
Ducklings „	2s. 0d. „ 4s. 0d.
Fowls (Surrey) „	3s. 0d. „ 4s. 6d.
Fowls (Sussex) „	2s. 6d. „ 4s. 6d.
Fowls (Boston) „	1s. 9d. „ 3s. 0d.
Fowls (Irish) „	1s. 6d. „ 2s. 3d.
Hens (live) „	1s. 3d. „ 2s. 6d.
Rabbits (Tame) „	1s. 3d. „ 2s. 6d.
Rabbits (Wild) „	0s. 9d. „ 1s. 4d.
Pigeons „	0s. 7d. „ 0s. 11d.
Pigeons (Wood) „	0s. 6d. „ 0s. 10d.
Hares „	3s. 0d. „ 3s. 6d.
Hares (White) „	2s. 0d. „ 2s. 6d.
Grouse „	1s. 6d. „ 3s. 6d.
Black Game „	2s. 6d. „ 3s. 6d.
Quails (Live Italian) „	0s. 6d. „ 0s. 9d.
Roe deer „	18s. 0d. „ 25s. 0d.
Venison (Haunches) „	24s. 0d. „ 35s. 0d.
Eggs „ per 12 „	10s. 0d. „ 11s. 0d.
Eggs (Second-) „	8s. 6d. „ 9s. 0d.

COAL MARKET.

East Wylam „ per ton	15s. 6d.
Walsend—Hetton „	18s. 6d.
„ Hutton Lyons „	18s. 0d.
„ Lambton „	18s. 0d.
„ East Hartlepool „	17s. 3d.
„ Wear „	16s. 0d.
„ Tees „	18s. 6d.
Ravensworth West Hartley „	15s. 0d.

MONEY MARKET.

Consols „	90½ to 90½
Reduced 3 per cent. „	90½ „ 90½

Replies to Queries.

J. H.—We know nothing of the person you inquire about; his name is not in any modern directory.

E. P. W., Stanford.—The cuckoo-spit is the soft or larval body of a brown jumping insect of the homopterous order, named *Aphrophora spumaria*.

F. E. F.—We could not make any suggestion as to the value of the orchids; they must be seen and valued in a systematic manner by a trader in such things if a trustworthy estimate is required. We never touch in any way the commercial part of horticulture.

W. W.—A tenant may not legally remove trees of any kind without the permission of the landlord. As a matter of fact, tenants do pretty much as they please in this matter, and it is but seldom the question of right is raised. But the law, when appealed to, will decide that all trees and shrubs belong to, and are parts of, the freehold.

Names of Plants.—A Reader.—1, *Euryales australasica*; 2, *Polypodium aureum*; 3, *Adiantum tenerum*; 4, *Adiantum concinnum latum*; 5, *Adiantum assimile*; 6, *Adiantum capillus-veneris*. J. Parsons.—1, *Cuphea pinetorum*; 2, *Cuphea Ximpani*. B. H.—There is no general index to the *Botanical Magazine* complete to the present, or any recent date. As the centenary of

the work is near at hand, it is possible, and it is certainly desirable, that the several indexes published at various times up to Vol. XXVI. should be melted down and augmented as a key to the whole work for one hundred years.

Pyrethrums.—R. Hadley.—There is no reason for any special consideration of your case. You need not suspect any one of injuring your pyrethrums, for their decline is strictly in accordance with the natural habit of the plant, which never lasts long if left undisturbed. Yours have been planted three years and have flowered profusely and are now apparently dying. It is a case of exhaustion and nothing more. In some gardens pyrethrums last only two seasons, in some three or four, and the lesson is that they should be periodically, say every alternate year, taken up and divided and planted in fresh soil. It is fortunate for those who appreciate these useful flowers that a good collection of thrifty young plants may be purchased for a very small sum, and need never be lost if care is taken to make a new plantation every second year. You will find this and much more in our papers on the subject.

Plantain on a Lawn.—M. C.—This is a subject we have frequently to consider for our friends, and at different times we have treated it in a variety of ways. It is clear the surest way to eradicate plantains, as well as dandelions and other weeds, is to dig them out. There are tools made for the purpose that are obtainable of most ironmongers. But a shorter way is wanted. When there are not many coarse weeds on a lawn the shortest way of all is to sprinkle over them fresh guano or some other equally powerful manure. This process kills the weed and makes an unsightly brown blotch. This, however, soon disappears, for the grasses and clovers run in and cover the spot the manure has enriched. When plantains abound, hand sprinkling becomes too great a task. Then a thin and careful dressing of the whole surface becomes necessary, and although guano or Clay's Fertilizer will be best for this purpose, Watson's lawn sand will prove cheaper than either, though less safe, because it is rather difficult to spread it thinly. It should be observed that where there is something like a good turf already, surface manuring will always improve it and at the same time will always tend to eradicate weeds. We have used guano on a coarse weedy lawn until it became as fine as velvet.

Planting a Bank with Roses.—P. M. K.—Your border eighty-five feet by eight feet wide will probably look best and thrive best if planted wholly with dwarf roses on their own roots; or, failing to obtain them, with roses worked on manetti stocks. A few standards might be mixed with them, but we do not recommend them. Let the ground be well prepared some time before planting, and buy and plant as soon as possible, even if the plants are still green and growing. You will require from 100 to 120 plants. In planting, we should put down the line at three and a half feet from the rear fence for a row of the most vigorous-growing roses, dwarfs or standards. In this row at four feet apart there will be room for twenty roses. The next row may be three feet forward, and should comprise varieties of medium vigour, say about thirty plants at three feet apart. Between this row and the walk there will be a space of eighteen inches, in which may be planted for a front line a selection of diminutive Chinas and Provins roses to the number of about sixty. In the first year after planting the plantation will have a bare appearance, and you will have to fill out with annuals or tallish bedders, or perhaps better still would be hollyhocks and phloxes. For the back row the following would be suitable—Blairi No. 2, Duchess of Bedford, Duchess of Sutherland, Gloire de Dijon, John Hopper,

Jules Margottin, Madame Boll, Victor Verdier, Countess of Rosebery, Lord Macaulay, Madame Victor Verdier, Marie Baumann. For the next row the following are suitable: Alfred K. Williams, Anna Alexieff, Beauty of Waltham, Charles Lefebvre, Dr. Andry, La France, Madame Rivers, Madame William Paul, Queen of bedders, Avocat Duviervier, Baronne de Maynard, Crimson Bedder, Edouard Morren, Mdle. Bonnaire, Général Jacqueminot. For the front line you may with advantage take De Meux, Mrs. Bosanquet, Fabvier, Henry V., Cramoisie, Dueher, Eugène Beauharnais, Fellenberg. It is possible we have named too many sorts, in which case you may decide when you purchase which of them to reject, your aim being of course to secure strong plants, and to repeat them as needful to make up the number.

Notes of Observation.

RUDBECKIA HIRTA.

ALL kinds of single flowers appear to be considerably in favour at the present time for decorative purposes. When a good rich yellow is required I find this old-fashioned Rudbeckia extremely useful, as it lasts a considerable time in perfection after cutting. Large clumps are also very effective in the shrubbery border.

The Nursery, West Drayton.

R. B. MAKOWSKI.

HELIOTROPIMUM WHITE LADY AND PRESIDENT GARFIELD.

Among the numerous heliotropiums now in cultivation these two new varieties are perfectly distinct in colour, very free flowering, and of an excellent habit.

R. B. M.

ALTERNANTHERA PARONYCHIOIDES AUREA.

This proves most attractive in company with the darker varieties, and is worthy of attention from all interested in carpet bedding. The growth and habit of the plant are all that could be desired, and the colouring very rich.

R. B. M.

TRADE CATALOGUES.

E. H. KRELAGE AND SON, HAARLEM.—Wholesale Catalogue of Dutch Flower Roots, Miscellaneous Bulbous and Tuberous-rooted Plants.

DICKSON, BROWN, AND TAIT, 43, CORPORATION STREET, MANCHESTER.—Catalogue of Dutch and French Bulbs, &c.

WEBB AND SONS, WORDSLEY, STOURBRIDGE.—Bulb Catalogue, 1882.

SUTTON AND SONS, READING.—Bulb Catalogue, 1882.

JOHN LAING AND CO., FOREST HILL, LONDON, S.E.—Catalogue of Dutch Bulbs and Flower Roots, Roses, Begonias, &c.

JAMES VEITCH AND SONS, CHELSEA, LONDON, S.W.—List of Select Strawberries.

HOOPER AND CO., COVENT GARDEN.—Autumn Catalogue of Bulbs, &c.

JAMES COCKER AND SONS, ABERDEEN.—Descriptive Catalogue of Hyacinths, Tulips, &c.

WATKINS AND SIMPSON, EXETER STREET, STRAND.—Wholesale Catalogue of Dutch Bulbs, &c.

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LINEN,
PARCHMENT,
CARTRIDGE,
AND
WATERPROOF ROSE TREE
LABELS.

For Samples and Prices,
APPLY TO
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FOR BEAUTIFUL FLOWERS AND PLANTS
Use J. Hagarty's Celebrated
GARDEN REQUISITES

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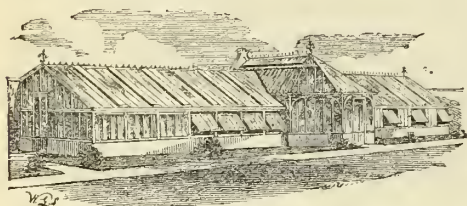
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All Advertisements for the Current Number must be sent not later than Wednesday, and for Monthly Parts not later than the 24th of each Month, addressed to the Advertisement Office of the *Gardeners' Magazine*, 148 and 149, Aldersgate Street, London, E.C.

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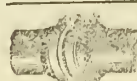
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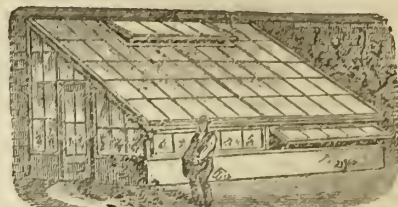
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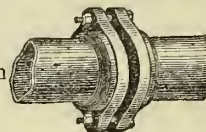
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			Rises.	Souths before Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
10	S	14th Sunday after Trinity.	5 27	3 7	6 15	3 24	5 10	0 30	0 53	9 55	10 18	58.7	Allamandi Cheloni, S. Yellow.	253
11	M	Battle of Delhi, 1813.	5 29	3 28	6 22	4 30	5 31	1 13	1 33	10 38	10 58	58.5	Bignonia capreolata, H. Orange.	254
12	Tu	● New Moon, 0h. 59m., afternoon.	5 31	3 49	6 20	5 31	5 51	1 50	2 5	11 15	11 34	58.3	Cattleya labiata, S. Rose and Crimson.	255
13	W	Charles J. Fox died, 1806.	5 32	4 10	6 18	6 37	6 10	2 20	2 35	11 45	Midn.	58.1	Lilium speciosum album, H. White.	256
14	Th	Duke of Wellington died, 1852.	5 33	4 31	6 16	7 41	6 31	2 50	3 5	—	0 15	58.0	Nierembergia Veitchii, H. Lilac.	257
15	F	Hnskissou killed, 1830.	5 35	4 52	6 14	8 43	6 54	3 20	3 35	0 30	0 45	57.8	Pentstemon ovatum, H. Red.	258
16	S	James II. died, 1701.	5 36	5 13	6 12	9 50	7 21	3 50	4 5	1 0	1 15	57.6	Torenia Fournieri, G. ... Violet and Orange.	259

The Gardeners' Magazine.

SATURDAY, SEPTEMBER 9, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, SEPTEMBER 12, ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.

WEDNESDAY, SEPTEMBER 13, AND THURSDAY, SEPTEMBER 14.—ROYAL CALEDONIAN HORTICULTURAL SOCIETY.—Great International Fruit Show at Edinburgh.

Auction Sales for the Ensuing Week.

MONDAY, SEPTEMBER 11, AT 11.30 A.M.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse Yard, E.C.; Dutch Bulbs.

WEDNESDAY, SEPTEMBER 13, AND THURSDAY, SEPTEMBER 14, AT 12 NOON.—Messrs. Protheroe and Morris, at Messrs. Smith's Nurseries, West Dulwich; Nursery Stock.

THE EXHIBITION SEASON is drawing to a close, but there are two great events in prospect for the comfort of such as cannot have too much of a good thing. On Wednesday and Thursday next will be held, in the Waverley Market, Edinburgh, the Fruit and Flower Show of the Royal Caledonian Society, which will ensure a gathering of horticulturists as well as of the results of their skill and industry in the northern capital; and "auld Reekie" will receive them in the usual jovial manner, as though Jove himself had shuffled out of Olympus to sit in Arthur's seat and there keep court awhile in the interests of horticulture. Immediately following the Edinburgh show will come the International Potato Exhibition at the Crystal Palace, Sydenham, which will make occasion for another general gathering, although, as a social attraction, "tatars" can never hope—and we aver that they do not hope—to achieve such triumphs as fruits and flowers. Therefore, as regards the final splendours that suggest the falling of the curtain, Edinburgh will probably have the best of London; but this poor metropolis can afford to be outdone now, being in some degree already overdone with floral triumphs and social festivities. As a representative exhibition in its own peculiar and somewhat narrow way, the Potato Show at Sydenham is likely to be more complete than the Fruit Show at Edinburgh, for potatoes are plentiful and fruits are scarce. But in matters of detail we shall doubtless have enough to do at the Waverley Market, for if apples are scarce there will be plenty of grapes, and if roses are over there will be dahlias and phloxes to take their place. Benighted Londoners who want a little change, and have no taste for measuring the amount of corn that is rotting on the ground, and will probably never be gathered in, may do well perhaps to join the merry throng that the Caledonian Society will be the happy means of bringing together.

The tone of the exhibition season has been satisfactory throughout. The exhibitions of Spring Flowers were equal to any in past time, and the Dahlia Show at the Crystal Palace yesterday (continuing to-day) justifies the faith in florists' flowers that has within the past two or three years acquired special significance. In the belief and hope of a certain school Floriculture had been knocked on the head, and was about to die. All double flowers and all

symmetrical flowers, and all flowers possessed of healthy colours and attractive histories were doomed to annihilation. A new taste had arisen—a most exquisite æsthetical absurdity—and ragged flowers, single flowers, flowers of a bilious colour and destitute of historical interest, were to usurp the places of the long-cherished pets of the garden that represent centuries of pious work in raising and selecting, and centuries also of civilizing and refining influences that the æsthetical rubbish of the day can have but little or no place in. Bedford Park against All England: what then? Double Dahlias of the old show type are "trash" perhaps, and we grant that they are "lumpy." But when the "trash" is staged in the near neighbourhood of the best possible collection of single flowers, it curiously happens that human eyes gravitate to the doubles, and the singles are almost entirely ignored. That the double are lumpy is true, we repeat, and the same objection may be urged against the best quality of table sugar. The æsthetical people who "doat" very much lack discrimination. The truth is that the single dahlias are at once beautiful and useful, but the two classes should never be shown side by side, and those who disparage one lot in order to exalt the other should be reminded that "comparisons are odious."

The general lesson of the season, as of several past seasons, is to the effect that in proportion to the denunciation of florists' flowers by a sect they grow in importance in the estimation of the world. The show pelargoniums have been "abolished" in the opinion of certain pretenders who abhor form and colour as properties of flowers, but the exhibition of the Pelargonium Society at South Kensington was one of the great events of the season. Wild roses are beautiful in the place that Nature and Society have assigned them; but the garden roses, representing the most popular phase of floriculture, were at the National Rose Show, far more gratifying to a proper taste than any number of flimsy wild roses. Does Nature make mistakes when she produces double flowers and loads them with colour till they emulate the rainbow or the sunset? Or has she not the rather made mistakes in fashioning men and women who can turn up their noses at such things, and pronounce them vulgar because they give delight to large humanity, while small humanity seeks separate joys, and well deserves to be separate in all sympathies. There may be a mistake for all we know, and we cherish the thought that it is not in the flowers, but in orders of being that the world derives the least imaginable advantage from. We have never doubted the soundness of floriculture as an art or its capabilities of improvement and expansion to meet the demands of time. Therefore we have nothing to unsay or to justify. But we are well within our province in expressing our satisfaction at the general prosperity and increasing importance of purely floral enterprises, and the Dahlia Show now on view at the Crystal Palace affords, we think, a proper reason for rejoicing. Floriculture, in the old-fashioned and restricted sense of the term, has been a great blessing to this country. It has exercised a domesticating influence and has made the way easy and pleasant for thousands to enter the Temple of Knowledge. Whosoever, knowing anything of the history of civilization, seriously contemns floriculture may be justly regarded as an enemy of good things, and at least a passive, if not an active, advocate of bad things. But in all probability there are none such to be found; and we may excuse the traducers of the florists and their pets by the consideration that they are simply ignorant of the subject in respect of which they pretend to be wise.

IS IT RIGHT FOR MEMBERS OF THE COMMITTEE TO COMPETE FOR PRIZES THEY HAVE THEMSELVES OFFERED? To this question we have had to reply offhand, and on reflection we are satisfied with our reply. But other folks may not be, and the question may be worth a serious discussion. In the particular case submitted to us we could see no reason whatever for excluding the committee from the competition, and we replied that if excluded they would be perfectly justified in renouncing the show and all its surroundings for evermore. The first step therefore towards the ruin of the exhibition might consist in adopting a rule to prohibit members of the committee from contributing to the exhibition. In all ordinary cases, the more numerous the exhibitors the better. It may be properly assumed that the committee consists of men who are particularly interested in the promotion of horticulture, and if the line be drawn so as to catch them in committee, and yet prohibit them from taking an active part in the show, a double injustice is done, for their ardour is rebuked in an unkind manner, and the show is despoiled of attractions they would have contributed to it. Moreover, this sort of prohibition is a kind of

insult to humanity at large, and every right-minded man may properly resent it.

We have in view in these remarks only such as may be called ordinary instances. But extraordinary instances may justify exclusion of some or even all the members of the committee. Such extraordinary cases, however, are not to be provided for beforehand by general rules. When they occur is time enough to deal with them. Suppose, for example, a member of a committee to be notoriously strong in orchids or heaths or roses, or anything else, it matters not what. Suppose, further, that this person offers a large prize out of his own pocket for a competition in which, if he exhibits, he is likely to carry all before him—in such a case good feeling and common sense will alike suggest the propriety of an announcement to the effect that the donor of the prizes will not compete for them. We will not indicate the possible complexion of the case on the supposition of the donor competing and winning, or perhaps appearing all alone “in his glory” to “walk over the course,” having frightened all other possible competitors out of the field. Committees have to be on their guard against scheduling prizes that are almost certain to fall into the hands of a few persons who have acquired great strength in certain departments. But they are not to be fearful of offering prizes that will bring in the strong men to the immense advantage of the exhibition. To draw the line fairly is not difficult. A prize or prizes strictly in accordance with the general scheme, and having a general bearing in respect to the multifarious aims of horticulture, may be put upon a broad basis, and paltry personal jealousies may be ignored. But a prize or prizes designed expressly to tempt and reward a certain person or a certain set of persons should be well considered before being sanctioned finally. It is an extraordinary case, and general rules will not apply to it. A man may openly and honestly say: “If you offer a good prize, I will exhibit this or that.” And it may be perfectly proper for a committee to make the offer knowing that this man will probably win, and in doing so will honourably *earn the money* by virtue of his contribution of plants or whatever else to the exhibition. It is desirable always that decency and order and transparency of purpose should prevail; and it is also desirable that all parties should put paltry jealousies under their feet.

“THE JOURNAL OF FORESTRY” for September contains an interesting paper on Lapland Forests, and a report of the visit of the Scottish Arboricultural Society to Loch Lomond and Gareloch.

HARBORNE AND DISTRICT POTATO EXHIBITION will be held in the Masonic Hall, Harborne, on Friday and Saturday next, September 15 and 16. Harborne is about four miles distant from Birmingham.

MESSRS. WEBB AND SONS, of Wordsley, Stourbridge, made a great display of seeds, roots, and models at the Preston Agricultural Show. The maturity of the roots shown gave peculiar interest to the collection.

DR. NEUBERT'S “DEUTSCHES GARTEN-MAGAZIN” for September contains figures of *Ophrys arachnites*, *O. muscifera*, *O. aranifera*, and *Cypripedium calceolus*. Amongst many good papers in the number is one on *Spiræas*, by Von Schinabeek.

A GARDEN FETE in aid of the Gardeners' Royal Benevolent Institution will be held, by permission of Lord and Lady Henniker and the Dowager Lady Henniker, at Thornham Hall, Eye, Suffolk, on Tuesday next.

M. LOUIS-ANATOLE LEROY, of Angers, who was in the party of visitors representing Continental horticulture in this country lately, has published a record of his tour, which has afforded us an hour of agreeable reading. It is entitled “Six Jours à Londres,” and is published at 13, Chaussée Saint-Pierre, Angers.

AFRICAN MARIGOLDS are the showiest of the yellow flowers at command now, as they are also the cheapest. Messrs. Webb and Son, of Wordsley, Stourbridge, have forwarded samples of a fine strain in their possession, the flowers large, spherical in form, and brilliant in their tones of orange and yellow.

MR. CAUDWELL, of “The Ivies,” Wantage, has forwarded a box of brave flowers, comprising dashing French marigolds very richly and regularly marked, and a splendid series of varieties of *Chrysanthemum carinatum*, otherwise known as *C. tricolor*, *C. Burridgeanum*, &c., &c. They were sent in a thin wood box bedded on damp moss and travelled well.

LILUM NITIDUM is the subject of the principal plate in the September number of the *Florist and Pomologist*. It comes near to *L. columbianum*; the flowers are small, with recurved segments of a rich gold-yellow, spotted with reddish brown dots. In growth it is peculiarly narrow and erect. The fruit figured is the *Alexander Peach*, “probably the earliest variety at present in cultivation.”

THE FUNGUS FORAY of the Essex Field Club will take place on Saturday, September 23, in the northern section of Epping Forest. The club will assemble in Monk Wood at 1 p.m., and will take tea at the Crown Hotel, Loughton, at 5.30. Intending participants are advised to communicate with Mr. N. Cole, honorary secretary, Buckhurst Hill, Essex.

PETUNIAS, SINGLE AND DOUBLE, in abounding variety, make a feature in Messrs. James Carter and Co.'s nurseries at the present time. There are flowers to satisfy all tastes, from those of large size, fine form, and rich colour, that the florists will prefer, to black, grey, green, and drab, to suit Quakers and aesthetes. Messrs. Carter have achieved a signal triumph with these flowers, and have named their best strain, “Empress Petunias.”

AN INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS OF BOTANISTS will be held in Petersburg in the month of May, 1883. In the circular announcing the event it is desired that persons who desire to take part in the proceedings will communicate with Dr. E. Regel, Botanic Gardens, Petersburg.

LAND TENURE.—The subject of the essay for the “Cobden Prize” for the ensuing year is “The grounds and limits of State interference with the conditions of occupancy of land, whether for agricultural or other purposes, considered both in connexion with, and apart from, the existence of limited owners having an imperfect dominion over the lands in their possession.”

MESSRS. WHEELER AND SON, of Gloucester, have forwarded samples of common annuals, well grown, and they surpass in beauty any uncommon annuals badly grown, justifying a remark made not long since to the effect that a healthy tuft of chickweed is a more pleasing object than an orchid dying of starvation or disease. Messrs. Wheeler's candytufts and clarkias are stout bushes, each with a head of flowers as big as a man's head, and brighter as regards the outside.

THE GROWTH OF CORAL is curiously illustrated by a recent event. A French man-of-war on passing a coral reef of the Gambier Islands rubbed upon it. After a cruise in the Pacific for nine weeks a fine mass of coral was found growing on the sheathing of the ship, having a diameter of nine inches and a weight of two pounds and a half. It was but a case of sowing seeds; but the ground came to the seeds instead of the seeds coming to this ground.

THE NATIONALIZATION OF THE LAND is the heading of a movement which appears to be well organized, and of which much will be heard probably, as the public mind becomes prepared for a new political agitation. At present the promoters cannot hope to compete with Egypt and the never-to-be-settled “Irish Question,” in obtaining the general attention of the public. At a meeting held in London on Tuesday last, Mr. Henry George unfurled the banner of land nationalization.

“THE SILVER QUEEN” variety of *Cupressus Lawsoniana* lately certificated by the Floral Committee of the R.H.S. is the most distinct variety of its class that we have seen, the normal green colour which may be found at the base of the shoots giving peculiar effect to the silver-grey colour which pervades the growth throughout. This variety of the most useful of our hardy evergreen trees will be extensively planted when its merits become known. Messrs. James Dickson and Sons, of Newton Nurseries, Chester, hold the stock.

THE ROYAL HORTICULTURAL SOCIETY OF IRELAND and the Royal Irish Academy have presented addresses to the Lord Lieutenant expressive of sorrow for the sad events that have stained the soil of Ireland with blood, and of loyal devotion to the cause of law and order. Suitable replies have of course been given, and Earl Spencer has laid stress on the direct relations of the two societies to culture, which can only prosper where life and property are safe, and men's minds are spared the strain of danger and alarm with which, unhappily, society in the sister isle has become most injuriously familiar.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION makes but slow progress with the Augmentation Fund. Although 800 collecting cards were sent to gardeners five weeks ago, up to the present time only 170 have been returned, and the total amount of money they represent is 224l. 10s. Thus two unwelcome conclusions are forced upon us. The pensioners will have to wait a long time ere the pensions can be raised to 16l. for women, and 20l. for men, if ever, indeed, the thing is accomplished at all. The second unwelcome conclusion is that gardeners are indifferent as to whatever may happen, although in this matter the interests of their own order are alone concerned.

DRUG FARMS.—Dr. Attfield's address at Southampton on Tuesday contained a suggestion which, we trust, may bear fruit. He is of opinion that much good might be done by the establishment in this country of drug farms, where our chief medicinal plants might be systematically cultivated and collected. For the majority of drugs we have still to rely on the somewhat capricious kindness of unaided Nature, and as regards quantity and quality we are to a great extent in the hands of ignorant and irresponsible collectors. The *Lancet* asks: Why should not drug farms be more generally established in Great Britain? Many food farms are being thrown out of cultivation, and there is no difficulty in procuring land. Would not farming other than food farming be likely to prove more remunerative?

“VACCINATION” OF PLANTS.—M. Vollant, cultivateur, Taverny (Seine-et-Oise), writes that ever since 1836 he has practised a species of grafting, to which he gives the name of *vaccination*, and which is applicable to all herbaceous plants. The results, he states, are always advantageous, often to a surprising degree. His mode of vaccinating vines may be taken as an example of the process. With a suitable instrument a ring of bark is taken off from a shoot, just below a bunch of grapes. This must be done when the sap is in full ascent or descent, and at full or new moon. The ring should not be more than two-tenths of an inch in breadth. To it is applied, like a shield, a similar ring of bark, moist with sap, from another variety, the properties of which it is desired to communicate to the subject. The usual advantages of ringing follow, in addition to which the sap of the graft, M. Vollant asserts, attains the mastery in the system of the plant serving as the stock, reproducing therein all the peculiarities, good and bad, of the graft. The operation should be performed as quickly as possible after detaching the graft; but where the latter has to be taken some distance it may be carried in an air-tight box without losing its virtue.

Exhibitions and Meetings.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.

THIS society held its last show for this season on Wednesday last. The display was arranged in the corridors and on the verge of the grass plats in the front quadrangle of Queen's College, Oxford.

The number of entries reached 846, being nearly as large as at any previous September show, and but for the disease which has decimated the potato crop this year there was reason to have expected that the entries would have exceeded any previous exhibition held under the auspices of this society during the fifty-three years of its existence.

In making a few notes on the best things on view, reference must be made to the stove and greenhouse plants staged in competition. On this occasion three fair groups were presented. W. M. Foster-Melliard, Esq., North Aston (gardener, Mr. Pearco) had the card for three-quarter specimens of *Bougainvillea glabra*, *Vinca alba* and rosea, *Cissus discolor*, *Alocasia metallica*, and *Dipladenia boliviensis*. W. Wootten-Wootten, Esq., Headington House, Oxford, made a good second with *Roudeletia speciosa* major, *Nerine sarniensis* major, and well-bloomed *ericas*. Mr. Joseph Bates, Blenheim Nursery, Oxford, showed neat examples of *Pandanus Veitchi*, *P. variegata*, *Croton Wilsoni*, *Cissus discolor*, &c.

SINGLE SPECIMENS were a good class throughout. For stove W. M. Foster-Melliard, Esq., took the card with a fresh *Croton Johannis*; Mr. J. Bates second with a nice healthy *Adiantum farleyense*; W. Wootten-Wootten, Esq., being much on a par with a plant which appeared to bear the cold air rushing in gusts through the corridors. For greenhouse Mr. Wootten staged a splendidly-bloomed *Erica retorta* major for first place, Mr. Foster-Melliard being second with *Clerodendron fallax*; while for hardy Mr. Wootten was leading with a well-developed *Polypodium cambricum*. The second award was made to Mr. J. Cullam, New Hinksey, Berks, for a strong clump of *Phlox Menotti*.

FUCHSIAS were staged in larger numbers than for some seasons past, Mr. J. Bates occupying the post of honour with large examples of *Rose of Castille*, *Lord Beaconsfield*, *Warrior Queen*, Mrs. E. Bennett, *Wave of Life*, and *Monarch*; Mr. John Fortesque, 9, Observatory Street, Oxford, second with dwarf-grown and densely-bloomed specimens of Mrs. Marshall, Mrs. Berange, *Avalanche*, *Beacon*, *Alba coccinea*, and *Concordia*; Mr. John Walker, Lashlake Nursery, Thame, third, with a well-displayed group embracing examples of *Minnie Banks*, *Warrior Queen*, *Covent Garden White*, *White Lady*, *Try me O*, and *Grand Duchess Maria*. The fourth card went to Mr. S. Coster, 14, Adelaide Street, Oxford, for creditable specimens of *Star of Wilts*, *Concordia*, *Grandidens*, Mrs. Marshall, and another. For three varieties Mr. E. Thorne, Laburnum Cottage, Woodstock Road, Oxford, stood prominent with *Grandidens*, *Rose of Castille*, and *Parachute*; Mr. J. Dearlove, Cherwell Street, Oxford, second, with *Lizzie Heaham*, *Sédan*, and *Purple Prince*. Rev. H. A. Pickard, Canterbury Road, Oxford, a good third with neat well-grown plants of *Lady Heytesbury*, *Aurora perfecta*, and another new variety.

ZONAL PELARGONIUMS were well to the fore both in training and bloom. The best six came from Mr. J. Bates, who had *Captain Holden*, *Helen*, Mrs. Pickard (raised by exhibitor), *Sir H. Stanhope*, *Majesty*, and another seedling; Mr. S. Coster second with Mrs. Turner, *Henry Jacobi*, *The Bride*, *Ferdinand de Lesseps*, and *Wellington*; Mr. J. Colcutt, Witney, third with *Lady Sheffield*, *May Mabel*, *H. R. Clifton*, Mrs. W. Paul, *Le Grand*, and *White Vesuvius*. The only exhibitor of four was Mr. E. Thorne, who staged very healthy examples of Mrs. W. Paul, *John Gibbons*, *Lady Sheffield*, and *Acme*. Double zonals were in plenty, but not equal in quality of bloom to the single forms. The best four came from Mr. S. Coster, who had *Mme. Thibaut*, *Louis Boutard*, *Wonderful*, and *Asa Gray*. The best three were presented by Mr. E. Thorne, the varieties being *Marie Lemoine*, *Mme. Thibaut*, and *Sierion Lierval*.

CUT FLOWERS embraced many very good boxes of roses. For twelve J. E. Lewis-Boulton, Esq., Westock, Leamington, first; Mr. Walker, Thame, second; Mr. A. Evans, Marston, third, and Miss Watson-Taylor, fourth; while for nine Mr. F. Freeman, 3, Park Street, Oxford, was leading with nice fresh blooms; Mr. C. Collett, 35, Holywell Street, Oxford, second, and Mr. Richard Price, Headington, third.

ASTERS were a large feature. The magnificent stand of French staged by Mr. John Walker, Thame, was the subject of universal approval for the size, colour, and perfect contour of each flower. His stand of quilled were decidedly fine for the season. The bulk of exhibitors complained that their asters "were not yet out." The

DOUBLE ZINNIAS made a fine show, Mr. Walker staging his first-prize collection with foliage attached, a decided advance in the way of staging this popular annual.

HELICHRYSUMS AND GLADIOLI call for no special remark, save that the finest blooms were of the normal colour, yellow.

COLLECTIONS OF BOUQUETS always are presented here in quantity, Mr. George Jacob, Barton, Headington, and Miss Watson-Taylor, Manor House, Headington, taking the first and second cards for thirty-six bouquets each; Mr. J. Betteridge, Chipping Norton, taking third honours. For twelve bouquets Mr. T. Antiss, Brill; Mr. George Salter, Summertown, and Mr. J. Cullam took the cards.

PELARGONIUMS, in single and triple trusses, made a blaze of scarlet colouring. For twelve triplets Mr. Walker, Thame; for nine triplets, Mr. E. Thorne; for nine single trusses, Mr. George Jacob, Barton, were awarded premier honours; while for nine triplets (double), Mr. J. Bates was placed first, J. E. Lewis-Boulton, Esq., second, and Mr. E. Thorne third.

DAHLIAS.—In this department of the show Mr. J. Walker, Thame, proved the largest exhibitor, his blooms being perfectly-finished examples of *Joseph Ashby*, *Canary*, *Prince Bismarck*, *Charles Ligard*, *Duke of Connaught*, *Yellow Boy*, *Monarch*, *Julia Wyatt*, *Queen of York*, *Ovid*, *Goldfinder*, *James Service*, *Admiration*, Mrs. Tranter, *Flora Wyatt*, *Chancellor*, *John Macleod*, Mrs. Harris, *Prince of Denmark*, *William Dawkins*, *Rifleman*, *Flag of Truce*, *Royal Queen*, *Cyprus*, *Attraction*, *Masterpiece*, *James Cocker*, Mrs. Henshaw, *Perfection of Primroses*, *Annie Neville*, *Burgundy*, *Ethel Britton*, *Chris. Ridley*, and *Modesty*. Mr. Walker's stand of fancy varieties contained superb blooms of Mrs. Saunders, *Grand Sultan*, *Egyptian Prince*, *Oracle*, *Wizard*, *Fanny Sturt*, *Henry Glascock*, and *Summertide*. A few exhibits of pom-pone varieties were staged, as also a number of single varieties. Mr. Walker was, of course, the leading prizetaker in this department.

FRUIT was a very superior division of the show, and included a good Queen

pine, many dishes of greengages, *Pond's Seedling*, *Kirke's*, *Coo's Golden Drop*, *Magnum Bonum*, *Goliath*, and *Victoria plums*, *Lord Palmerston*, *Barrington*, and *Royal George*, peaches, *Pitnaston*, *Pine-apple*, and *Elruge nectarines*, *Moor Park apricots*, quite a display of *figs*, fully ripe *Duchesse d'Angoulême* and *Bon Chrétien* pears, *Quarrenden*, and other dessert apples, while cooking kinds embraced *Lord Suffield*, *Warner's King*, *Alexander*, *Gloria Mundi*, and other heavy kinds. Grapes were in quantity. For white the card went to Mr. J. Thomas, *Bignell Gardens*, *Bicester*, for splendid bunches of *Golden Queen*; Mr. James Gough, *Buckland Park Gardens*, *Faringdon*, second, with the same variety; the third card falling to *Colonel North*. For black a host of exhibits were staged; *Colonel North* leading, with Mr. J. Thomas and Mr. J. Gough, with *Black Hamburgh*; throughout; the Rev. H. A. Pickard and Mr. R. Thomas, *Holywell*, Oxford, were first for black and white in the amateurs' division. The cottagers' as well as the amateurs' division were supplied with ripe hardy fruits in profusion.

VEGETABLES embraced all popular kinds; specially good were the peas, "Walker's Perpetual Bearer" being the winning dishes in the first division; kidney beans, carrots, parsnips, marrows, and tomatoes all being in perfection.

POTATOES were as usual a strong point. In the gardeners' classes for white rounds, C. A. Hanley, Esq., *The Mount*, Oxford, was placed first for a fine dish of *Schoolmaster*; Mr. R. R. Alden, *Eastwick Farm*, Oxford, second with the same; for white kidneys, Mr. Alden first with *Magnum Bonum*, Mr. Hanley second with *International*; for coloured kidney Mr. Hanley first with *Trophy*, Mr. John Baker, *Bampton*, second with *Beauty of Hebron*; for coloured rounds Mr. Hanley first with *Vicar of Laleham*, Mr. Jos. Bates second with *Grampian*. In the amateurs' division for white kidney W. H. Walsh, Esq., *Park House*, *Park Town*, Oxford, was first with *International*, Mr. G. Kirtland second for the same; for white round, Mr. Kirtland first with *American Beauty*, Mr. Walsh second with *Schoolmaster*; for coloured rounds, Mr. Kirtland first with *Vicar of Laleham*, Mr. A. Molyneux, *Charlotte Street*, *Rugby*, second with the same; for coloured kidney, Mr. W. Edwards, 5, *Worcester Terrace*, Oxford, Mr. Molyneux, and Mr. Geo. Edwards, *Little Clarendon Street*, Oxford, took the prizes with *Trophy*. In the cottagers' classes the winning dishes were *International*, *Bresee's Prolific*, *Trophy*, and *Vicar of Laleham*; the exhibitors hailing from the villages of Wytham, *Toot Baldon*, *Nuneham*, *Headington*, *Barton*, *Great Barford*, as well as *Banbury* and Oxford.

We ought to notice that celery and cauliflowers were unusually fine; with the latter Mr. R. R. Alden, *Eastwick Farm*, Oxford, gained the premier award in the gardeners' class for three magnificent heads, and staged a large collection equally good. Onions were very fine in the competing classes, Mr. Deverell, *Banbury*, exhibiting a large display of *Rousham Park Hero*, before noticed.

The duties of judging were entrusted to Mr. A. Turner, *Royal Nurseries*, *Slough*, and Mr. Daniel's, *Swyncombe Park Gardens*, several members of the executive assisting in the cottagers' and amateurs' classes for fruits and vegetables.

The Oxford City Band provided the music; and the bee tent of the Oxon Beekeepers' Association appeared to prove attractive to the large numbers of visitors, who thoroughly enjoyed the pleasures of a bright September day.

Oxford.

WILLIAM GREENAWAY, Secretary.

EDINBURGH ROYAL BOTANIC GARDEN.

AMONGST the several places of interest that should be visited by horticulturists staying in Edinburgh for a few days must be included the Royal Botanic Garden, of which Mr. John Sadler is now the curator. It is not, it must be confessed, a second Kew, either in the area occupied, the number of the glass houses, or in the comprehensiveness of the collections, but it is nevertheless full of interest, both to the botanist and practical horticulturist. The space at disposal has been laid out with much taste and judgment, the collections of plants, both in and out of doors, are extensive and in excellent condition, and the keeping of the garden generally is such as to show that the management is in very able hands, and that a large amount of useful work is annually accomplished.

The garden, which, it may be observed, is very convenient of access, is situated in Inverleith Row, and it has occupied its present site since 1816, or thereabouts, when the Botanic Garden was transferred from Leith Walk. Originally fourteen acres, the area has been enlarged as opportunities have offered, and it now extends over twenty-seven acres, exclusive of the arboretum, which has been added within a comparatively recent period. The entrance from Inverleith Row is plain and unpretending, and might be readily mistaken for the entrance to one of the many substantial residences on the western side, which have apparently been built on the garden frontage. Immediately on entering the garden are, to the right, the museum and class rooms. The former, which alone is open to the public, is of comparatively moderate dimensions, but it is richly furnished, and the specimens are admirably arranged for reference. To speak in detail of the many objects is out of the question, but the glass-covered stands, or tables, containing the collections of cones of coniferous trees arranged according to their genera, the fossil plants, chiefly of the Carboniferous period, and the dried specimens and drawings of the plants of Scripture, may be mentioned as possessing more than the usual degree of interest.

Leaving the museum, and passing round the corner of the class-room, we have a range of hothouses well filled with plants of medicinal or economic value, or remarkable for their botanical interest. With these are associated many fine specimens of plants valued for their ornamental appearance. This range contains several divisions, and those at the end nearest the class-room are devoted to plants requiring a high temperature. Then follow the divisions containing the tropical ferns, palms, and cycads; the palms, cordylines, dracenas, cycads, tree ferns, and araucarias requiring the protection of glass and the aid of fire-heat to keep them safe from frost, and the remainder of the range is devoted to greenhouse plants of various descriptions. At the back of the range, and near the northern boundary, is the palm-house, which is crowded with specimens, chiefly of large size, and all in the most robust state of health. The first portion of the palm house, an octagonal structure sixty feet in diameter by fifty feet in height, was built in 1832, at a cost of about £1,500. About twenty-five years later the collection had so increased in extent; and the individual plants in size, that a grant of £6,000 was obtained for adding to the accommodation. The new house, which is one hundred feet in length, sixty feet in width, and seventy-two feet in height, was built by the side of the old house, and the two now form one spacious structure. Since the building of the new house the older erection has been re-roofed, and

its height increased. Conspicuous in the collection are the fine specimens of the Sugar Palm (*Arenga saccharifera*), the Cabbage Palms (*Euterpa montana* and *Arca oleracea*), and the Oil Palm (*Elæis guineensis*), and of several of the bananas and screw-pines. Near the palm house are several low-roofed houses, in which interesting plants of small growth have a place, and ranges of pits stocked with alpine and other plants requiring, more especially during the winter season, the shelter of glass.

On the opposite or southern side of the garden are a large conservatory, and the herbarium buildings. The conservatory, which is somewhat old-fashioned, reminds one of the orangeries and other houses built at a time when the importance of light to plant growth was not fully recognized. This spacious house or conservatory consists of a main building and two end wings, and gives shelter to a representative collection of camellias, the specimens being mostly of large size, and all in capital health. Associated with the camellias are numerous specimen rhododendrons, ranging from ten to fourteen feet in height, the most important being, perhaps, those of *R. Falconeri*, *R. Dalhousiae*, *R. Lawsonianum*, *R. Maddeni*, and *R. Russellianum*. Acacias and eucalypti are also well represented.

Immediately in front of the conservatory is the rock garden, in which upwards of two thousand species and varieties of alpine and dwarf herbaceous plants find a home. When the botanic and experimental gardens were thrown into one, it was determined to utilize the materials of the wall by which they were divided in providing suitable quarters for alpine and other hardy plants that can be most successfully cultivated on a position raised more or less above the general level. The idea was a good one, but not well carried out, so far as effect is concerned, and many of its features are extremely weak. The space occupied is about two hundred feet in length by one hundred feet in breadth, and slopes to the north, and the various terraces are broken up into a multiplicity of square spaces, of which there are perhaps between four or five thousand. The divisions are formed by the stones from the wall, and these are set on edge and mostly stand just above the level. The objectionable formality of these thousands of spaces, each about eighteen inches square, might have been borne with, as it can be at once seen that they form capital quarters for the several plants. But unfortunately the authorities were presented with blocks of basalt, granite, quartz, and lava, and portions of the columns and carvings of an old Scottish Bank, and the various donations appear to have been so highly appreciated that it was considered necessary to present them as prominently to public notice as possible. More especially does this appear to have been the case in dealing with the old materials from the bank, for distributed over the garden are portions of the columns, which are so placed as to stand about two feet high, and they are mostly surmounted by pieces of basalt or lava and segments of other columns. In some instances the stones are laid on the flat and in others they are set on edge, and, without exception, they appear altogether out of place and decidedly objectionable. As regards the furnishing of the rock garden, it would be unjust to speak of it otherwise than in the highest terms of praise, for the two thousand and odd species and varieties are well arranged, and the excellent condition of the various subjects on all sides show practical knowledge of a high order. It may, indeed, be said that, although the general design of the rock garden is weak and unsatisfactory, it is so admirably planted and kept that it is well able to afford lessons of much value. Immediately in front of the herbarium and therefore within a few paces of the rock garden is an immense fossil tree, *Araucarioxylon Withami*, obtained from the Craighleith quarry, which of itself is well worth the journey to the gardens.

To the west of the conservatory and not far from the building are the groups of coniferous trees arranged according to their genera. Proceeding by the walk which runs along the north side of the conservatory, there is first of all on the right a fine group of *Cedrus atlantica*, and immediately beyond are the examples of *Cedrus deodara*, by which the late Mr. McNab sought to show the importance of pruning conifers to ensure well-formed specimens. At the present time they are much crowded, and those which have been pruned are, it may be safely said, neither better nor worse than many thousands of trees in various parts of the United Kingdom that have not been touched by the pruning knife. On the other hand, the examples with several stems show that where there are more than one main stem all but the most promising may be removed with advantage. It must, however, be stated that it is exceptional for so many stems as in this case to be produced by this elegant cedar. The conifers generally well merit the notice of visitors, but special attention must be directed to those kinds with golden variegation, so splendidly coloured are they. More particularly noteworthy are the pyramidal yews on the strip of turf midway between the herbarium and the pond, which, when we saw them, shone like burnished gold, the atmospheric influences being evidently most favourable to the full development of the rich colouring.

The rose garden, which is a little to the left of the entrance, is by no means the least attractive part of the garden during the summer months. It is well laid out; the beds have been furnished with judgment and the plants are evidently at home, for they grow most vigorously and bloom profusely. At the end of July the display was simply marvellous, and the blooms of such varieties as Lord Macaulay, Général Jacqueminot, Princess Mary of Cambridge, Dr. Andry, Beauty of Waltham, were so good that many might have been cut that were fit for a stand of twelve. They are grown exclusively as dwarfs, and are presumably on the manetti stock.

It remains to be said that the garden is open on week-days only from 6 a.m. to 6 p.m. during the summer, and from daylight to dark in the winter. During June and the two following months the garden is open on Saturdays until 8 p.m.

JENNETING.—In Professor Skeat's "Concise Etymological Dictionary of the English Language" the following entry will be found at p. 255: "Jonneting, a kind of early apple. (Unknown.) Spelt *ginniting* in Bacon, Ess. 46. Origin unknown; the 'etymology' from 'June-eating' is a miserable jest; Bacon says they come in July." In Worcestershire *jennet* is the name of an old-fashioned kind of early pear, which is small but sweet in flavour. I have not the "Herefordshire Pomona" at hand, but perhaps some more information about *jenneting* or *ginniting* may be found therein. Among the "Corrections and Notes" in the same work Professor Skeat gives the following: "*Jenneting* (F.—L.—Gk.—Heb.) Prob. for *jeanneton*; a dimin. from *F. pomme de St. Jean*, an early apple, called in Italian *melo de San Giovanni*, i.e., St. John's apple. So called because in France and Italy it ripened about June 24, St. John's Day. So also, there is an early pear, called *Amiré Joannet* or *Jeannette*, or *petit St. Jean*; G. *Johannisbirn*. F. *Jean*=Lat. acc. *Johannem*, from Gk. *Ἰωάννης*, John.—Heb. *Yôhônân*, the grace of the Lord."—A. P. ALLSOP, in *Notes and Queries*.

Literature.

The New Botany. A Lecture by W. J. BEAL, M.Sc., Ph. D. (Philadelphia C. H. Marot, 814, Chestnut Street.)—In this lecture, reprinted from the Transactions of the twenty-ninth annual meeting of the Michigan State Teachers' Association, Dr. Beal adopts Raspail's plan of appealing to nature first and to books afterwards. It was a great enlargement of the work of the microscope when Raspail brought it into use in connexion with chemical analysis, and the direct appeal to nature constituted a new epoch in chemical science. It happens that botanists have studied nature not years only, but centuries before Dr. Beal was thought of, but he does well to say that books are an aid in the study, and not the proper source of knowledge at all. One examination of a plant will teach more than the perusal of fifty books. Every student of botany may profit by taking counsel of Dr. Beal.

Familiar Garden Flowers, by SHIRLEY HIBBERD (Cassell), has reached Part 43, and the subjects figured in this part are a white begonia and the turbinate bell-flower. The success of this work has suggested the publication of one on a similar plan devoted to birds, which Mr. Swainsland will have charge of. In a list of campanulas at page 23 of the notice of the turbinate bell-flower, Mr. Hibberd recommends the following Campanulas, namely, *C. alpina*, *C. carpatia*, *C. garganica*, *C. hederacea*, *C. isophylla*, *C. Raineri*, *C. rotundifolia* (garden varieties), *C. turbinata*, and *C. pyramidalis*. He might with advantage have added *C. persicifolia* and *C. nobilis*.

Aunt Judy's Magazine. (Bogue.)—It is a matter of regret with us that we can but rarely find time or space to make mention of the delightful monthly publication bearing the title of "Aunt Judy," under the management of Mrs. Gatty. It is a perfect gem of its kind; light, without being frivolous, learned, but neither pedantic nor dull; fanciful without extravagance, and always elegant, wholesome, and breathing a cheerful and loving spirit. Wherever there are young people "Aunt Judy" should be invited to gossip with them.

The Ladies' Treasury. Edited by Mrs. WARREN. (Bemrose.)—The September issue of this admirable monthly contains a pretty series of designs for fancy needlework, the subjects for which are popular flowers cleverly conventionalized. We are of Mr. Hulme's opinion, that for decorative purposes, and especially where repetitions are inevitable, conventional forms are preferable to attempted literal transcripts from nature. Mrs. Warren seems never to weary in providing her readers with pleasant surprises, and, what is more, she never fails.

The Sanitary Record. (Smith, Elder, and Co.)—This important "Monthly Journal of Public Health and the Progress of Sanitary Science" appears to keep pace with inquiry and discovery as well as with the demands of everyday life in all that appertains to the public health and the comforts of individual existence. The number before us contains a copious summary of news in connexion with sanitation, papers on cycling, smoke abatement, sanitary inventions, commons preservation, liabilities of corporations, &c.

A Dictionary of Popular Names of the Plants which furnish the Wants of Man, &c. By JOHN SMITH. (Macmillan.)—The veteran ex-curator of Kew has constructed out of materials collected for his former work on "Domestic Botany," as well as from notes made by his son, the late Alexander Smith, while employed at Kew, a dictionary of economic plants that will be of great service to merchants and traders, as well as to botanists, and as a book of reference for the general reader. We have turned it over with many commercial plants and products of plants in our mind, and have readily found under suitable headings an admirably-condensed body of information respecting them. The many plant products that are of doubtful origin are very cautiously treated, and the points of special interest are always indicated, and the book is a veritable mine of information in the most convenient form imaginable.

Cookery and Housekeeping. By Mrs. HENRY REEVE. (Longmans.)—This is a genuine contribution to the literature of domestic economy, and if it does not surprise any one in the first instance, it will be found to bear the ordeal of frequent reference and consultation with ever-increasing credit to the author, who has aimed at serious usefulness by means of the plainest teaching. Writers on cookery and housekeeping are too apt to exhibit airs and graces, as though they moved in an atmosphere far above the people they condescend to speak to, and hence it often happens that their books are filled with proposals and directions that appear better calculated to cause perplexity of mind and waste of money than to give comfort to any one, whether guest or entertainer. Mrs. Reeve has avoided all such nonsense, and has brought to her task original and wholesome ideas as well as an immensity of practical knowledge. The advice on getting up dinners at home is worth anything to any one who would care to be advised on the subject.

Menus and Recipes of the Baron Brisse. Translated by Mrs. MATTHEW CLARK. (Low and Co.)—This is a very different book to that of Mrs. Reeve, and is intended for other purposes. It does not, indeed, exclude from consideration plain cooking and a middle class dinner, but it has distinct artistic aims, and will suit the "stylish" housekeepers and their cooks more thoroughly than the people who believe much in juicy joints and care but little for "kickshaws." But it is a capital book of its class, containing 366 menus in French and English, and 1,200 recipes, all of them having a French flavour, and of course being none the worse for that. The menus will be valued by many, and this, we think, is the first time that a batch has been prepared in a manner to be generally useful.

The Fireside, The Day of Days, and Home Words are monthly publications issued at 1, Paternoster Buildings, under the editorship of the Rev. Charles Bullock, B.D. They are all somewhat light in tone, though serious in purport, consisting of essays, historical sketches, homilies, and anecdotes. They appeal more directly to the young of both sexes, but contain many good things that men and women may find both interesting and edifying.

Cassell's Arabian Nights (Cassell) will meet with a general welcome for its readable text and showy pictures. The version adopted is Gallaud's, which has always been received with favour, because of its elegance and force, as well as its compliance with modern requirements as regards expressions and allusions of an indelicate nature that encumber most of the grand old books. The designs are characterized by a freshness of fancy and a very Oriental tone.

FLESH, FISH, AND FRUIT UPON THE SAME TREE.—This is an ancient riddle of Peeblesshire, and is explained by Dr. Pennycook, who says that in his time (last century) there was "an old orchard at Wester Dawick where herons did build their nests upon some large pear trees; to these trees the herons brought many fish from the Tweed."—SETH WAIT, in *Notes and Queries*.

Calls at Nurseries.

MESSRS. THOMAS METHVEN AND SONS', EDINBURGH.

In the two extensive nurseries of this firm, which are at Leith Walk and Inverleith Row respectively, will be found large representative collections of stove and greenhouse plants, immense stocks of decorative plants, and great breadths of ornamental trees and shrubs. The first-mentioned of the two nurseries forms the head-quarters of the firm, and is reached in a very few minutes by the aid of the cars running between the Post Office and Leith, which put the visitor down at the gates. The Warriston nursery, in Inverleith Row, is immediately opposite the Royal Botanic Garden, and can be reached expeditiously by cab or omnibus, and is within an easy walking distance of the centre of the city.

The Warriston Nursery contains a large number of plant houses; all are spacious and substantial, and some are occupied with the ordinary nursery stock, whilst others are devoted to decorative plants, in which the trade is evidently extensive, and to the cultivation of plants for supplying cut flowers. It was interesting to note how highly the large-flowered decorative pelargoniums are appreciated in the north, and it may be mentioned as a point of some importance that long after every plant of this class in the south had been cut down the Messrs. Methven had a house filled with plants on which there was sufficient bloom to produce a rich display of colour, and afford abundant material for floral decorations. In an adjoining structure a carefully-assorted collection of zonal pelargoniums were flowering bravely and producing a brilliant effect. Tea-scented roses for the production of cut flowers are cultivated extensively, one or two large houses being devoted exclusively to them, and the condition of the plants, which by the way have their roots in well-prepared borders, bespoke high-class cultural skill.

More important in some respects than the excellent stocks of stove and greenhouse plants, which find a capital home in this nursery, is the remarkably fine example of arborescent bedding, which at once arrests attention on entering. Running through the nursery from the entrance gate is a broad walk, and on the sides of this are borders ten or twelve feet in width, most tastefully filled with evergreens, in which those with coloured leafage predominate. The designs on both sides are bold and elegant, and the plants, which range from six to twelve inches in height, are so arranged as to form distinct blocks of colour with suitable marginal bands and divisional lines, and as the ground is slightly undulating the effect from all points is eminently rich and satisfactory. Amongst the shrubs are the green and variegated aucubas, the dark bronzy and golden retinosporas, the latter particularly rich, as elsewhere in the neighbourhood of Edinburgh; the golden and other yews, the green and the golden arbor-vitæ, and the more distinct varieties of Cupressus Lawsoniana. In the same nursery Messrs. Methven have several carpet beds, in which alternantheras and other leaf plants are judiciously employed, and, in making a comparison between the two classes of plants when both were at their best, the vast superiority in point of effectiveness of the occupants of the borders at once became apparent. In all other respects the shrubs have decidedly the best of it, their rich and effective appearance throughout the year being no unimportant point.

In the Leith Walk nursery there is an example of arborescent bedding of a quite distinct character to that in Inverleith Row and hardly less attractive. Here, alongside the principal walks, are belts of variegated and green-leaved shrubs, skilfully contrasted. Hollies and aucubas are chiefly employed, and the several kinds are so arranged as to produce a striking effect and form a capital finish to the quarters which, it may be added, are richly furnished with fine specimens of choice trees and shrubs.

At Leith Walk also there are numerous glass structures, and these are in part devoted to hard and soft wooded flowering and ornamental-leaved plants, and in part to figs and vines in pots, the latter forming a special and important feature of the establishment.

MESSRS. SUTTON AND SONS' TRIAL GROUNDS, READING.

Rich in interest and attraction at all times, there is perhaps no season of the year in which a visit may be made to the extensive trial grounds of Messrs. Sutton and Sons with so much pleasure and profit as during July and the two following months. The trials of the more important classes of annuals and of such of the popular bedders as can be raised from seed are then in progress, and these, whilst pleasing the eye with a splendid display of colour, afford lessons of immense value. The objects of the firm in carrying on these trials are of course to determine the relative purity of stocks as received from their numerous growers in various parts of the world, to institute a careful comparison between the different strains of the several classes of plants; to enable them to thoroughly test the novelties that are offered from time to time; to weed out kinds that are surpassed, and to reject colours that are wanting in effectiveness. That the trials have been found of great advantage to the firm, and through them to their immense body of customers, has been made manifest by the remarkable manner in which they have been extended of late years. In other directions they have not been wanting in value, and amongst other things they have proved to demonstration that not only can several classes of decorative and bedding plants hitherto propagated exclusively from cuttings be successfully grown from seed, but that the seedlings surpass the plants raised in accordance with orthodox ideas, and of these the verbenas may be mentioned as a striking example. The most important of the numerous trials in progress when we were in the grounds at the end of August were those of asters, stocks, annual phloxes, petunias, lobelias, portulacas, verbenas, and balsams. Tuberous begonias, although not forming part of the trials, well claim attention, for they are grown so largely and with so much success that they constitute a feature of much importance.

As our readers have been informed, Messrs. Sutton and Sons have for some years past devoted much attention to the improvement of the tuberous begonias, and if the success achieved has not exceeded their expectations, it has not a little surprised those who have had an opportunity of seeing what has been accomplished. At the present time four or five spacious houses are devoted to the begonias, and with but few exceptions the whole stock was raised from seed sown in February and March. The plants are mostly in five-inch pots and range from one to two feet in height, and are so well flowered that the effect produced surpasses description. Not less important than the thrifty condition of the thousands of plants are the large size and splendid quality of the flowers and the remarkable diversity of colouring. Crimson and scarlet colours predominate, but in the collection are numerous exquisitely beautiful shades of rose and pink, several very effective orange and yellow

varieties, and two or three white flowers, which, taking all points into consideration, may be described as of the highest excellence. These are, it may be added, grown for furnishing seed, and as there is not an indifferent flower in the whole stock and the flowers are carefully fertilized, it need hardly be said that the seed saved from them can be depended upon not only to germinate, but to produce plants of good habit and bearing flowers of good quality and effective in colour.

In looking through the beds of stocks, which have for a long time contributed their full share to the attractions of the trial grounds, a few types were made note of as possessing special merit. One of the very finest of the Ten-week strains was that known as Suttons' Perfection, which is distinguished by the immense size of the flowers and spikes, its pyramidal habit, and its effective colours. The plants, which were just far enough apart to allow of their attaining their full size, ranged from fifteen to eighteen inches in height, and the principal and secondary spikes were so densely set with flowers that each example presented the appearance of a huge pyramid of bloom. The Giant Branching is a capital type for large borders, the plants under favourable conditions attaining a height averaging thirty inches, and producing flowers of large size; but for beds it is not so suitable as Suttons' Perfection. The large-flowered Dwarf Pyramidal is an excellent strain for small beds and for front lines; for although the plants are dwarf, both flowers and spikes attain to a large size. The Autumnal-flowering, useful for forming succession to the earlier types, and the Intermediate strains, such as the East Lothian and Perpetual Emperor, were in capital condition, and their value for autumn flowering may be alluded to with advantage. Mauve Beauty, one of the most beautiful of the intermediates, was conspicuous by reason of its massive flower spikes and its distinct colour.

Turning to the phloxes, we find all the splendid types which have been introduced of late years, and a striking example is afforded of the great superiority of the Grandiflora varieties to those of the ordinary type. Not only are the flowers much larger and of finer quality, but they are produced in greater profusion, and the colours are much richer, with the result that the effect is altogether more satisfactory. The Grandiflora varieties are indeed so much finer that they can be hardly compared with older forms, which alone are as yet known to the majority of cultivators. Of these there are eight colours, ranging from the purest white to the deepest crimson. The Nana compacta varieties, which range from four to six inches in height, are dense in growth, wonderfully free in flowering, and well suited for front lines. Intermediate in height between the Nana and Grandiflora types are Hortensæflora and Victoria, which have bright rose and deep scarlet flowers respectively, and are of unsurpassed attractiveness. They are indeed two of the finest of the annual phloxes for bedding.

It was interesting to note that in the large breadths of lobelias every example was as uniform in height and colour as plants from cuttings, whilst in vigour of growth and freedom of flowering they were superior to them. With sufficient space, the majority of the plants were about twelve inches in diameter, as even in growth as could be desired, and quite solid with bloom, showing that when the seed is saved from good types, as it evidently had been in this instance, seedlings are equally as suitable for the choicest bedding as plants from cuttings. Suttons' Best of All is a capital blue type, and Cobalt Blue and Emperor William are well known for their general good qualities. The great masses of petunias showed what a splendid display may be obtained but with little trouble when the stock is raised from seed. The plants of Messrs. Sutton and Sons' strains are robust without being straggling and the flowers are of the largest size and richly coloured. The verbenas were even more striking, for the quarters were perfectly solid with bloom, and no more splendid display of verbenas out of doors has ever been produced. There were blocks of white, of blue, of scarlet, and of purple, and the whole of the plants for all practical purposes as true to colour and as even in growth as would have been the case had they been propagated by means of cuttings; whilst they were far more vigorous and in abundance of bloom a long way ahead. Hitherto it has been thought necessary to be content with mixtures when seed has been resorted to for increase of stock; but Messrs. Sutton have shown that all the most effective colours can be had repeatedly and without risk of disappointment. Space will not permit us to refer to all the noteworthy objects met with, but mention must be made of the splendid balsams, which are grown by the hundred in the open quarters and are so large and densely bloomed, and the flowers of such splendid quality, that they would create no little excitement at any of the flower shows. Of these Sutton's Improved Camellia-flowered were particularly good in every respect, and a finer stain could not well be desired.

THE DIRGE OF THE BEETLE.

"A Colorado beetle has been discovered in the Wisconsin, at Liverpool. Special orders have been received from the Privy Council to kill it and convey the remains in a box to Whitehall."—*Vide Daily Papers.*

LET a voice of lamentation rouse this philanthropic nation,
Let the foes of vivisection swell the concert of our woe
For the Colorado beetle—revellers! suspend your glee till
This be-martired insect-hero reach his resting-place below.
We have mourned for mice and sparrows, e'en to vegetable marrows
Might devote our surplus sorrows, had we nothing else to moan,
We have pitied Black and Arab—what are they to yonder scab,
Mute on foreign soil and mangled, scorned, unsepulchred, alone?
Little mused he as with gay toes he pursued the bad potatoes,
Unsuspecting, in the prairies of his Transatlantic home;
Little mused he then upon sin, or the treacherous Wisconsin
That betrayed him to our mercies far across the faithless foam.
Little recked he then of high rant, masking solemnly the tyrant,
As the friends of brute and Bulgar from the street of Downing call—
"Massacre the desperado! Slice the king of Colorado!"
And convey the corpse with convoy to the precincts of Whitehall."
Shade of Wilberforce! Can this be? Are, like Pyramus and Thisbe,
All our tenderest compassions sent thus coolly to the wall?
Does a Gladstone rule in Britain? Do we still protect the kitten?
And shall this dissected victim, all unblushed for, bleed and fall?
No! Thank Birmingham, we still can mix our human kindness milk-can
With a tear for cut-throat, pickpocket, for elephant or cat;
We can still refuse our penny to the beggar, if still any
Our politico-economizing pavements linger at.
Then let shouts of indignation flood this philanthropic nation—
Let a beetle priest give burial (the Act permits it so);
For the Colorado beetle we may all be sad a beetle,
Ere a new sensation sorrow bids a fresher fountain flow.

W. S. S., in the *Globe*.

ABELIA SPATHULATA.

THIS beautiful shrub raises the old question of the definition of a hardy plant. It is hardy in Messrs. Veitch and Sons' nurseries at Coombe Wood, Kingston-on-Thames, but it might prove tender on the cold clay soils of the northern suburbs of London. However, it is a thing to be noted for its exceeding beauty, and it probably is the hardiest of its genus so far as is at present known. It was obtained from Japan for Messrs. Veitch by M. Maries, and has been figured in *B. M.*, 6,601, from a specimen that flowered in their nurseries in April last. The species of *Abelia* are difficult to distinguish, a fact suggestive of their lack of proper specific distinctions. The plant before us,

A RUSTIC SCREEN.

IN continuation of your series of examples of rustic work, I send a design for a screen or entrance, the construction of which is very simple and requires no special material, although where expense is no object a very fantastic effect may be produced by a choice assortment of woods. A good selection might comprise oak posts, fir panels, and barked hazel rods. The sill might be solid and without the trellis surfacing of sloping rods, in which case slabs of yew would be appropriate. The canopy is suggestive of the style shown by Carl Boek in his sketches of the architecture of Borneo, but it is in good taste, and the proportions throughout are proper. W.



ABELIA SPATHULATA.

says Sir J. D. Hooker, may be "best recognized by the minute bracts, the four or five oblong spathulate spreading rosy calyx lobes, and the large flower." It is a much-branched shrub, with elliptic-lanceolate leaves, pale green with purplish edges; the flowers are in pairs; they are between funnel-shaped and bell-shaped, creamy white with conspicuous rosy calyx of four or five lobes.

Abelia floribunda, which requires a little protection in winter, is a handsome Mexican species with purple flowers. *A. uniflora* comes near to *A. spathulata*, but has a larger corolla and two large oblong calyx lobes, and, as the name implies, the flowers occur singly. It is a fine plant.

A MAORI RELIC.—A curiosity in horticultural archæology has lately been presented by the New Zealand Government to the South Kensington Museum, where it may now be seen, near the entrance. It is a hut, commemorating the introduction at some remote date of the Kumara, or sweet potato, into New Zealand. The canoe in which the seed was brought from Hawaii was first preserved, it is said, as a memorial; and when it decayed the hut, with its quaintly-carved heads depicting the members of the crew, who subsequently became founders of Maori tribes, was erected in its stead. Mr. Colenso's interesting account of the native cultivation of the Kumara, which we published in a recent number, will be fresh in our readers' recollections.

CHRYSANTHEMUM CULTURE.

By WILLIAM ETHERINGTON, The Gardens, Manor House, Swanscombe, Kent.

THE early-flowering chrysanthemums are now coming freely into bloom, to be followed shortly by the pompones, the incurved, the reflexed, and the Japanese sections, and for at least three months hence these justly popular flowers will contribute very materially to the attractions of the garden and conservatory. To dwell at any length upon the beauty of the chrysanthemum would be to occupy space unnecessarily, for the extent to which the numerous varieties are grown in private gardens, the large number of exhibitions, and the interest with which the various displays, both public and private, are regarded suffice to show that their attractions are well known and highly appreciated. There are, as a matter of fact, no flowers more popular at the present day, for we now have exhibitions of chrysanthemums in most of the principal towns and not a few of the villages, and if some of the societies are not particularly wealthy the majority meet with a fair measure of support from all classes of the community. As regards their decorative value, it may be safely said that they are quite unsurpassed in their season, which is unquestionably the duller of the whole year, and their cultural details are such that the amateur with a conservatory of moderate dimensions and a fair amount of time on his hands may, if he is so minded, annually enjoy a display of flowers that can hardly fail to satisfy him.

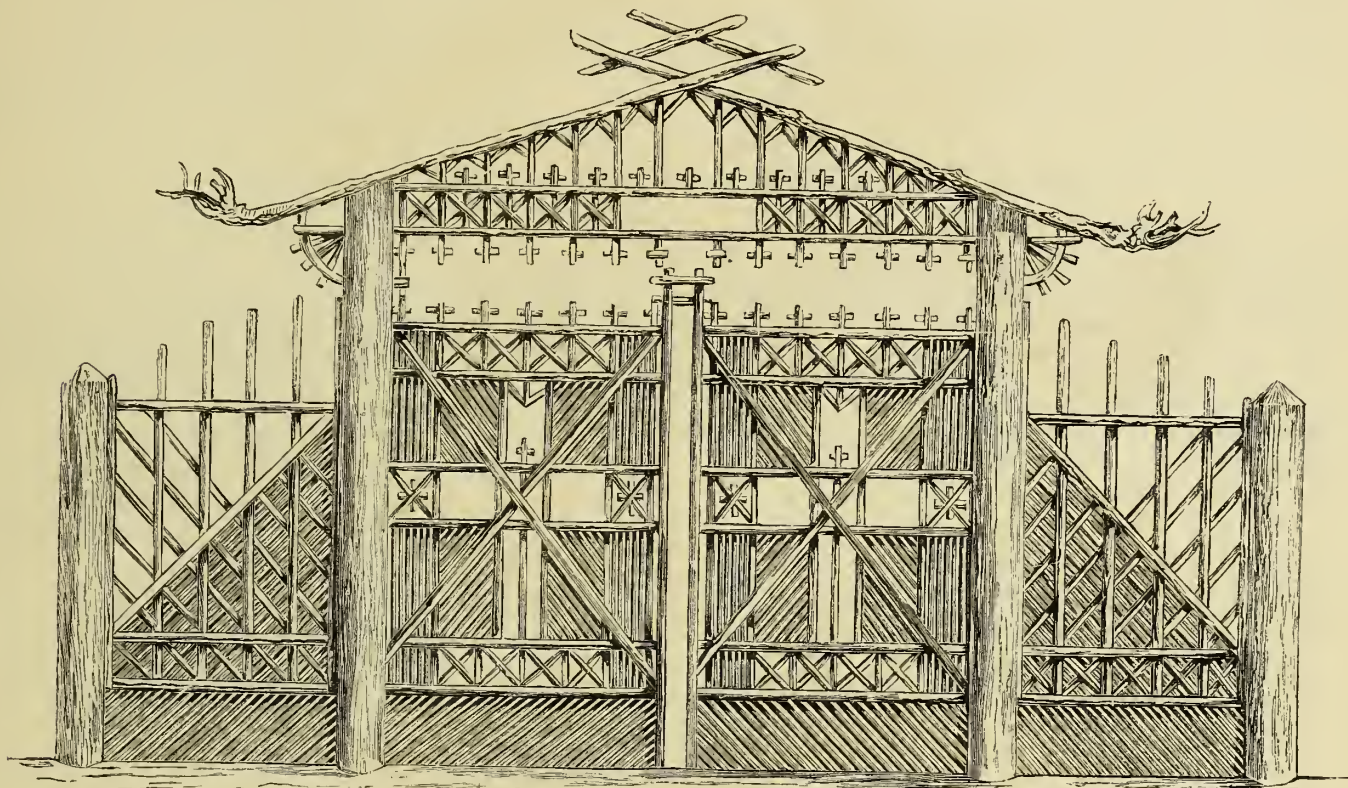
EARLY-FLOWERING VARIETIES.

I am gratified to see the early-flowering pompones making their way to the front, for when rightly managed they come in at a time

tilated when the weather is at all favourable to air-giving, for to keep them dwarf and short-jointed is of prime importance. Those required for the flower beds and borders can be bedded out with safety early in May, and they ought not to be kept in pots a day longer than is necessary.

Whether required for in/or out door decorations, the cuttings, inserted several together in five-inch pots, must be potted off singly towards the end of February, or in the first or second week of March. Use three-inch pots and a compost consisting of turfy loam, sand, and well-rotted manure in the proportion of four parts of loam to one part each of manure and sand. For the drainage put three or four medium-sized crocks in each, with a little of the rougher portion of the compost immediately over them. Ventilate very freely from the beginning of March onwards, as they will then be commencing to grow freely. If good progress is made, those intended for the embellishment of the conservatory will be sufficiently advanced by the middle of May to require a shift, which should be into six or eight inch pots, according to the size of plant required, but in a general way those in the first-mentioned of the two sizes will be the most useful. The drainage must be just sufficient and no more to carry off the superfluous water, and the compost be similar to that already advised, but it should be used in a somewhat rougher state.

Those potted on should be plunged in a bed of ashes out of doors, or in the open border for the summer months, soon after receiving their shift as above advised. Plunging them in ashes can be the most strongly recommended, and where the pots are plunged in soil the precaution must be taken to place a piece of slate or tile underneath each pot to prevent the worms entering. Stopping the shoots, to ensure



RUSTIC FENCE OR SCREEN.

when they are most useful. We occasionally see chrysanthemums in flower in July and the early part of August, but they do not appear to advantage in contrast with the numerous other subjects then in perfection, and in fact are not wanted. But from the end of August or beginning of September until the early part of November they are most valuable. They are, indeed, the only chrysanthemums suitable for outdoor decorations, for the flowers of the later sorts are so quickly injured by the fogs and frosts that it is not often they produce a satisfactory display. But the early pompones bloom before the weather is so unfavourable as to injure them, and they can therefore be depended upon to bring their flowers to perfection.

PROPAGATION AND CULTURE OF EARLY POMPONES.

To ensure strong plants of the early pompones the propagation must be effected during October or November, and the young plants be maintained in a progressive state during the winter season. Healthy shoots pushing from the base of the plants must be selected, and after undergoing the needful preparation be inserted singly in small sixties or several together in five-inch pots; but the preferable course is to insert four or five in the larger of the two sizes mentioned, and to pot off singly in February or early in March. During the winter they should have a place in a cold pit or in a greenhouse where they will not be subjected to much artificial heat. To keep them safe from frost is desirable, but pushing them on in heat will be most injurious. The soil must be maintained in a nice moist state throughout the winter, and the structure in which they have a place be freely ven-

tilated when the weather is at all favourable to air-giving, for to keep them dwarf and short-jointed is of prime importance. Those required for the flower beds and borders can be bedded out with safety early in May, and they ought not to be kept in pots a day longer than is necessary.

SELECT EARLY POMPONES.

As the varieties forming the early-flowering section are not perhaps generally known, I would add that the following comprise some of the best: *Adrastes*, purplish rose; *Chrome Stella*, brown rich orange; *Frederick Pele*, bright red; *Jardin des Plantes*, very pale yellow; *Illustration*, white, tipped with pink; *Madame Pecoul*, rosy purple; *Madame C. Desgrange*, creamy white, flowers very large and fine; *Madame Jolivat*, soft peach; *Nanum*, bluish-white; *St. Mary*, pure white, very fine, and of much value for growing in quantities; *Golden Button*, yellow; *Le Petite Marie*, white, the flowers of medium size, and the growth dwarf.

PROPAGATING LARGE-FLOWERED VARIETIES.

The large-flowered varieties include the incurved, the reflexed, the large anemones, and the Japanese or tasseled; and the general directions given for their cultivation will apply with equal force to all the

sections. The cuttings of these can be inserted at any time from November to April; but when the plants are required for specimens or for furnishing blooms for exhibition purposes, the cuttings should be inserted some time between the first of the two months mentioned and February. Select strong short-jointed shoots from the base of the plants, and insert them singly in small pots filled with a rather light and sandy compost. Place in a cold frame and protect from frost by covering the lights with mats or dry litter.

REPOTTING LARGE-FLOWERED VARIETIES.

When they are well rooted shift into larger pots, those five inches in diameter being the most suitable to employ at this stage. As soon as these are well filled with roots they must be again shifted, and pots one or two sizes larger be employed, according to the dimensions of the pots in which they are to be put when they receive their final shift. This they will require some time during June, the exact date to be determined by the progress made. The size of the pots must be regulated by the purpose for which the plants are being grown. Those intended for specimens should be put into ten or twelve-inch pots; and for the plants intended for supplying cut blooms eight-inch pots are perhaps the best. The compost should be the same as advised for the early-flowering pompones, but care must be taken to select loam that is substantial without being heavy, and at the same time rich in fibrous matter. The drainage must be carefully arranged, so that the water can at all stages of growth pass readily away; this is most important, for although chrysanthemums are rather gross feeders, they are soon injured by water remaining for any length of time in a stagnant condition about their roots.

STOPPING AND TRAINING LARGE-FLOWERED VARIETIES.

The plants from which blooms for exhibition are to be cut must not be stopped more than once, if at all. Generally they will be better without any stopping. Those intended for specimens will require their shoots pinched several times to promote the production of lateral growth. They should have their first stopping in March, and the second when the new shoots have made two or three joints. It will, as a rule, be necessary to stop four times, the last pinching back to be done about the middle of July. The plants grown without any pinching should have one strong stake each, to which they should be firmly tied as they increase in height, to prevent their being injured by the wind. The others will require a stick to each shoot, and to be trained into shape in the course of the season, commencing as early as may be necessary, and completing the work early enough for the flowers and foliage to assume a natural position before the plants have to form part of an exhibition group or be placed in the conservatory.

DISBUDDING LARGE-FLOWERED VARIETIES.

Disbudding is essential to the production of well-developed blooms, and must be done with the care its importance demands. In the case of specimens no disbudding should be done until September, when the buds must be so thinned that two or three are left on each shoot. Pompones varieties may also have their buds thinned with advantage, although many growers leave all the buds. When any thinning of the buds of these is done, from four to five should be left on each shoot.

Very carefully must the disbudding be done of the plants from which it is desired to obtain exhibition flowers. They will produce their first bud during June, and beneath the bud will be seen several shoots, of which from two to six, according to the strength of the plant, can be allowed to remain. If any buds should appear before the middle of August they must be pinched off, as they seldom open kindly. Beneath this last bud new shoots will again appear, and all of them should be rubbed off but one. In a few weeks buds will again appear, and of these the centre one should be saved, and the others removed.

LIQUID MANURE FOR LARGE-FLOWERED VARIETIES.

Plants that thrive will be pot-bound by the middle of August, and require stimulants, which, it may be observed, must, to ensure fine blooms, be brought into use as soon as necessary. But the supply of liquid manure must be discontinued as soon as the flowers begin to expand, as when used after this stage there is a risk of its spoiling the colours of some of the varieties. Liquid manure from the stable or farmyard may be used, but care must be taken to well dilute it with pure water if it is at all strong. Sheep's droppings steeped in water makes the best liquid, and should be used where they can be obtained. They should be employed in the proportion of one bushel to eighty gallons of water, and frequent stirrings a few days before using the liquid will be necessary. Soot-water ought to be used a few times during the autumn, as it is of much value in keeping the foliage in a healthy state. Guano-water, prepared at the rate of two ounces to the gallon of water, may be used, and it should be supplied to the plants once a week, but they may be watered with the diluted liquid from the stable or farmyard, or the liquid prepared with sheep's droppings, every second day.

INSECT PESTS.

During the early part of the season the young shoots are liable to be infested with aphids, and unless remedial measures are at once resorted to on the appearance of the pest considerable mischief will be done. To destroy the aphides well dust with tobacco powder the shoots in which they have effected a lodgment. Earwigs are very destructive during the autumn amongst the large flowers, unless kept well under. To trap them, cut some bean-stalks into nine-inch lengths and hang them up the stems of the plants: the earwigs will take refuge in the pieces of stalk during the day, when they can be blown out and destroyed.

SHELTER FOR FRUIT TREES.

By J. C. CLARKE.

IN your editorial remarks on the crops of the year you very properly allude to the productiveness of little fruit trees in this year of scarcity, and you point out that this desirable result has been obtained by the aid of shelter. That you should do so is only what might have been expected from any one equally as much interested and with the same means of observation. It might be observed that there is very little more to be said on the subject; but I do not think so. On the contrary, I am strongly impressed with the belief that the more prominently we can bring the question of shelter for fruit trees before cultivators the greater the benefit we shall be bestowing on all who are in any way interested in the fruit crops.

During the past two months I have walked through many different gardens and orchards, and where I have found any fruit it has been on trees that were sheltered from the cruel winds of April last. Leaving the systems of pruning either of root or branch out of the question altogether, it is very plain to the most casual observer that shelter, whether of the garden walls or other immediate surroundings, must claim its share in saving what fruit there may be. In the case of orchards, the most fruitful trees I have seen were those somewhat crowded, and those occupying a position that was sheltered on the windward side by a thick plantation of forest trees and undergrowth. The crowded state of the trees in the orchard in question was not without its lesson. Comparing it with the majority of orchards and the relative productiveness of the trees over a series of years, I am quite satisfied that the trees in many orchards are much too far apart to afford each other the shelter they require. I can see no other reason for the productiveness of the trees in the orchard in question than the shelter the trees themselves afforded each other. The varieties are the same as we find in other places all over the country, and there are acres of the same description of orchard within the radius of a quarter of a mile that are now almost destitute of fruit. In fact, go where you will fruit is only to be found in sheltered places.

It may not be possible always to form an independent shelter for orchards, but it is possible to plant the trees sufficiently thick that when they attain to moderate size they will shelter each other. But there are many cases in which it would not be difficult to provide shelter on the boundary lines, and there is nothing more suitable than hedges of quick. These should be left to grow until they reach a height ranging from ten to sixteen feet. They should, in fact, be managed in the same way as the hedges by which many hop gardens in the county of Kent are sheltered; that is to say, they should have a trimming up once a year on each side, and the tops be kept down to the required height. I know of no more durable screen that can be kept in order with so little trouble, or that takes up so little space. In the counties of Somerset and Devon spruce fir trees are sometimes planted on the windward side to give shelter, and if they are planted far enough apart to allow of the full development of the bottom branches they afford good shelter. If they are planted at the same time as the apple trees they will attain a good size, and afford the requisite degree of shelter by the time the trees are large enough to come into bearing.

It is no doubt best to select the site for the orchard where shelter is already provided, when it can be done, but this is not always practicable. The most important matter is to provide shelter from the east and west, as the winds from these two points are the most destructive to fruit trees. For sheltering the trees from the east I should myself prefer a thick belt of trees, and if it could extend to a point some distance northward so much the better.

How far the trees may be made to shelter themselves will depend in a great measure upon the distance they are from each other. I am free to admit I do not like crowding trees or plants of any kind, but, looking at the case in all its bearings, it is not difficult to define what is and what is not overcrowding in this case. In many of what are considered the best-managed orchards in Devon and Somerset the trees are twelve feet apart in the rows and twenty-four feet from row to row. That the last distance is capable of being reduced with advantage has been made manifest this season by the scarcity of fruit. I consider that twelve feet is not too much in the row from tree to tree, but instead of the rows being twenty-four feet apart they should be reduced to sixteen feet. This distance will enable the trees to shelter and protect each other in a reasonable time, and I have no doubt that, taking the average of years, the crop would be increased.

SMYRNA RAISINS AND THE PHYLLOXERA.—The old proverb that "what is one man's meat is another man's poison" is well exemplified in the statistics of the dried-fruit trade of Smyrna, which has enormously increased of late years, in consequence of the prevalence of the phylloxera in France. Two kinds of raisins are exported from Smyrna—the one under the names of Rosaki and Saltana for table purposes, the other of a much more ordinary kind, used for distilling and making wine. Of these some 20,000 tons are annually produced, of which half is consumed in the country. The increase of exportation of this class of fruit into France is shown by the following figures: 1873, 642,000*l.*; 1874, 1,052,750*l.*; 1875, 580,800*l.*; 1876, 777,370*l.*; 1878, 2,172,220*l.*; 1879, 11,041,560*l.*; 1880, 14,486,840*l.*; 1881, 10,604,360*l.* The new Customs tariff is likely, however, to seriously injure this growing trade, as these ordinary wine-making grapes are now included under the head of table fruit, involving a duty on entering France of 6*l.* per hundred kil-grammes, instead of 30*s.* as before. As the price of Rosaki and Saltana fruit is from 60*s.* to 100*s.* the hundred kilogrammes, while that of the wine-making fruit is only from 23*s.* to 32*s.*, not only the Smyrna fruit-growers, but the French wine producers must suffer considerably from this arrangement.

The House, Garden, and Home Farm.

CHIMES.

SWEET chimos that in the loneliness of night
Salute the passing hour, and in the dark
And silent chambers of the household mark
The movements of the myriad orbs of light!
Through my closed eyelids, by the inner sight,
I see the constellations in the air
Of their great circles moving on, and hark!
I almost hear them singing in their flight.
Better than sleep it is to lie awake
O'er-canopied by the vast starry dome
Of the immeasurable sky; and fool
The slumbering world sink under us, and make
Hardly an eddy—a mere rush of foam
On the great sea beneath a sinking keel.

H. W. LONGFELLOW.

THE HOUSE.

It may be well to suggest that the thorough cleaning out of closets and store-rooms, where necessary, should be no longer delayed, for mildew will now spread at a rapid rate wherever the conditions are favourable to its development. Old stores of preserves should be separated from the new ones to be used up first. Wooden shelves should be brushed over and washed over if needful; but washing causes damp, and is not always desirable. But cleanliness and dryness are so needful that where these are wanting the stores of all kinds must run to waste. Stores devoted to the various descriptions of roots may have with advantage a wash of hot lime. As the supplies of apples and pears are very scarce this season, these fruits must be taken care of, and where they are stored in earthenware pans these receptacles must be ready for them as they are gathered from the trees.

THE GARDEN.

AURICULAS will now need protection from heavy rains. Carefully examine the whole stock, and stir the surface of the soil in the pots and remove any dead leaves.

BEDDING PLANTS struck now should be shut up close in frames. It is too late now to put cuttings in the open border, as the ground is cooling and the plants are getting sappy, owing to the abundance of rain. All the bedding stuff that is now well rooted and potted off for winter should be placed out of doors on a hard bottom of stone or slates to harden for two or three weeks.

BULBS to be planted as opportunities offer. Those most important now are Snowdrops, Crocuses, and Narcissi, and hardy border Lilies, as these do no good if kept long out of the ground. Pot Hyacinths, early Tulips, Narcissus bulbocodium, Ixias, and Sparaxis without delay.

CALCEOLARIAS for bedding purposes may be propagated now in quantity. Take short stubby side shoots, dibble them into a bed made up in a cold frame of leaf-mould, very rotten dung, and about a fourth part sand.

GRAPES for winter and early spring use must have sufficient warmth to insure their ripening by the end of the month, and crops that are ripe must be protected from the attacks of wasps.

ORCHID HOUSE to be shaded as little as possible, so that the pseudo-bulbs and strong healthy shoots may be assisted in ripening off by the influence of the sun; the process to be perfected by keeping up a temperature ranging from 70 deg. to 80 deg., with free ventilation in favourable weather. Give plenty of water to such as are growing freely, but apply it very sparingly to those now rapidly approaching their season of rest.

HARDY ANNUALS may still be sown to keep over winter. If sown in the open ground, it must be on poor hard soil in a dry position. It cannot be too widely known that all the really hardy annuals are better from autumn than spring sowings.

MUSHROOMS.—Prepare the bed for winter supply. The first thing to be done is to collect plenty of short unfermented dung, or if only long dung can be had pick out the long straw and lay it in small heaps to ferment gently, and turn it every three or four days till it produces only a gentle heat; then make up the bed. A dry dark shed is as good a place as any, but a better crop and a larger supply may be ensured where the beds can be made over a warm chamber.

STOVE.—Remove shading as much as will be safe, and place subjects that are going to rest in the coolest part of the house. See that all the winter-flowering plants are sufficiently potted; and any that are pot-bound, and must not be checked by a shift, assist by means of liquid manure. A few Tropæolums struck now will be useful in the stove for winter blooms.

STRAWBERRIES to be forced should now have well-formed plump crowns, and be allowed plenty of room.

WALL TREES only need such care as may be necessary to assist in the ripening of the wood. Where spray-like growth and rank shoots overtop and shade wood selected for bearing remove it, or cut it into reasonable bounds, for the wood laid in needs now all the sun it can obtain, and it is sure not to have too much.

THE HOME FARM.

FODDER plants must receive due attention on the home farm, and one of the most important is the Italian rye-grass. A profitable mode of employing this invaluable fodder plant is to sow broadcast four bushels of the grass and four pounds of Trifolium incarnatum. If sown at once there will be a good plant before winter, and very early in spring it may be cut, and during the season three or four more cuts may be obtained. On good land it may be allowed to stand another year, or the stubble may be ploughed. If the grass remains it must have a dressing of guano and sulphate of ammonia. On land at all weak a dressing of manure or artificial should be put on after every cutting, and well washed in to help the next growth. As a stolen crop, to be mown only once and then ploughed up for turnips, it is useful, especially when there is a likelihood of food for stock being scarce in spring. A first-rate result is only to be expected from first-rate seed and first-rate cultivation, and the two, combined on a first-rate land in a first-rate season may result (and has resulted) in a produce of twenty tons to the acre at one cutting; but ten to fifteen tons is a good cut. The Prickly Comfrey has acquired some degree

of popularity of late years, and those who intend giving it a trial should make note of the fact that plants may be easily obtained, and if planted now will become well established before winter, and be in capital condition to grow freely next year. It is only on strong moist land that this comfrey can be expected to prove profitable, and we are bound to say that we are still somewhat sceptical as to its suitability for general use, though it is certainly excellent food for milch cows, and a thing likely to acquire favour on fancy farms, if the money-making farmer does not take to it. In most cases it would be advisable to begin with a few hundred plants and fence in a plot for them, and leave them alone until large enough to divide. In such case occasional weeding would be all the trouble they would occasion; and there would be no great risk incurred, as might be the case in planting largely in the first instance, because observation of the plant on the spot through one season would enable a practical man to form a sound judgment of its probable usefulness.

THE COLOURS OF FLOWERS.

By GRANT ALLEN.
From the Cornhill Magazine.
(Continued from page 462.)

In many other cases besides the water lily we know that stamens often turn into petals. Thus the numerous coloured rays of the mesembryanthemums or ice-plant family are acknowledged to be flattened stamens. In double roses and almost all other double flowers the extra petals are produced from the stamens of the interior. In short, stamens generally can be readily converted into petals, especially in rich and fertile soils or under cultivation. Even where stamens always retain their pollen-sacs, they have often broad flattened petaloid filaments, as in the star of Bethlehem and many other flowers. Looking at the question as a whole, we can see how petals might easily have taken their origin from stamens, while it is difficult to understand how they could have taken their origin from ordinary leaves—a process of which, if it ever took place, no hint now remains to us. We shall see hereafter that the manner in which certain outer florets in the compound flower-heads of the daisy or the aster have been sterilized and specialized for the work of attraction affords an exact analogy to the manner in which it is here suggested that certain stamens may at an earlier date have been sterilized and specialized for the same purpose, thus giving rise to what we know as petals.

We may take it for granted, then (to return from this long but needful digression), that the earliest petals were derived from flattened stamens, and were therefore probably yellow in colour, like the stamens from which they took their origin. The question next arises—How did some of them afterwards come to be orange, red, purple, or blue?

A few years ago, when the problem of the connexion between flowers and insects still remained much in the state where Sprengel left it at the end of the last century, it would have seemed quite impossible to answer this question. But nowadays, after the full researches of Darwin, Wallace, Lubbock, and Hermann Müller into the subject, we can give a very satisfactory solution indeed. We now know, not only that the colours of flowers as a whole are intended to attract insects in general, but that certain colours are definitely intended to attract certain special kinds of insects. Thus, to take a few examples only out of hundreds that might be cited, the flowers which lay themselves out for fertilization by miscellaneous small flies are almost always white; those which depend upon the beetles are generally yellow; while those which bid for the favour of bees and butterflies are usually red, purple, lilac, or blue. Certain insects always visit one species of flower alone; and others pass from blossom to blossom of one kind only on a single day, though they may vary a little from kind to kind as the season advances, and one species replaces another. Müller, the most statistical of naturalists, has noticed that wild bees form seventy-five per cent. of the insects visiting the very developed composites, they form only fourteen per cent. of those visiting umbelliferous plants, which have, as a rule, open but by no means showy white flowers. Certain blossoms which lay themselves out to attract wasps are, as he quaintly puts it, "obviously adapted to a less æsthetically cultivated circle of visitors." And some livid red flowers actually resemble in their colour and odour decaying raw meat, thus inducing bluebottle flies to visit them, and so carry their pollen from head to head.

Down to the minutest distinctions between species, this correlation of flowers to the tastes of their particular guests seems to hold good. Hermann Müller notes that the common galium of our heaths and hedges is white, and therefore visited by small flies; while the lady's bedstraw, its near relative, is yellow, and owes its fertilization to little beetles. Mr. H. O. Forbes counted on one occasion the visits he saw paid to the flowers on a single bank; and he found that a particular bumble-bee sucked the honey of thirty purple dead-nettles in succession, passing over without notice all the other plants in the neighbourhood; two other species of bumble-bee and a cabbage-butterfly also patronized the same dead-nettles exclusively. Fritz Müller noticed a lantana in South America which changes colour as its flowering advances; and he observed that each kind of butterfly which visited it stuck rigidly to its own favourite colour, waiting to pay its addresses until that colour appeared. Mr. Darwin cut off the petals of a lobelia and found that the hive-bees never went near it, though they were very busy with the surrounding flowers. But perhaps Sir John Lubbock's latest experiments on bees are the most conclusive of all. He had long ago convinced himself, by trials with honey placed on slips of glass above yellow, pink, or blue paper, that bees could discriminate the different colours; and he has now shown in the same way that they display a marked preference for blue over all others. The fact is, blue flowers are, as a rule, specialized for fertilization by bees, and bees therefore prefer this colour; while conversely the flowers have at the same time become blue because that was the colour which the bees prefer. As in most other cases, the adaptation must have gone on *pari passu* on both sides. As the bee-flowers grew bluer, the bees must have grown fonder and fonder of blue; and as they grew fonder of blue they must have more and more constantly preferred the bluest flowers.

We thus see how the special tastes of insects may have become the selective agency for developing white, pink, red, purple, and blue petals from the original yellow ones. But before they could exercise such a selective action, the petals must themselves have shown some tendency to vary in certain fixed directions. How could such an original tendency arise? For, of course, if the insects never saw any pink, purple, or blue petals, they could not specially favour and select them; so that we are as yet hardly nearer the solution of the problem than ever.

Here Mr. Sorby, who has chemically studied the colouring matter of leaves

and flowers far more deeply than any other investigator, supplies us with a useful hint. He tells us that the various pigments of bright petals are already contained in the ordinary tissues of the plant, whose juices only need to be slightly modified in chemical constitution in order to make them into the blues, pinks, and purples with which we are so familiar. "The coloured substances in the petals," he says, "are in many cases exactly the same as those in the foliage from which chlorophyll has disappeared; so that the petals are often exactly like leaves which have turned yellow and red in autumn, or the very yellow or red leaves of early spring." "The colour of many crimson, pink, and red flowers is due to the development of substances belonging to the erythrophyll group, and not unfrequently to exactly the same kind as that so often found in leaves. The facts seem to indicate that these various substances may be due to an alteration of the normal constituents of leaves. So far as I have been able to ascertain, their development seems as if related to extra oxidation, modified by light and other varying conditions not yet understood."

The different hues assumed by petals are all thus, as it were, laid up beforehand in the tissues of the plant, ready to be brought out at a moment's notice. And all flowers, as we know, easily sport a little in colour. But the question is, do their changes tend to follow any regular and definite order? Is there any reason to believe that the modification runs from yellow through red to blue, rather than *vice versa*? I believe there is; and we get hints of it in the following fashion.

One of our common little English forget-me-nots, by name *Myosotis versicolor* (may I be pardoned for using a few scientific names just this once?) is pale yellow when it first opens; but as it grows older it becomes faintly pinkish, and ends by being blue, like the others of its race. Now, this sort of colour-change is by no means uncommon; and in all the cases that I know of it is always in the same direction, from yellow or white, through pink, orange, or red, to purple or blue. For example, one of the wallflower tribe, *Cheiranthus chamæleo*, has at first a whitish flower, then a citron-yellow, and finally emerges into red or violet. The petals of *Stylidium fruticosum* are pale yellow to begin with, and afterwards become light rose-coloured. An evening primrose (*Oenothera tetralix*), has white flowers in its first stage and red ones at a later period of development. *Cobaea scandens* goes from white to violet; *Hibiscus mutabilis* from white through flesh-coloured to red. Fritz Müller's *lantana* is yellow on its first day, orange on the second, and purple on the third. The whole tribe of borages begin by being pink and end with being blue. The garden convolvulus opens a blushing white and passes into full purple. In all these and many other cases the general direction of the changes is the same. They are usually set down as due to oxidation of the pigmentary matter.

If this be so, there is a good reason why bees should be specially fond of blue, and why blue flowers should be specially adapted for fertilization by their aid. For Mr. A. R. Wallace has shown that colour is most apt to appear or to vary in those parts of plants or animals which have undergone the highest amount of modification. The markings of the peacock and the Argus pheasant come out upon their immensely-developed secondary tail-feathers or wing-plumes; the metallic hues of sun-birds and humming-birds show themselves upon their highly-specialized crests, gorgets, or lappets. It is the same with the hackles of fowls, the head-ornaments of fruit-pigeons, and the bills of toucans. The most exquisite colours in the insect world are those which are developed on the greatly-expanded and delicately-feathered wings of butterflies; and the eye-spots which adorn a few species are usually found on their very highly-modified swallow-tail appendages. So, too, with flowers; those which have undergone most modification have their colours most profoundly altered. In this way, we may put it down as a general rule (to be tested hereafter) that the least developed flowers are usually yellow or white; those which have undergone a little more modification are usually pink or red; and those which have been most highly specialized of any are usually purple, lilac, or blue. Absolute deep ultramarine, like that of this harebell, probably marks the highest level of all.

On the other hand, Mr. Wallace's principle also explains why the bees and butterflies should prefer these specialized colours to all others, and should therefore select the flowers which display them by preference over any less developed types. For bees and butterflies are the most highly adapted of all insects to honey-seeking and flower-feeding. They have themselves on their side undergone the largest amount of specialization for that particular function. And if the more specialized and modified flowers, which gradually fitted their forms and the position of their honey-glands to the forms of the bees or butterflies, showed a natural tendency to pass from yellow through pink and red to purple and blue, it would follow that the insects which were being evolved side by side with them, and which were aiding at the same time in their evolution, would grow to recognize these developed colours as the visible symbols of those flowers from which they could obtain the largest amount of honey with the least possible trouble. Thus it would finally result that the ordinary unspecialized flowers, which depended upon small insect riff-raff, would be most left yellow or white; those which appealed to rather higher insects would become pink or red; and those which laid themselves out for bees and butterflies, the aristocrats of the arthropodous world, would grow for the most part to be purple or blue.

Now, this is very much what we actually find to be the case in nature. The simplest and earliest flowers are those with regular symmetrical open cups, which can be visited by any insects whatsoever; and these are in large part yellow or white. A little higher are the flowers, with more or less closed cups, whose honey can only be reached by more specialized insects; and these are oftener pink or reddish. More profoundly modified are those irregular one-sided flowers, which have assumed special shapes to accommodate bees or other specific honey-seekers; and these are often purple, and not infrequently blue. Highly specialized in another way are the flowers whose petals have all coalesced into a tubular corolla; and these might almost be said to be usually purple or blue. And, finally, highest of all are the flowers whose tubular corolla has been turned to one side, thus combining the united petals with the irregular shape; and these are almost invariably purple or blue. I shall proceed in the sequel to give examples.

(To be continued).

THE CLOVER CROP.—Messrs. John Shaw and Sons, of 37, Mark Lane, report that advices from the Continent and America as to the clover crops are unfavourable, while in the London seed market little business is doing.

Notes of Observation.

THE PEPPER VINE.

ONE of the most beautiful plants on the wall at Chiswick, to which we have occasionally referred, is the Pepper Vine. In the absence of a guide one not acquainted with the plant may easily discover it by its luxuriant growth and richness of colour. It is a very free, luxuriant, and most elegant "Virginian creeper" with pinnate leaves, the divisions of which are deeply cut, and the colour a peculiarly rich shade of green tinged with blue, or a suggestion thereof. The fruit is of a proper ampelopsis type, and there is at this time (September 6) much of it on the vine. It has no history, and has obtained so little attention that you may refer to fifty proper books for it, and find no mention of it whatever. The absence of showy flowers explains this; but it is somewhat surprising that its rich leafage has not obtained special attention. In the books it ranks as *Ampelopsis bipinnata*, *Vitis arborea*, and *Cissus stans*. It is treated scientifically in "De Bononiense Scientarum," 1748, 3, t. 24. S. H.

ANNUALS IN PROPER FORM.

We send by rail a box containing three single plants of candytuft and clarkia for your inspection. They show the advantage of giving annuals plenty of room to grow and develop themselves. The candytufts measure as much through as they are high; one of them has nearly 100 expanded heads of bloom. The clarkia has forty-eight flowers fully out, each one measuring nearly two inches across; the height when growing was about ten inches, and nearly as much through. In our seed grounds these plants, through having plenty of room, are much finer, last in bloom much longer, and are incomparably superior in every respect to the same varieties grown thickly together; one would hardly imagine them to be the same kinds. Most people ruin their annuals by thick sowing and not thinning out.

Gloucester.

J. C. WHEELER AND SON.

[The specimens sent may be described as little trees, and they illustrate a remark we made not long since that a single plant of Virginian stock might cover a square foot of space if allowed sufficient room in the first instance. It is one of the curiosities of gardening to see annuals treated in a reasonable manner.—ED.]

CARNATIONS IN FLOWER AT CHRISTMAS.

Any good dianthus that can be brought into flower freely during the winter is valued both for colour and fragrance, and the thoughts of summer it suggests to all. There are various ways of securing a winter bloom. The tree carnations as pot plants are in high favour, as they deserve to be. The tree pinks, and even the far-famed Anne Boleyn, the commonest of our border flowers, will come into the service well. But to find the varieties in an easy matter, while another question of interest is not so easily disposed of, and that is the best method of procedure. Plants in pots often make but a poor return, and in that case do not pay for house room. But strong plants taken up from the open ground in August and September and planted out in a border in a house where there is abundant light and air and sufficient piping to maintain a comfortable atmosphere during cold weather, will flower grandly, and their time of flowering may be regulated by management. Those wanted early should be planted early, and in any case it will not do to hurry them, for if the heat is too strong they will be more plague than profit. W. K.

HARRISON'S MUSK AS A BEDDING PLANT.

This now well-known musk appears to be rapidly acquiring popularity in Scotland as a bedding plant, and its behaviour so far fully justifies the esteem in which it is held for the embellishment of the flower garden. In the GARDENERS' MAGAZINE of November 15, 1879, Mr. John Downie, of the Pinkhill Nurseries, Edinburgh, describes it as being employed most successfully as a bedding plant in Ross and Caithness, and recently I saw it in splendid condition in the gardens of Dalkeith Park. In front of one of the magnificent ranges of fruit and plant houses in these famous gardens, now so ably managed by Mr. M. Dunn, there are a border and series of beds, and in these the musk is planted largely and with singularly good effect; several of the beds, probably not less than a dozen, are exclusively occupied with it, and they were practically solid with bloom. A long band, about twelve inches in width, in one of the borders was very striking, and afforded a good proof of the adaptability of the plant for the formation of front lines and marginal bands in favourable situations. I saw it also used with good effect in the gardens of Melville Castle, a fine place within a mile or so of the town of Dalkeith. Its condition was not less satisfactory than at Dalkeith Park, for it was growing as vigorously and blooming as profusely as could have been desired. Flower gardening generally is well done at Melville Castle, and in the large flower garden contiguous to the kitchen garden and fruit houses are fine examples of the old-fashioned ribbon borders and of carpet bedding. The strong feature of the place is, however, the grapes, which are grown by Mr. McKinnon with a success by no means common on either side of the Tweed. GEORGE GORDON.

HANDS OFF.

If I were an exhibitor of choice fruit at horticultural exhibitions I should get the above two words printed in large letters on a card, and place the card in a conspicuous position in front of my fruit. I have on so many occasions seen beautiful peaches disfigured by the handling of visitors, and splendid bunches of grapes with half the bloom rubbed off, that I have felt truly vexed at the condition of the fruit when the time has come to remove it out of the show. I do not know that my plan would succeed altogether, but it might do something to shield the fruit from harm. If it did not I would show it in a case with a glass cover. If the rules of the exhibition did not admit of this I would keep my fruit at home. I could never submit to see fine fruit, on which I had spent months of patient labour, so disfigured as not to be presentable on my master's table after it had been brought from the show. J. C. CLARKE.

PEACH STUMP THE WORLD.

This peach is of American origin, and if not the best from the other side of the Atlantic, it is, in my opinion, equal to the best of those that have been received. The tree grows freely, and is very fruitful, producing fruit of large size and fair quality. The flavour, in fact, is equal to any that ripen at the same time, which in an unheated house is about the first week in September. The fact that it produces large highly-flavoured fruit is much in its favour. I do not say that it surpasses some other better-known kinds, but those who like a considerable number of varieties bearing fruit of large size may be safely recommended to grow it. J. MACDONALD.

GOLDEN-LEAVED SHRUBS AND TREES.

Trees and shrubs with golden leaves do not take on their proper colour unless they are planted where they can have the full benefit of sunlight during the greater part of the day. The golden yew and the golden form of *Cupressus lawsoniana* both take on a beautiful golden hue when fully exposed to the sun, but if planted in the shade the golden colour is hardly discernible. As the tree-planting season is near at hand, this note of warning may be of some service to your readers.

J. MACDONALD.

HOOPER'S ABUNDANCE TOMATO.

I have been looking for an abler pen than mine to bring this tomato under the notice of the public. Having, however, been successful in securing the two second prizes offered by the raisers, just allow me to say I think very highly of this variety. I myself grew it under disadvantages, as in the first place I was late in sowing, and then my vines were in advance of the tomatoes, so they got but very little sun. It is a very free setting variety of a strong habit, and having saved some seed from a splendid fruit, hope to do better another time. I have now (August 28) some plants in 60 size which I am going to grow on and try for the winter. July 25 was too early for me, as even the week later I had finer fruit. I grew mine on single stems, and when they got seven feet high I cut tops off to keep away from grapes. Now I have started the subject, perhaps others will record their experience of this, which I name a first-class variety.

STEPHEN CASTLE.

King's Lynn.

ASTRAGALUS STIPULATUS.

This remarkable Nepalese plant has made a conspicuous figure in the border next the wall that encloses the lawn in the R.H.S. gardens at Chiswick. All who have scanned the plants in that border have noticed it and asked for its name. It is a hardy herbaceous plant, rising three to four feet in height, with very bold pinnate leafage. The flowers are of the usual astragalus type, quite unattractive; but the very distinct leafage, and the leafy stipules and stipitate pods are distinguishing characteristics, and arrest attention as interesting features. It is figured in the *Botanical Magazine*, t. 2, 380, under the name *A. stipitatus*, but Don's name, as given above, may claim priority. It was discovered by Dr. Hamilton, in 1802, at Gerasan, in Upper Nepal.

S. H.

CERASTIUM IN PERFECTION.

Since the introduction of carpet or tapestry bedding a very considerable number of white-leaved plants have been employed for contrasting with the blue flowers of the lobelias and the amber, crimson, bronzy, and magenta shades of the alternantheras with varying success. But it is questionable whether any of the numerous subjects have, taking all points into consideration, been equal to the well-known *Cerastium tomentosum*, which at one time was so popular for edging purposes. This neat and elegant bedder has fallen into disrepute, not because there is any difficulty in its management, but because the little attention required to keep it in order has so often been begrudged it. One important point in its management is to either propagate a new stock annually from cuttings, or to cut the old plants over so closely in the spring that when they are broken up in May for replanting they shall be well furnished with new growth from the base. This, however, is not often done, and the plants are much exhausted by flowering, and the tufts are so straggling that it is difficult, if not impossible, to plant them with that nicety so essential in working out elaborate designs. Another point is to commence the clipping or pinching immediately it becomes necessary, as in the case of the Golden Feather; for when the growth is allowed to make considerable progress and then cut back, the bands or blocks have a gappy appearance for some time and frequently do not recover at all. This season the *cerastium* is employed rather extensively in the Prince's Gardens, Edinburgh, and it is so satisfactory that it is well deserving of special attention. From the Waverley Market to the Scott Monument there is a broad ribbon border with a front band of the *cerastium*, which in keeping more closely approaches perfection than any previous example that has yet come under my notice, and I have seen some miles of *cerastium* bands in my time. The band is nine inches in width and between two and three inches in height, and from end to end is perfectly solid and as level on the top and as straight at the sides as it is possible to make it.

G. G.

The Household.

THE ART AND MYSTERY OF BOTTLING PLUMS.

By JOHN SCOTT, of Merriott.

In a good plum season the bottling of plums is a matter of great importance, and in a poor plum season it is not unimportant, because plums are always plentiful somewhere, and it is well to have some other way of preserving them in addition to the good old way of boiling them down into jam.

In order to bottle plums you will need the plums and the bottles. As to the first I shall say nothing, but as to the second a word may be well. The best way I know of for obtaining bottles is to purchase second-hand wide-mouthed bottles from the dealers in sweets. These bottles should be well cleaned and perfectly dry. If you see the sweets removed from them it may not be needful to wash them, but in any case the bottles must be clean, and I must leave the rest to you.

Now as to the plums. They must be perfectly sound or it will be a folly to bottle them. The prudent way will be to throw out all that are in the slightest degree broken and use these at once for tarts or jam, and to bottle only the soundest that are quite clean and dry. Fill the bottles to the neck, leaving only just enough room for the cork—the fuller the better, but the cork must not press upon them when it is driven home.

Having filled the bottles, place them in a wide kettle or copper or other convenient vessel filled with hay and cold water, and put over a brisk fire until the water begins to boil. By plunging the bottles in hay and filling with water up to their necks the time is very much reduced, for the water will boil in half the time that it would without the hay, because of course there will be less of it. The boiling should continue fifteen to twenty minutes to ensure the fruit being heated through.

The next business will be to fill up to compensate for shrinking.

Take out two bottles; from one of them shake sufficient fruit to fill up the other; continue this process, so as to have a certain number of bottles well filled up, emptying one at a time as needful: this will reduce the number of bottles. Put in the filled-up bottles, stuff the hay well around them, and set the fire going again, and let the water boil a few minutes.

You must now prepare for tying down. Have some good ox bladders cut to convenient sizes (and mind they are large enough), and put them in warm water to render them soft and pliable.

Now take from the boiling water one of the bottles. If the juice has not quite covered the fruit, put in a tablespoonful of boiling water—the less the better, but the fruit must be covered. Then quickly tie over the mouth a piece of bladder, and it will be ready to put away until required for a tart or pudding. The principal point in the business is quickness of action, for if the work is in the hands of a dawdler the air expelled by the heat will return before the tying is done, and in due time, and very quick time, the fruit will become mouldy. But if well done and briskly bottled plums will keep two or three years, and be nearly as good at the last as the first.

WHITE CUSTARDS.

White custard is made with the whites of eggs only, and as these are omitted from many dishes, and the yolks alone used, it is well to know of some way in which the former can be utilized.

Allow the whites of four eggs to a pint of milk. Boil the milk, flavouring it with lemon-peel. Take it off the fire, and put into it three ounces of the best loaf sugar. Let it cool, and see that the sugar is quite dissolved. Put the whites of the eggs in an earthenware vessel previously heated with boiling water; dip the whisk in boiling water; beat the eggs until they become a light froth, and have increased to three times their original bulk; pour the milk on them, stirring them as you pour. Have a saucepan of boiling water on the fire; put the custard into a tin, and stand this in the saucepan, stirring the custard in one direction until it thickens. The success of a custard depends on its being taken from the fire at the right moment, as another instant will make it curdle. When it thickens enough to impede the spoon in the least it is done. A tin vessel is much the best, as a ware one is so slow in allowing the heat through to thicken the custard. Serve in custard glasses. White custard forms a part of some very pretty dishes. I give a few recipes.

Recipe No. 1. Place a layer of bright-looking jam in a glass dish and pile white custard over it, making it high in the centre of the dish.

Recipe No. 2. Line a pie-dish with puff paste; bake for fifteen minutes, and when a little cool put in a layer of raspberry jam; when quite cold cover with white custard.

Recipe No. 3. Boil two tablespoonfuls of sago, which has been washed and drained, in a pint of milk, previously flavoured with lemon rind and then sweetened with two tablespoonfuls of sugar. Let this cool, and then add the well-beaten yolks of four eggs, beating the whole for five minutes. Put this into a pie-dish, and bake for one hour. When quite cold, lay over it some jam or jelly, and put over this some white custard, also flavoured with lemon rind, and made with the whites of the eggs which have supplied the yolks; put in the sago. In this dish, rice, whole or ground, or corn-flour, may be substituted for the sago, or bread-crumbs, made up as for bread-pudding, always taking care that the flavour in the solid part of these dishes is the same as that in the custard.—ELLY CARROLL, in *Sylvia's Home Journal* for September.

ONIONS FOR PICKLING.—Two ounces of salt to be put into a large saucepan of boiling water, the onions tied in a thin cloth to be put into the boiling water, and remain till within a moment of its boiling up, and then be thrown in the cloth into cold water, and let the tap of cold water run on them, or a pitcher of cold water be poured on till the onions are cold; then slip the skin off each and lay it under a clean cloth; fill a pickle-bottle a quarter full of onions, put in six cloves, and half a teaspoonful of salt, and a little whole ginger; then pour on them good vinegar—brown or white—and continue till the bottles are full. Tie each down with strong paper, over which brush beaten white of egg. This, however, scarcely matters with onions done in this way, as they will keep good for a year; after three months being tied over or corked, they will without covering keep good. This is the result of using cloves. Nothing moulds, not even ink, if cloves are put into it.

A HINT FOR A WINTER SALAD.—In September or October, collect a quantity of dandelion plants with roots; pick off all the green leaves without injuring the crowns (where the leaves shoot from) or the roots; but if the latter be inconveniently long or forked, they may be shortened. Plant them as thick as possible in common garden mould and in flower pots, with their crowns on a level with the edge of the flower pots. Give one good watering to settle the earth about the root. When they have drained, set them away in any convenient corner of a dark warm cellar—complete darkness is necessary. After a time, according to the warmth of the cellar, the dandelions will have sent up shoots of ivory whiteness, and when about four inches long they are fit to cut for salad, fresh, crisp, and delicate, with a delicious nutty flavour.

FRIED ONIONS.—Chop each of four large onions across in four from point to stem, but not through them, so as to separate the quarters from each other. Now slice them very thin. Salt them slightly, and fry brown in only enough boiling fat to grease them, otherwise they will not colour brown. When done put them in a small drainer to drain away the fat, but to keep hot, and then serve alternately with mashed potatoes, round sausages, or steak, or hashed mutton.—MRS. WARREN, in *Ladies' Treasury*.

TRADE CATALOGUES.

CHARLES TURNER, ROYAL NURSERIES, SLOUGH.—*Catalogue of Hyacinths, Narcissus, Tulips, &c.*

JOSEPH SCHWARTZ, 7, ROUTE DE VIENNE, LYON.—*New Roses to be put into Commerce November 1, 1882.*

HARRISON AND SONS, LEICESTER.—*List of Flowering Bulbs, 1882.*

JOHN FRASER, LEA BRIDGE ROAD, LEYTON.—*Catalogue of Dutch and other Flower Roots.*

CARTER AND CO., 237 AND 238, HIGH HOLBORN.—*Carter's Winter and Spring Flowers.*

BARR AND SON, 34, KING STREET, COVENT GARDEN.—*Autumn Catalogue of Bulbs and Plants for all Seasons.*

Replies to Queries.

W. T.—You will have to pay the rate, and it will be mere waste of time and temper to discuss with the assessors whether the spade in your hand should be rated. They are but doing their duty as the law directs.

D. M. G.—It is probable the roots of your peach trees have penetrated into a sour, perhaps very wet, subsoil. In any case an examination of their roots should be made as soon as possible.

Window Plants.—B. R., Burnham.—The zonal pelargoniums are the most suitable for the window, and should be grown in pots five or six inches in diameter, with a compost of turfy loam four parts, and well-rotted manure and sand one part each. Sir J. Hooker's "Primer of Botany" and Professor Oliver's "Elementary Botany" are both good and not expensive. The better course will be to commence with the primer, and after having thoroughly mastered it proceed to the larger work. They are both published by Messrs. Macmillan and Co., Bedford Street, London, W.C.

Names of Plants.—W. H., Isle of Man.—No. 1, *Escallonia macrantha*; 2, *Veronica alba lilacina*; 3, *Spiræa callosa*; 5, *Berberis Darwini*; 7, *Cupressus Lawsoniana*; 9, *Thuja occidentalis*; 12, *Picea pinsapo*. The other specimens must be sent again when in bloom, as they cannot be identified without flowers. **S. Maddox.**—It is impossible to name your pansies and phloxes; no one in the world would attempt it, and we never profess to name garden varieties. The sprig of white flowers without any leaves is from a *Francoa*, but as leaves were not sent we cannot name the species. **W. D.**—As you sent only a leaf and no flowers, we can only guess that your plant is *Eucharis candida*.

Clematis.—R. S.—*Clematis* that are growing in pots may be put out at almost any season of the year with the full assurance of success, but there is no better time for planting them than during October. They will succeed in almost any soil, but a rather light and well-drained loam is the most suitable. Previous to planting the soil should be enriched moderately with stable or farmyard manure, and if the staple is at all heavy a rather liberal dressing of lime rubble or old mortar will be very beneficial. Some of the finest varieties are—For flowering in May and June, Lord Derby, lavender; Lord Londesborough, mauve; Miss Bateman, white; Patens, mauve tinted lilac. For flowering during the summer: Beauty of Surrey, pale blue; Gem, lavender-blue; Louis Van Houtte, bluish purple; Lady Caroline Nevill, French white. For late summer and autumn: *Lilacina floribunda*, greyish lilac; and Jackmanni, violet-purple. The last-mentioned is preferable where space can be found for only one variety.

MR. F. A. FAWKES'S WORK ON HORTICULTURAL BUILDINGS.

IN travelling about the country I have met with numerous gardeners who have expressed a desire to purchase my book on "Horticultural Buildings," but could not afford to do so, the published price being 10s. 6d. Actuated by a desire to assist the fraternity as much as can, I beg to intimate that I shall be very pleased to place at the disposal of any *bona fide* gardeners, readers of your valuable Magazine, who may choose to apply to me for them, one hundred copies of the above work at 3s. each, which I need not tell you is under actual cost price. Any application by post must be accompanied by 7d. extra to pay the postage of the book.

F. A. FAWKES.
Mansion House Buildings, Queen Victoria Street, London, E.C.

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "*Sapo Carbonis Detergens*" (as doctors prescribe) impressed on each tablet and wrapper, without which none is genuine.—[ADVT.]

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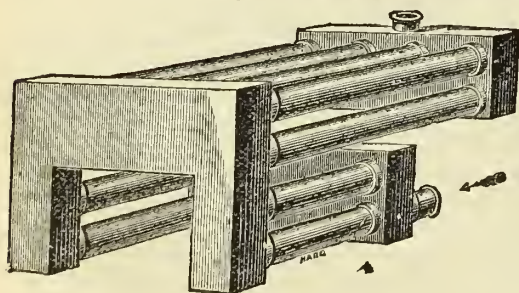
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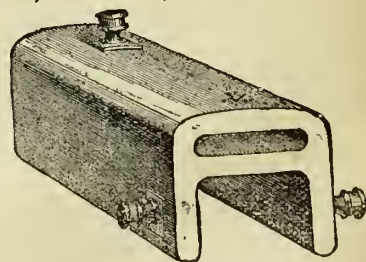
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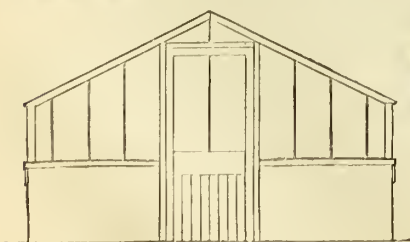
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								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882		
17	S	15th Sunday after Trinity.	5 38	5 34	6 10	10 55	7 54	4 20	4 35	1 30	1 45	57.3	Aster coccineus, H.	Red.	200
18	M	Battle of Alma, 1854.	5 40	5 55	6 7	11 56	8 33	4 53	5 7	2 0	2 18	57.2	Aster discolor, H.	Puce and White.	251
19	Tu	Battle of Poitiers, 1356.	5 42	6 16	6 5	After.	9 21	5 25	5 45	2 32	2 50	57.1	Cattleya pumila, S.	Rose.	262
20	W	1st Quarter, 1h. 23m. after.	5 43	6 37	6 2	1 48	10 18	6 8	6 32	3 10	3 33	56.9	Diplacus atropurpureus, G.	Red.	263
21	Th	St. Matthew.	5 45	6 58	6 0	2 33	11 26	7 0	7 35	3 57	4 25	56.7	Dipladenia profusa, S.	Rose red.	264
22	F	Lord Denman died, 1854.	5 46	7 19	5 58	3 12	Morn.	8 12	8 52	5 0	5 37	56.6	Tritonia Burchellii, H.	Orange.	265
23	S	John Penn died, 1878.	5 48	7 40	5 56	3 45	0 40	9 45	10 25	6 17	7 10	56.3	Tropaeolum tuberosum, H.	Red and Yellow.	266

The Gardeners' Magazine.

SATURDAY, SEPTEMBER 16, 1882.

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EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor, and those of a business nature to the Publishers.

ALL ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES, 143 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, SEPTEMBER 19.—WOODSTOCK HORTICULTURAL SOCIETY.—Annual Exhibition.

WEDNESDAY, SEPTEMBER 20, AND THURSDAY, SEPTEMBER 21. — INTERNATIONAL POTATO EXHIBITION at the Crystal Palace.

THURSDAY, SEPTEMBER 21, AND FRIDAY, SEPTEMBER 22. — NORTHAMPTONSHIRE HORTICULTURAL SOCIETY.—Annual Exhibition.

Auction Sales for the Ensuing Week.

MONDAY, SEPTEMBER 18, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.: Dutch Bulbs.

MONDAY, SEPTEMBER 18, at 11.0 A.M.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse Yard, E.C.: Dutch Bulbs.

TUESDAY, SEPTEMBER 19, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.: Imported Orchids.

TUESDAY, SEPTEMBER 19, at 11 A.M.—Messrs. Protheroe and Morris, at the Burnt Ash Lane Nurseries, Lee; Nursery Stock.

WEDNESDAY, SEPTEMBER 20, at 12.30 P.M.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.: Dutch Bulbs.

WEDNESDAY, SEPTEMBER 20, at 11 A.M.—Messrs. Protheroe and Morris, at the Lea Bridge Nurseries; Nursery Stock.

THURSDAY, SEPTEMBER 21, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.: Imported and Established Orchids.

THURSDAY, SEPTEMBER 21, at 11 A.M.—Messrs. Protheroe and Morris, at the Brunswick Nursery, Tottenham; Nursery Stock.

FRIDAY, SEPTEMBER 22, at 12 NOON.—Messrs. Protheroe and Morris, at the Lordship Nursery, Wood Green, N.; Nursery Stock.

SATURDAY, SEPTEMBER 23, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.: Dutch Bulbs.

THE INTERNATIONAL POTATO EXHIBITION to be held in the Crystal Palace, Sydenham, on Wednesday and Thursday next, will be the eighth of the series commenced in the year 1875. The promoters are expecting a display of samples equal to that of any former exhibition, and it is likely that in some respects it will be the most interesting and useful meeting of the kind that has been held. The Royal Horticultural Society generously placed at the service of the committee a sufficient extent of ground at Chiswick for the trial culture of all the new varieties that were submitted for judgment of their several merits, and these will therefore be judged by their cropping and cooking qualities, as well as by their appearance on the exhibition table. Such a service is beneficial directly and indirectly. It affords most valuable aid to the International Committee in connexion with the most difficult and responsible of their several labours. And while promoting the cause in this direct manner it renders obviously superfluous the advices of those anonymous

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writers who, in the columns of the horticultural papers, manifest an almost passionate anxiety to see the International Committee engage in experimental farming and other costly undertakings, that require neither time, nor talent, nor money, nor discretion when proposed by writers of the "Why don't you?" class, whose works begin and end on paper. For the present, at all events, the International Committee will not need to be burdened with the oft-proposed experimental farm, and as they are all, in a proper sense of the term, experimental cultivators of the "noble tuber," the Chiswick trials carried out in their behalf as a committee are supplemented in a valuable manner by their individual experiences. Hitherto relative cropping quality has been determined by comparisons of individual observations, but now the trial culture is sufficiently systematic and searching to render the final decisions of very great importance to all individual interests, as well as to the interest of the public at large.

Those who have taken an interest, critical rather than casual, in the series of international exhibitions have noted with satisfaction the progress of improvement, which has been equally rapid and satisfactory. Exhibitors and judges have alike, to a certain extent, had to learn the business. They began with much practical knowledge and many distinct canons of criticism to guide them, but they have had to advance beyond the original standard in several different directions, both to meet the views of cultivators and to represent the interests of the general public. How much more they have to learn no one can say. It is sufficient if the committee avoid the example of the Medes and Persians, who could learn nothing because of the fixity of their ordinances, for elasticity and improvability should characterize the labours of such a body. Thus far the success of the endeavour has been only a little less than absolutely complete. Few undertakings of the kind have progressed so far with so few mistakes, and as regards the granting of certificates, not one has as yet been bestowed upon an inferior variety, although some good ones have escaped the coveted commendation.

There is one feature of the potato exhibition that may be regarded as a "thorn in the flesh." It consists in what may be termed (to be genteel in our language) ambiguous labelling. From the first the committee have steadfastly fought against this injurious and troublesome vice, and not without some success, as the labelling of late has shown. It is a difficult and delicate task to deal officially with this matter. A man may show a veritable seedling of the highest quality under a proper name, and may thus, in the most honourable manner, challenge criticism. But his samples may so closely resemble some well-known kind that scrutineers and judges may fairly doubt their alleged distinctness, and thereby may be inclined to invalidate the name. But if they do so they commit themselves to the absurdity of a negative proposition and all its horrible consequences. Here, for example, is a dish labelled "Smith's Paragon," and all parties pronounce it identical with the old Ash-leaf save Smith himself, who avers it to be a seedling possessed of the most distinctive qualities in growth, cropping, and table quality. In the face of the declaration the authorities would not take the rash step of recording in black and white their collective opinion. But this particular difficulty is now, we think, disposed of. It is intended henceforth to ignore all dishes that bear names that have not been registered, and that consequently may be properly regarded as "unknown." Exhibitors may therefore with advantage be forewarned as regards staging sorts bearing names known to raisers only, that such sorts will probably be passed over as non-existent. And this course of procedure will entail no injustice, for in the first place the most ample arrangements have been made for judging new varieties, and in the next place the judges who will award prizes in classes are familiar with the names of all recognized varieties, and will not hastily question any until a doubt has been started that will need to be settled by some sort of impromptu conference. The lists we have published in our issues for February 19, 1881, and February 25, 1882, may be of some service for purposes of reference in a case of close criticism, but as we are alone responsible for these lists the International Committee are in no way bound to recognize them. The one object in view is to prevent the intrusion of old sorts under new names, and as raisers of new sorts have a series of classes provided for their accommodation, there should be no injustice in any case in which new names are repudiated when they appear in the midst of collections.

EDINBURGH INTERNATIONAL FRUIT SHOW has passed off well and with credit to all concerned. There were 2,200 entries, and the bunches of grapes numbered over 1,200.

AT THE RECENT PRESTON SHOW of the Royal Manchester, Liverpool, and North Lancashire Agricultural Society, the only first prize silver medal given for seeds was awarded to Messrs. Sutton and Sons, of Reading, who exhibited their "Royal Museum" of seeds, roots, grasses, models, &c.

MESSRS. CARTER AND CO.'S REPORT on the Seed Harvest of 1882 states that the English clover crop is better than last year, but the American crop is unsatisfactory. English cow grass is a poor crop. Italian rye grass is a good crop, but stocks are low, and therefore prices will be firm. Natural grasses generally have yielded fairly, but are short of fine qualities. Swedes and turnips have come in satisfactorily.

THE CITY VEGETABLE MARKET that the Corporation propose to appropriate as a fish market is reported to be repudiated by the traders in fish, whom the Corporation desired to catch. This is as it should be. When corporations play fast and loose with questions affecting the convenience of the public they must incur disagreeable penalties.

THE WINTER GARDEN COMPANY of WESTON-SUPER-MARE appears to be in a state of perplexity as to their position and prospects and the consequence, as usual in such cases, was a lively meeting. This ended in the adoption of a resolution recommending that the gardens be opened to the public for a fortnight, and that a band be engaged to make another sort of lively meeting.

THE APPLE CROP is short in America as well as in Europe. Messrs. Isaacs report that high prices will prevail, as the only part of the northern hemisphere where there is anything like crop is Canada. In this country the hurricane of April 29 destroyed the crop; in America excessive rain about the same time and later was equally fatal.

THE WAR IN EGYPT is of no concern whatever to editors of horticultural papers. But for all that we elect to join in the jubulations of our fellow countrymen that the rebel Egyptians are being made familiar with their deserts. The books tell us of "the noble, precious, or oriental garnet, of crimson-red colour, the most prized of all the varieties;" and we possess it, an instrument of power, a sign of honour.

THE INTERNATIONAL POTATO EXHIBITION at the Crystal Palace will be opened by the Lord Mayor and Sheriffs in State on Wednesday next, at one p.m., and the luncheon, at which the Lord Mayor will preside, will be served at two p.m. precisely. The judges are desired to be at command before eleven to ensure the completion of the work in time for the formal opening, as also for the printing of the official report in time for the civic visitors.

COMMONERS' RIGHTS AT MITCHAM have been fought for, as they were the other day at West End, Hampstead. An attempt was made to enclose and build upon a portion of Mitcham Common, situated at Beddington Corner, and a party of commoners assembled and burnt all the fencing, notice boards, &c., &c. This led to a prosecution of two leaders of the movement at the Croydon Petty Sessions. It then transpired that the intending builder relied upon a doubtful title, and the charge against the two persons accused of wilful damage was dismissed.

CALIFORNIAN VINE GROWING.—It is estimated that the area in California devoted to grape culture is upwards of 80,000 acres, averaging 800 vines to the acre, and thus containing altogether some 64,000,000 vines. Of this large amount, however, probably 25,000,000 are not in bearing, while the phylloxera has seized upon some 5,000,000 more. The great size attained by many of the trees shows how well the Californian soil is adapted to them. It is said that there are now half a dozen vines in different localities each with trunk a foot in diameter, and with branches sufficient to cover a space 80 feet square. Such a tree as this will produce in an average season over a ton of grapes.

DISEASE IN SCOTCH FIRS.—In our issue for September 2 (p. 466) we reproduced from the *Times* a letter by Mr. G. F. Wilson, F.R.S., on this subject. In the same paper of September 13 appeared the following:—

The entirely trustworthy authority to whom some bark from the infected trees was sent writes that, like the scolytus on elms, it is a question whether the insects cause or follow the disease, but adds,—"In any case I would say, cut down and burn all dead and dying trees and try to improve the health of the survivors." I have just found some trees, otherwise apparently healthy, with their bark much perforated, and a young Scotch botanist from Stirling, who has been much among Scotch firs, remarked, as I have, that among the Scotch firs at the entrance to Wisley Common, instead of the usual bark of dark green only broken by occasional dead brown branches, sickly grey and pale-green boughs appear in every direction. It was suggested that these might have been caused by the gale in April, which has so much damaged the foliage of the oaks and fruit trees; but, as the unhealthy appearance occurs equally in trees in quite sheltered positions, this is unlikely to be the case. It seems desirable that a watch should be kept on Scotch firs until the cause of the disease has been proved.

I am, Sir, your most obedient servant,

GEORGE F. WILSON.

Heatherbank, Weybridge Heath, September 11.

SUCCESSFUL GRAPE CULTURE.

By J. C. CLARKE.

WHEN staying in Bristol a few weeks since, I was invited by a friend to go and inspect the garden of a gentleman amateur residing at Montpelier, a suburb of the city. I therefore went to see it; and I may here say that I must be terribly driven for time if I do not go to see the garden of an amateur when invited. They are always intensely interesting, and I do not hesitate to say that I have gathered from them some useful lessons. I have learnt how to be patient under the many adverse conditions that surround the work of the gardener, and have seen how serious drawbacks have been overcome and failure turned into success by perseverance and the making of the work of the garden a labour of love. Just such a case and such a garden I found in one of the many pretty residences on Montpelier.

It is proper to remark that, owing to the small area of ground, the garden does not embrace many features: a few well-filled flower beds, a goodly number of roses, and a few nice shrubs in the borders are the principal contents, besides a small house of vines, and it is to the latter that I wish particularly to refer, as they demonstrate by their clean and healthy condition, and the excellent crop they are bearing, how much it is possible for amateurs to accomplish in grape culture. In describing this house of vines it is not necessary to give very minute details. It is a lean-to structure, placed against a boundary wall, and has a south aspect. It is about twenty-five feet in length and twelve feet in width. There is a border along the front outside for the roots of the vines; it is about six feet wide, and appears to have been well made. The roots of the vines are planted outside, and the stems taken into the house under the wall-plate.

In the selection of varieties the proprietor told me he made a big mistake. He never intended to make it a warm vinery, but he was advised to plant such tender varieties as Lady Downes and Muscat of Alexandria, and only two or three canes of Black Hamburgs. In a very few years he found that, although he could ripen the Hamburgs with only a very little fire heat in very bad seasons, the others required more heat to ripen them than he felt disposed to provide. He therefore discarded them, and put in their place Foster's Seedling and Black Hamburgs, and now he finds that a very little fire heat is sufficient for ripening the whole of the crop. The same mistake is commonly made by amateurs. Either through being badly advised or for the want of practical experience, they plant unsuitable varieties, and then they are disheartened because they cannot obtain the results they expected.

It must at once be said that I have not at any time seen a house of vines managed by an amateur that pleased me so much. The vines are quite free from insects, the leaves are large and of good texture, the growth is as vigorous as any one could wish, and the crop thoroughly satisfactory. The bunches are not large, but of a very fair size, and so are the berries. The bunches were indeed as regularly placed on the rods as if the most experienced grape grower had managed the house. All the assistance the proprietor receives in managing the vines is in the month of December, when a gardener who resides near is called in to prune them. The disbudding in the spring and the tying down of the laterals are done by the owner, and the thinning of the berries affords an agreeable occupation during the morning hours.

The reader may rest assured I did not leave without asking the proprietor if he would mind telling me to what part of his practice he attributed his success. He very courteously replied that he had nothing to communicate on any particular point. His practice was made up of constant and regular attention to all the details, but if there was one point more than another that he would emphasize, it would be to attend to the ventilation according to the weather. On this point, he said, "I fear many of my brother amateurs are somewhat remiss; they attend to their vines very well for a few days, and at other times leave them almost to take care of themselves." He further said that it was his practice to be in his vinery at eight o'clock every morning throughout the summer, and at that time to give some air to the house, regulating it according to the state of the weather. On very bright mornings he admitted a little air by the ventilators at the top of the house and some in the front openings; on dull mornings he only gave air at the top of the house. At ten o'clock he attends to the ventilation again and gives more air if it is required; but, as he truly said, it is not possible to lay down hard and fast rules for ventilation. It is an operation that must be regulated entirely by the state of the weather. My friend mentioned the fact that some of his neighbours had attempted to grow grapes and had utterly failed. In these cases he says they open the house at irregular times regardless of the weather, and leave the ventilators open and the vines exposed to cold draughts until late in the evening. In fact, the house is left until it suits them to attend to it, and very often the ventilators are left open until bed-time. That such treatment will be sure to end in disappointment no one who understands anything about vines will be surprised to hear.

In reply to other questions as to how my friend learnt to train the lateral growth so evenly and with so much advantage to each shoot that bore a bunch of grapes, he said, "I went and had a lesson or two from a gardener who lives near, and I soon caught the idea, as you can see for yourself." I did see, and I freely confess I was surprised at the uniformity of the whole of the shoots as they had been tied down to their places, each one enjoying sufficient room without being crowded, and all useless lateral growth was carefully removed. In fact, the whole of the management had been so systematically done that I felt if I had left Bristol without seeing this house of grapes I should have missed a very instructive lesson.

RAISING SEEDLING BEGONIAS.

Is it difficult to raise seedling begonias? To that question an emphatic "No!" must be given. It is not difficult to raise seedlings, but no one should attempt such a work unless the seed be good. It is a waste of time to grow rubbish. But rubbish in the way of seed should not now be procurable, because the strains of seedling begonias have improved so much of late that those who save seed for sale should—and we believe do—save only from the best flowers and reject the rubbish. We were looking through Messrs. Sutton and Sons' wonderful collection of begonias at Reading a few days ago, and what could not fail to strike one was the great and marked characteristic of quality running through a very large collection of plants. We could have picked out many varieties worthy of being named, but, as in the case of *calceolarias* and *cinerarias*, it is almost a work of supererogation to name. Besides, seedling plants are so much better for pot culture than propagated ones; not that we desire for a moment to depreciate these, but it is difficult to make a good handsome bushy specimen out of a propagated plant; at any rate, not with that rapidity and satisfaction we can out of a seedling one.

But why is it we have heard complaints of amateur gardeners being unable to raise seedling begonias in a satisfactory manner? The reason is not far to seek. It is (mainly) because amateurs attempt to raise seedlings out of season. If they had an ounce of seed for their money instead of a few hundreds, they would we fear not be a bit the better off, because they would sow it all at the same time and at the wrong period of the year.

Amateurs would do best to sow their seed during June and July, as Nature would help them a good deal at that season of the year. We find that begonia seed germinates freely in a temperature of about 65 degrees, but, as it is not difficult to obtain a greater heat than this at this season, where there is glass at the raiser's service, it should be taken advantage of. Success is certain, providing the seed pots get the necessary shade, water, and at the same time the gradual drying off of the moisture, as essentials to success. The soil in which the seed is sown should be thoroughly porous, and there should be plenty of drainage. A spongy and retentive soil must be avoided. This is where many raisers of seedlings fail; they do not seem to understand the difference between a light and free and a heavy and stagnant soil. If a soft and spongy soil be used—say, one composed of fibry loam—at the first watering there is great danger of the seed being washed down into the crevices, where it is lost. The best compost for raising seeds of begonias is made up of well-decayed leaf-soil, a light loam, or a little peat, with sufficient silver sand to keep it well open, and nearly equal quantities of the two first-named. The pots must be well drained, and, the seed being small, it is best to sow in two or three pots instead of only one. It is far best to sow the seed as thinly as possible.

At Reading, where large quantities of seed are sown annually, what is known as 48-sized pots are used for the purpose. The pots should be perfectly clean, and so dry that the soil will not adhere to the sides. About an inch of drainage should be placed in each pot, after putting a piece of broken crock over the hole at the bottom, and over the drainage a layer of moss. In this way the number of pots required should be prepared, and the soil put into each till within a half-inch of the rim, and gently but firmly pressed down. A little silver sand should then be placed over the soil, and then the pots are ready for the seed. If there are six pots to be sown the seed should be divided into as many portions, and the allotted quantity should be thinly and evenly scattered over the surface; but avoid sowing close to the edge of the pot, as, when the soil dries, it comes away from the sides, and when water is applied there is danger of the seed being washed down where it cannot grow. The seed being sown, a little very fine soil should be scattered over it, but only just sufficient to cover it.

The seed pots should now be placed in a pit or frame, where they can be kept shaded until the seedlings have grown large enough to handle, when they should be pricked off into other pots of like soil, using a pointed stick for the purpose. But if the amateur has no close pit or frame, but only an ordinary greenhouse where other plants are growing, let him take a six-inch or eight-inch pot, place some small crocks in the bottom, so that the seed pot can be placed within it and brought within a half-inch or so of the top, and moss or cocoa fibre used to fill up the space between the two pots; and then a piece of glass should be placed over each and the pots carefully shaded in sunny weather. The presence of the glass will ensure a certain amount of humidity, and this will greatly assist the germination of the seeds. But the glass should be turned as soon as water has condensed on the under surface. The best kind of shading is a piece of paper placed over the glass, but removed each evening.

The ground on which we recommend the placing of the seed pots within the larger ones is, that draught or a current of air passing over the otherwise unprotected surface on which the seeds are sown injuriously affects their germination, and it also reduces the number of waterings required, by reason of the moist material placed between the pots. The seeds are also ensured against the incursions of slugs and snails.

It is wise to place the seed pots in a position where they can be frequently examined. In about five or six weeks, if all has gone well, the plants will be large enough to handle, and it is best at the time of transplanting to lift the plants with a pointed stick, and prick them off into the other pots with the same, burying the plants up to the neck, so that the two seed leaves the tiny plants put forth may lie on the surface. The plants need to be handled with the greatest care, and be frequently examined for three weeks, by which time they will have become pretty well established. By October the leaves will begin

to turn yellow, which is a sign that the plants are going to rest. Water should then be given sparingly, and only when required.

It is not a good plan to take the seedlings out of the pots and allow them to become dust dry; it is better to winter the plants in the store pots, giving them occasional waterings through the winter. In spring, as soon as the little plants show signs of activity, they should be potted singly into small 60 pots, one plant in a pot, and grown on into size.

Presently we will give some directions for growing these seedlings on into specimen plants. It is surprising what fine examples can be made of such plants by July and August; but it is a matter of attention and care throughout. But the successful culture of any plant is but a series of attentions, and the tuberous-rooted begonia is no exception to the rule.

SEMPER AUGUSTUS.

Calls at Nurseries.

MESSRS. GARAWAY AND CO.'S, BRISTOL.

To the general body of horticulturists the nurseries of Messrs. Garaway and Co. have been long and favourably known, and it is not difficult to understand why when it is remembered that they have been in existence over a century, and that a considerable number of good things have in the course of business been distributed by the firm. The foundation of the nurseries, it may be stated as a matter of some interest, was laid by a Mr. Sweet in the seventh decade of the last century. After a good beginning had been made Mr. Sweet was joined by a Mr. Miller, and for some time the firm was known as Sweet and Miller. Later on, and many years since, the nurseries came into the hands of Mr. Garaway, the father of the two enterprising and highly-esteemed gentlemen to whom the establishment now belongs. It is not difficult to understand that the Bristol of to-day is very different to what it was when Mr. Sweet selected the site of the home nursery. It doubtless then occupied a position so far removed from any buildings, business or otherwise, that the founder little thought portions of the ground would in course of time be handed over to the builder for the erection of first-class dwellings. Still less could he have thought that the railway would claim a share of the land, for the value of steam as a propelling power was then unknown; but now there is a station within a few hundred yards of the entrance, and in addition the tramcars put visitors down at the door. Not all at once has the ground been taken, but piece by piece the builder has encroached on the grounds occupied by the firm, until not much more than one-tenth of the original space remains available for the cultivation of nursery stock. But the firm has not been slow to recognize that in course of time the land would be absorbed for other purposes, and they have taken time by the forelock and made ample provision for meeting the case by obtaining fresh tracts of land on which to carry on their trade.

The Downend Nursery was the first addition made to meet the loss of space occasioned by the encroachment of builders and railway projectors. About thirty acres of excellent land have been secured at this place, and it is already well stocked, but even this space was insufficient for so large and thriving a trade as is carried on, and another fifty acres have been secured in another direction, namely, close by the Keynsham Railway Station, between Bath and Bristol. This land is also being gradually stocked with roses, fruit trees, and other subjects.

It must not be inferred from what has been stated that the old nursery is extinct, because there is yet left sufficient space on which to cultivate the most important subjects that require the immediate supervision of the principals. The numerous glass houses are still here, and there is no prospect of their being removed for another fifteen or twenty years, as the land on which they are built is secured to the firm by a lease which has many years yet to run. Therefore those who, like ourselves, are attached to old associations have the satisfaction of knowing that the firm of "Garaway" of Bristol will flourish for some time to come on the spot on which it first acquired fame and has lived so long in activity and usefulness.

In giving a brief description of the contents of the nursery, I would first state that on each side of the entrance drive are some well-filled flower beds. Amongst them is a very pretty carpet bed in better condition than any bed I saw during my stay in Bristol. The conservatory is the first glass structure entered, and this is of considerable length and breadth, and has a circular roof. It was well filled with plants in flower, the chief subjects being fuchsias, liliums, and achimenes.

There are so many houses in the nursery that I think it best to describe them in the order in which I visited them. The first we entered contained a fine collection of double zonal pelargoniums, in five and six inch pots, in splendid health, and promising a good display of flowers during the autumn. *Alba plenissima* appears to be still the best white variety. The next house contains a fine lot of tuberous begonias, both in large and small plants. Amongst the named varieties were most of the best in commerce, and the seedlings are of a high order of merit, the plants being dwarf and very free flowering.

We now enter a long house full of pot vines, comprising both fruiting and planting canes, the growth short-jointed and well ripened. As they are all trained near the glass they could not well be otherwise than well hardened, and robust in health. We now pass on to a three-quarter span forty feet long, with its roof completely covered with *Stephanotis floribunda*. This is a surprising example; the roots are confined to a No. 1 pot, yet the growth is vigorous, and from it as many as one hundred bunches of flowers have been cut at one time. Near at hand is another house of a similar construction, also used as a stove. Here again the *Stephanotis* is trained to the roof, and in the most satisfactory condition. On the stage beneath are collections of *Gloxinias*, *achimenes*, and *poinsettias*, the latter of course for winter decorations.

We now proceed to a noble span-roof house containing a very valuable collection of *Camellias* ranging from two to eight feet high, which occupy the centre bed of the house. On the side stages are *abutilons*, *achimenes*, and more tuberous-rooted begonias. *Lapagerias* are trained to the roof, and the white variety is flowering very freely. We find our guide careful to show us everything that is interesting about the place, for we thought to miss the next house, as the day was hot and the morning nearly spent. But he prevents us missing it by saying, "You must see the tea roses;" and right glad I was that I did not miss them, for they are a charming lot. They are all grown in seven-inch pots, and consist of six or seven hundred plants in readiness for winter

flowering. The varieties included Niphotos, David Pradel, Isabella Sprunt, Devouicenses, Adam, Shirley Hibberd, Madame Falcot, and many other well-known and useful kinds. On one of the side stages of this house is a splendid batch of bouvardias all growing away vigorously in six-inch pots. There must be a great trade done in bouvardias, and in the Persian cyclamen also, for there are immense stocks of both. The favourite sorts of bouvardia appear to be Vreelandi and Hogarth.

In the next house entered we find a fine lot of small specimen fuchsias. They are trained in pyramidal form, and are about eight inches high, and occupy six-inch pots. They are certainly very pretty ornaments for the table or window when so grown, as the plants are loaded with flowers. The varieties comprised both double and single kinds. The best single light flowers are Lord Beaconsfield, Cannell's Favourite, and Arabella Improved. The best single red-flowered varieties are Charming, Elegans, Bountiful, and Gazelle. The favourite double reds are Avalanche, Purple Prince, and Sir Colin Campbell. The finest double varieties with white corollas are Snow Cloud, Mrs. Ballantine, and Lurline.

We now come to a very usefully-built house in two or three divisions, all of which, at the time of our visit, were filled with pot vines for fruiting and planting out. The varieties grown are those most generally known, such as Black Hamburg, Buckland Sweetwater, Foster's Seedling, Muscat of Alexandria, Lady Downes, and Alicante. Adjoining is another house containing tea-scented roses grown expressly to produce flowers for cutting through the winter, and a magnificent lot of specimen and half-specimen Indian azaleas. Other houses that might be mentioned are, a house filled with peach trees in pots, another containing many fine specimen fuchsias, and those containing the large stock of seedling amaryllis, ericas, epacris, palms, aphelexis, and other subjects that might be expected to be found in such an extensive nursery.

I was not less desirous of seeing the outdoor stock at the Downend Nursery than I was the tender plants under glass at the home nursery. Accordingly, after a rapid run through the numerous structures, we proceeded across the downs to the Downend Nursery. Arriving there, we were not long before we plunged amongst the coniferous trees and evergreen shrubs, which are not only grown largely, but well. The conifers consist of all the most valuable and well-known kinds, and are remarkable for their clean healthy growth. The evergreen shrubs and deciduous ornamental trees and shrubs are grown in large numbers and in all sizes, from small plants to large specimens. On the opposite side of the grounds are the fruit trees, and they are as fine a lot as one could wish to see, showing that fruit-tree culture is one of the chief features of this large nursery. Roses are grown not less successfully than fruit trees, and consist of immense stocks of all the finest varieties in their respective classes. Standards and dwarfs are, as a matter of course, grown, and the latter include examples on the ordinary brier, the seedling brier, the manetti, and on their own roots, so that the purchasers have plenty of choice. In going through the several quarters I made note of the following hybrid perpetuals as being particularly good, namely, La France, Madame Nachury, Charles Lefebvre, Annie Wood, Reynolds Hole, Madame Lacharme, Baroness Rothschild, Marguerite de St.-Amand, Alfred K. Williams, Elie Morel, Princess Beatrice, and Sénateur Vaisse.

GIANTS AND DWARFS.

HAVING a holiday in London, I followed out your descriptions of the principal parks and gardens, and obtained thereby some cheap and useful entertainment. I made the round of the principal nurseries also, and found them well worthy of the time it necessarily required for a merely casual inspection of their treasures. But I was not then contented. As the shades of evening descended on a sunny Saturday I was once again, by a very striking placard, reminded of the giantess at the Alhambra. So I planted myself in a suitable place at the proper time, and the curtain rose on *Babil and Bijou*. Years ago I saw this strange production at Covent Garden Theatre. There was then no giantess to complete the round of wonders it embodied, and we did not dream that one was needed. But now that the mighty Queen of the Amazons is enthroned, the appropriateness is evident; in fact the young German lady, who, without difficulty overlooks the feminine army, adds a sort of "poetical justice," to the drama, so that henceforth we shall be inclined to say *Babil and Bijou* cannot be properly played without a visible goddess to give it a *coup de grâce*.

It would be vain, I am sure, for me to attempt to describe the plot of the play in which "Marian, the Giant Amazon Queen," appears. It is sufficient to say that it is beyond my comprehension, and probably not one person in a thousand who is amused by the performance is in the least degree curious to know what it means, or whether its several incidents have any dramatic relation whatever. And it would be equally vain, perhaps, to express regret that the Alhambra Theatre is crowded nightly, while the works of our great dramatists are (save at the Lyceum for the moment) almost wholly neglected. As a matter of fact *Babil and Bijou*, like *Patience* at the Savoy, or any burlesque at the Gaiety, is immensely amusing, and calls for no special attention to words or phrases or "bursts" of oratory, but may be enjoyed as sweetmeats are without thought, and with no risk at all, to health or morals.

Come forth, Marian the Mighty, and put astop to moralizing. This young lady measures 8 feet 2 inches in her stockings, and reached the age of sixteen years in January last. As you see her in the last scene, which is certainly a "blaze of splendour," she measures ten feet, the difference being made in her boots and her head dress. It is very strange, but when she first appears she does not seem to rise above the rest in the proportion represented. But, like other great facts, it requires time to appreciate Marian. One reason of her assimilation with the glittering crowd of Amazons she leads is her very perfect proportions. Her bulk is in proportion to her height. If she were as lean as a lath, we should instantly recognize her immensity of stature, but her perfect proportions bring in a deceptive element, and a display of her grand physique is really necessary for the instruction of the public in the limits of growth, as in her case manifested. The Amazonian army at the Alhambra comprises a large number of the finest women ever seen on any stage. At a certain moment in the evolutions of these Amazons Marian raises her arms and keeps them outstretched, while the whole body moves in procession around her, not the tallest of those many fine women with their helmets and feathers touching her arms in passing round. Then it is you begin to be quite sure that you have seen the greatest woman of the age, and that probably you will never see a greater, or one so great, again. Her movements are scarcely elegant, but her appearance is pleasing, and the exhibition has a peculiar interest for the scientific, as well as for mere sightseers.

The little people at Piccadilly Hall, near St. James's Hall, are the prettiest and most curious little pair that have come under my own observation, and I have seen, probably, all the giants and dwarfs that have been exhibited in London during the past forty years. The pictures published of Marian do justice to her, for they are like her, but the pictures published of the little people do not convey any proper idea of their exceeding smallness, neatness, and I may even say beauty, for the girl has a most pleasing countenance, and the boy is at least good-looking. They are indeed veritable Midgets, and the more interesting from their perfect naturalness of deportment and appearance. As compared with Tom Thumb and Minnie Warren, they are both very much smaller; the boy, "General Mite," is handsomer than General Tom Thumb; and the girl, "Millie Edwards," is quite as attractive in her tiny figure and cheerful well-made face as the pretty Minnie Warren. As they play and gossip on the stage in the midst of the people they pass very well for a pair of animated dolls, but when they walk round the room and are seen to scarcely reach in full stature the height of an ordinary man's knees, there comes a surprise, and with it a doubt, if these pretty pigmies are really alive, or if the whole crowd of spectators are not under some strange delusion.

People will always ask of such phenomenal humanities, what do they eat and drink? The giantess is peculiar in her appetite and very girlish. Her principal diet consists of bread and jam, of which she consumes vast quantities. She has no liking for animal food or for any kind of alcoholic drinks. Her tastes are extremely simple, and they run upon sweets for the most part. The Midgets, in like manner, are simple and childlike in their tastes, but have no such special penchant for sweets as their near neighbour, the colossal Marian. There is no special diet provided for them; they eat and drink as they please at an ordinary well-furnished table, and the total of what the two consume in a week is scarcely more than would suffice for one healthy growing child for one day. Their tiny frames need but little support, and yet, judging by their activity and the exhaustion consequent on mingling with a crowd during many hours daily, they must require careful watching to maintain their health.

Never before, probably, has London contained such remarkable beings as the three that now demand attention. Female giants have rarely exceeded seven feet, and dwarfs of either sex, perfect in form and proportions, and with a certain maturity of growth and mind, have not been seen of so diminutive a stature as the Midgets, weighing only nine and seven pounds respectively. The celebrated Irish giant, whose skeleton is preserved in the Museum of the Royal College of Surgeons, measured 8 ft. 4 in., and to this stature Marian may reach, as she has not yet done growing, and with plenty of jam may make another two inches. The ugly Sicilian dwarf in the same museum measured 20 inches, and little Millie Edwards is 21 inches, quite a little beauty, and as bright as she is fair.

ALPHABETAGAMMA.

Literature.

On Artificial Manures: their Chemical Selection, and Scientific Application to Agriculture. By M. GEORGES VILLE, translated by WILLIAM CROOKS, F.R.S. Second edition. (Longmans.)—The first edition of this important work was reviewed at length in our issue for March 6, 1880. That a second edition has been so speedily required suggests that "agricultural depression" is perhaps less dreadful as a fact than rumour reports it, and it certainly proves that the remarkable labours of M. Ville have obtained in this country a reasonable, if not a sufficient, amount of appreciative attention. The science of sustaining the land by supplying to it the material for plant production is acquiring increased importance every day. The great guano deposits are pretty well used up, and the ancient sources of alkalies and nitrates have been much diminished. On the other hand, the earth as a whole being as rich as ever it was, new fertilizers are brought into use, and it begins to appear that amongst the "bye-products" of gas manufacture we may count upon supplies of ammonia at a price that will place it within the reach of the agriculturist. The waste of manurial matters is enormous, and can only be checked by bringing to bear upon the whole subject the true theory of manuring as unfolded in this valuable work. This second edition differs from the first in a few trifling particulars only, for in the first instance the work was so well done that revision was scarcely needed.

The Welcome for September (published at 9, Paternoster Row) is a particularly good number, rich in pictures and descriptions of Egyptian cities and scenery. The view of Cairo is of some artistic value, and very acceptable at this juncture for the information it affords of the aspects of the city, in which we are all at this time peculiarly interested. Amongst the portraits are those of Dr. Henry Reynolds, King Denys, Linnæus, Mrs. Hesba Stretton, Mr. Samuel Plimsoll, and the Rev. Charles Garrett.

The Arabian Nights Entertainments. (Ward and Lock.)—Having already noticed a new issue of this wonderful work, we have now to notice another on precisely the same plan, but differing much in detail and general complexion. Readers will please choose for themselves; it is enough to say that the first number of the edition now before us has a coloured illustration, and it seems to us that a new feature in this way brought in to add to the attractions of the never-to-be-forgotten stories of a thousand nights.

From Messrs. Ward and Lock we have also received continuing parts of Dr. Adam Clarke's *Commentary on the Holy Bible; Amateur Work; Epochs and Episodes of History; Holy Thoughts on Holy Things; Beeton's Book of Poetry; Beeton's Dictionary of Science, Art, and Literature; Haydn's Dictionary of Dates; D'Israeli's Miscellanies of Literature; Hallam's Literature of Europe; Rollin's Ancient History; Universal Instructor; History of the World; Land, Sea, and Sky; Household Medicine; and Sylvia's Home Journal.*

Scientific Recreations. (Ward and Lock.)—The completion of this work is a matter of some interest. As a substantial volume for the family library it will prove peculiarly valuable and interesting where there are speculative and fidgetty young men who like to go below the surface of common things, or to rise into regions of fancy without losing their hold upon the facts that belong to the domain of science. The book is just what it professes to be, a great budget of "Popular Scientific Recreations." It proposes experiments in chemistry and mechanics without end; it entertains the higher problems of conjuring, and brings philosophy to the mind of the popular entertainer, so that he may, if he has a taste for tricks that have "something in them," do wonderful things at a village fête or coming of age. As for the quiet student, he will, if he is so happy as to possess the book, be found taking it from the shelf frequently for aid in the untying of some Gordian knot.

The House, Garden, and Home Farm.

PRIDE OF YOUTH.

EVEN as a child, of sorrow that we give
The dead, but little in his heart can find,
Since without need of thought to his clear mind
Their turn it is to die and his to live:—
Even so the winged New Love smiles to receive
Along his eddying plumes the auroral wind.
Nor, forward glorying, casts one look behind
Where night-wrack shrouds the Old Love fugitive.

There is a change in every hour's recall,
And the last cowslip in the fields we see
On the same day with the first corn-poppay.
Alas for hourly change! Alas for all
The loves that from his hand proud Youth lets fall,
Even as the beads of a told rosary!

DANTE G. ROSSETTI.

THE HOUSE.

The keeping of game is one of the special cares of the household now, for it is apt to come in gluts, with long reaches of nothing between. If left about carelessly for a few days until you can find time to deal with it properly it is only too likely to be rendered scarcely worth hanging, for the bluebottle flies like meat that is still and warm, and somewhat obscurely hidden in a dark corner. It is worth knowing, although known to many, that flies will never touch meat that hangs in a cold dry current of air. Hence it is that in the old-fashioned inn-yard, where game and joints hang just above the heads of passers-by, no fly, even in the hottest weather, will deposit eggs on any of the meats, and the cook selects daily such as have hung long enough, knowing that the offensive maggot need not be feared, for the constant movement of the air has prevented him. But one of those joints laid on a shelf in the larder or kitchen might within the hour be visited by half a dozen mother flies, and if left a few days longer in the same evil position would be found full of maggots. These facts are of great importance now that game is abundant, for any neglect will be likely to lead to serious deterioration. The birds should be hung singly, or in pairs, at a little distance from each other in the coldest place that can be found, and in darkness and draught if possible. No place that is customarily resorted to by servants is fit for hanging meats, because doors and windows will be left open, light will be admitted, and all proper regulations more or less set at defiance. Inexperienced persons are apt to allow birds to hang an unreasonable length of time. It is one thing to have the meat ripe and another to have it offensive. There is a happy mean, easily discoverable where the first suspicion of a tendency to turn occurs, and then, as a rule, the thing is in perfection. Having passed that point, deterioration rather than improvement is the consequence.

THE GARDEN.

BEDDING PLANTS that have been struck in the open borders must be potted at once; in all cases a poor sandy soil and plenty of drainage must be used, especially if the plants are to be kept in pits or other places where they will be exposed to a low temperature during hard weather. Take up all choice plants now that it is intended to keep through the winter, and pot them; if left in the ground any longer they will be likely to perish after potting.

BULBS of all kinds which it is inconvenient to plant early, because of the ground being occupied, may be started in a mixture of leaf-mould and old dung, or in cocoa-nut fibre refuse, so as to be lifted in clumps with good roots to the positions in which they are to flower as soon as those positions are ready for them. Where an early bloom of Snowdrops and Crocuses is required, and the ground cannot be made ready for the bulbs, this plan answers the purpose to perfection.

CINERARIAS, Primulas, and other soft-wooded plants now growing freely should be carefully examined to see that they are in a fit state for housing as required. None of these things should suffer for want of water.

CABBAGE.—We advocate crowding the quarters now with cabbage plants, for growth will be slow and the demands of the kitchen constant. "Crowding," however, is not quite the same thing as overcrowding, and it is only a waste of labour, land, and crop to put the plants so close together that they have not space for full development. The usual rule in planting out the larger sorts of cabbage at this time of year is to allow a distance every way of two feet between the plants. But we carry the crowding principle so far as to put the small-growing coleworts and other miniature cabbages in the interspaces.

HARD-WOODED PLANTS must be kept well aired and in full sunshine, to ripen the wood and give them strength to pass the winter in an ordinary greenhouse temperature. Heaths, Epacris, Pimeleas, &c., to have free ventilation.

ONIONS to be taken up when the weather is dry, and well ripened for storing. Those from autumn sowing will now want thinning.

ORCHIDS generally should have less moisture as the days shorten. The majority of growers keep them too damp and too warm all winter, but they should now be prepared to pass the winter at as low a temperature as will be safe, and in as dormant a state as possible.

PARSLEY sown in July to be thinned, and the thinnings planted if needful.

PLANTING may be proceeded with from this time to the end of November, beginning with evergreens, and getting them into their places, and meanwhile preparing the stations for deciduous trees and shrubs. Whenever it is possible to prepare the ground some time before planting, it should be done. It is much against the prosperity of the trees to be planted in soil only recently turned over, and before there has been time for the atmosphere and sunshine to act upon it.

ROSES budded this season require now to be examined, the wild growth cut in slightly, the ties loosened, and any wild buds starting below the work to be rubbed off. Roses struck from cuttings to be potted off as soon as rooted into sixty-sized pots, and be put on a gentle dung heat, to promote the filling of the pots with roots. Roses layered in the open ground may be removed and potted; in fact, it is better to winter all roses on their own roots from summer cuttings in pots the first season after striking them, if there are conveniences for doing so.

THE POULTRY YARD.

THE most delicately-flavoured birds are as a rule those which are from first to last kept in such good condition that they can be caught and killed without undergoing any fattening process. But for various reasons it is not often practicable to send them to table without some preparation. The best age for table birds is from six to eight months, as they are then well developed, without being old enough for the flesh to become at all tough. A plentiful supply of Indian corn, with a moderate quantity of chopped green food, will soon bring the birds into proper condition for killing, but in a general way it will be better to feed them once a day with either buckwheat meal or barley meal, which should, if practicable, be mixed with skim milk. Poultry will fatten more quickly when in a somewhat confined place, but shutting the birds up in the dark, or in small coops, is not by any means advisable. The place in which they are put should be thoroughly dry, and a goodly supply of ashes or sand for dusting, and plenty of clean water be provided.

HOME FARM.

ABOUT STEAM TRACTION ENGINES.—Steam traction now plays so important a part in rural economy, that it may not be inappropriate to reproduce here some remarks of the *Engineer* of August 18, 1882. After a discussion of various matters connected with the use of steam on common roads, in the course of which it is mentioned that there are at present in England about 4,000 road locomotives, self-moving, steam threshing machines, and steam ploughs, all of which are road locomotives within the meaning of the Highways Amendment Act of 1878, the following suggestions are made for those interested in traction engines and horses:

"If your horse is nervous, don't tug, flog, or shout at him. Hold your hand up for the driver to stop his engine, and then lead your horse past yourself, or get the man on foot to do it. After meeting engines two or three times, and finding that no ill effects of whip or spur follow, a horse will become quite bold.

"Never attempt, when overtaking a traction engine, either with waggon attached or not, to pass it until you have made the driver aware of your being there; otherwise he may turn into a cross-road and nip you between the wheels and the bank.

"Drivers of traction engines should remember that, albeit they make a good deal of noise, their speed is slow, and that, consequently, vehicles wishing to pass from behind are nearly as frequent as those meeting them. They should therefore more frequently cast a glance behind them; and they should further remember that any abuse or bad language addressed to them is not levelled at them personally, but is the result of mingled anger and nervousness at the possible effect of the engine on the horses, and should treat it with the silence it deserves.

"Much unpleasantness has also sometimes arisen from the reckless way in which men in charge of engines treat ponds and other places from which water can be obtained. Cases are common of men having broken down fences into orchards and gardens in order to get water, and we know a village in which a large pond, almost the only source of supply of the entire population, has been almost spoilt by drivers of engines recklessly taking their heavy engines right into the pond, thereby cracking and ruining the clay lining and reducing the holding capacity of the pond. By this much inconvenience and monetary loss has been entailed on the village, and the only advantage gained by the men has been the saving of a few feet in carrying buckets. It is this kind of conduct which has given traction engines a bad name in many districts."

THE LITTLE GARDENER.—"At eleven years of age," says William Cobbett, "my employment was clipping of box edgings and weeding beds of flowers in the garden of the Bishop of Winchester, at the Castle of Farnham, my native town. I had always been fond of beautiful gardens, and a gardener who had just come from the king's gardens at Kew gave such a description as made me instantly resolve to work in those gardens. The next morning, without saying a word to any one, off I set, with no clothes except those on my back, and with thirteen halfpence in my pocket. I found that I must go to Richmond, and I accordingly went on from place to place, inquiring my way thither. A long day (it was in June) brought me to Richmond in the afternoon. Twopenny-worth of bread and cheese and a pennyworth of small beer, which I had on the road, and one halfpenny which I lost somehow or other, left 3d. in my pocket. With this for my whole fortune, I was trudging through Richmond in my blue smock frock, and my red garters tied under my knees, when, staring about me, my eye fell on a little book in a bookseller's window—'Tale of a Tub,' price 3d. The title was so odd, that my curiosity was excited. I had the 3d., but then I could have no supper. In I went and got the little book, which I was so impatient to read, that I got over into a field at the upper corner of Kew Gardens, where there stood a haystack. On the shady side of this I sat down to read. The book was so different from anything I had ever read before, it was something so new to my mind, that, although I could not at all understand some of it, it delighted me beyond description; and it produced what I have always considered a birth of intellect. I read on till it was dark, without any thought about supper or bed. When I could see no longer I put my little book in my pocket, and tumbled down by the side of the stack, where I slept till the birds in Kew Gardens awakened me in the morning, when off I started to Kew, reading my little book. The singularity of my dress, the simplicity of my manner, my confident and lively air, and doubtless, his own compassion besides, induced the gardener (who was a Scotchman I remember) to give me victuals, find me lodgings, and set me to work. And it was during the period that I was at Kew that the present king (George IV.), and two of his brothers, laughed at the oddness of my dress, while I was sweeping the grass plat round the foot of the pagoda. The gardener, seeing me fond of books, lent me some gardening books to read; but these I could not relish after my 'Tale of a Tub,' which I carried about with me wherever I went; and when I, at about twenty years old, lost it in a box that fell overboard in the Bay of Fundy, in North America, the loss gave me greater pain than I have ever felt at losing thousands of pounds."

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "Sapo Carbonis Detergens" (as doctors prescribe) impressed on each tablet and wrapper, without which none is genuine.—[ADVR.]

THE GOLDEN COMFREY.

Onosma taurica.

THE Golden Comfrey may be a good or bad "vulgar name" for the distinct and handsome *Onosma taurica*, a figure of which has long been wanted in our picture gallery. Although not by any means a new plant, it is as yet but little known, and might have remained comparatively unknown save for the presentation of beautiful examples at exhibitions of late, when its merits as a pot plant were pleasingly demonstrated. It was not new when it was figured in the *Botanical Magazine*, t. 889, and described as "generally passed for *O. echioides* of Linnaeus, a much larger plant, greatly branched, clothed with long yellowish hairs, and having entirely the habit of *Echium vulgare*." The figure referred to carries us back to a part of old London famous

conditions likely to prove fatal to the plant are severe frost and winter damp. It is quite hardy on Mr. Ware's open rockery at Tottenham, and therefore, as one might say, it ought to be hardy anywhere. But in a heavy damp border it would doubtless perish in a severe winter.

THE GIANT GROUNDSEL.

Senecio japonicus.

GIVEN a certain latitude for rusticity and daring, this may be pronounced a grand plant of the hardy herbaceous class. A stout specimen in full flower on a sunny day presents a very striking appearance, and one may search far and wide to find its equal. It is not adapted for a small or bijou garden. Its proper place is in a spacious shrubbery border or on the outer parts of a great rockery,



GOLDEN COMFREY, ONOSMA TAURICA.

for flowers, for it was drawn at the nursery of Messrs. Whitley and Brame, Old Brompton, in the month of June, 1806.

Onosma taurica is described in *Annals of Botany*, v. 2, and is figured in "Maund's Botanic Garden," p. 48. It is plentiful in the open hills of Tauria, and also on the mountains of the Caspian Caucasus, flowering in May and June. It is neither a stately nor a splendid plant, but is a right good member of the great class known as "hardy herbaceous." It is evergreen, the leaves are linear lance-shaped, the flowers are in some degree like those of a symphitum, and of a bright pure yellow colour, very distinct, fresh, and attractive.

To grow this plant well a sheltered spot on a rockery or on a good border where alpinists of many kinds thrive should be chosen. The

where such things as boeconias, rheums, and heracleums are admissible. Its special characters are to be found in its bold pinnated and much divided leaves, and equally bold, somewhat rough, and very dashing bright yellow flowers. It appears to have been introduced in 1774, but we have failed to find an authentic figure of it.

THE FIRING OF HAY by spontaneous combustion is a somewhat rare event, considering how often it is hurried up while yet too green for stacking. A large rick took fire through fermentation a week ago on the farm of Mr. Lee, Cop House, near Chester, and endangered fifteen other stacks, which fortunately were saved by prompt action.

HYACINTHS FOR THE CONSERVATORY.

By WILLIAM BRADBURY.

THE appearance of the bulb catalogues reminds us that it is now time for those who intend having a display of hyacinths indoors next season to bestir themselves, and to make the needful preparations forthwith.

dental to starting the bulbs at a late period of the season. The advantages of obtaining supplies of hyacinths and other Dutch bulbs early in the autumn has so frequently been urged in the GARDENERS' MAGAZINE by the skilful cultivators who contribute to its pages, that I shall not dwell upon the point at any length. It must, however, be stated that those who buy early have the best chance of obtaining first-



SENECIO JAPONICUS.



GIANT GROUNDSEL, SENECIO JAPONICUS. (Natural Size.)

The delay of a few days, or even two or three weeks, will not perhaps be a matter of vital importance. But it may be truly said that nothing is to be gained by delaying the purchasing and potting of the bulbs unnecessarily, and the prudent cultivator will avoid the risks inci-

class bulbs, and that those who pot early will, other conditions being favourable, obtain finer spikes of bloom than those who do not begin until late in the autumn, when the bulbs have of necessity become more or less exhausted from exposure to atmospheric influences. I do

not consider it essential to have the whole of the bulbs potted by the middle of September, as asserted by some writers. On the contrary, long practical experience has shown me that the bulbs do not suffer any material injury if they remain out of the soil until the middle of October; later than this they ought not to remain unpotted.

The selection of varieties is a rather important point, and with reference to it, the intending cultivator may be strongly advised to grow a few distinct and good kinds obtainable at a comparatively cheap rate, and duplicate them according to requirements. The following produce large and well-formed spikes, are distinct and pleasing in colour, and are not expensive: Amy, Diebitz Sabalkansky, Duchess of Richmond, Maria Catherina, Princess Clothilde, Solfaterre, and Von Schiller, of the single reds; Argus, Baron Von Tuyll, Charles Dickens, Emieus, Couronne de Celle, Feruck Khan, Grand Lilas, Marie, and States-General, of the single blues; Alba maxima, Grandeur à Merveille, Grand Vainqueur, Vesta, and Voltaire, of the single white varieties; Emmeline, Jenny Lind, La Belle Quirinie, La Joyeuse, Mme. Hodson, Norma, and Sultan's Favourite, of the single rose and pink shades; Alida Jacoba, Duc de Malakoff, Heroine, of the single yellows. A few of the double varieties are desirable, the most useful being, perhaps, Blocksberg, Bonquet Tendre, Lord Wellington, Princess Royal, Garriek, Groot Voorst, and Van Speyk. There are of course many finer hyacinths than those enumerated, but they are much more expensive, and for ordinary decorations they can well be dispensed with.

To ensure a strong growth and the production of large well-developed flower spikes, the bulbs must be potted in a compost that is rich and friable. An elaborate mixture is by no means necessary, and there is probably no compost more suitable for hyacinths than one prepared with turfy loam three parts, old hotbed manure two parts, and coarse sand one part, the loam and manure to be broken up moderately, and the whole to be well mixed. If the loam available is deficient in fibrous matter a small proportion of cocoa-nut fibre refuse may be added; but, as its action is simply mechanical, it ought not to be employed unless it is really required for keeping the soil open to admit of the free extension of the roots. Large pots are not desirable; the five and six inch sizes are the most suitable, and of the two the first-mentioned size is the best. Five-inch pots are quite large enough for the production of full-sized spikes, provided a rich compost such as that advised above is used, and the plants in them can be more conveniently arranged with other subjects than where larger pots are used. One large crock and four or five of smaller size, with a layer of the roughest portion of the compost over them, will suffice to ensure the most perfect drainage; for, unlike most other subjects, hyacinths do not require two or three inches of crocks underneath the roots.

The best course of procedure in potting the bulbs is to fill the pots to nearly level with the rim with the prepared compost; then place the bulb in the centre and press it into the soil. On this being done, add a little more soil, and press it firmly about the bulb. When the potting is completed, the soil should reach to within about half an inch of the rim, and the neck of the bulb be just visible above the surface. The next step will be to place them out of doors on a bed of coal-ashes, or on a hard surface, and cover to a depth of twelve or fifteen inches with some light material, cocoanut-fibre refuse being unequalled for the purpose; sand, coal-ashes, spent hops, and flaky leaf-mould may also be used for plunging, and the cultivator should of course employ the several materials that are most readily available. They must remain in the plunge bed until well rooted, and no longer, for the growth made in the dark, although it will after sufficient exposure become green, is invariably more or less drawn and weak. An occasional examination after the bulbs have been in the beds two or three weeks will soon show when sufficient progress has been made to render it necessary to remove them.

The stock when removed from the plunge bed should be placed in a pit or frame from which the frost can be readily excluded, and have a position within about a foot of the glass. In this structure they may remain until they are coming into bloom, or they can be removed to the greenhouse or be draughted to the forcing pit according to the time they are wanted in bloom. Those forced early should have the assistance of a mild bottom heat such as that afforded by a bed of leaves, and be kept near the glass to prevent the foliage becoming drawn. The whole stock should in fact be fully exposed to the light from the time the bulbs are removed from the plunge bed until the spikes are sufficiently advanced to justify their removal to the conservatory. Short stout leaves are as good an indication of skilful management as large spikes, and every effort should be made to obtain them.

New Plants, Flowers, and Fruits.

HEDYCHUM GRACILE (B. M., 6,638).—Less showy than the few species that have heretofore obtained favour, but an attractive plant nevertheless. Leaves light green, inflorescence a diffuse spike of white flowers with conspicuous red stamens.

TULIPA DIDIERI (B. M., 6,639).—A fine plant, allied to *T. Gesneriana*; flowers large, finely formed; colour rich carmine-tinted crimson.

SAXIFRAGA CAMPOSI (B. M., 6,640).—According to Willkomm the nearest affinity of this plant is with *S. trifurcata*, but to Sir J. D. Hooker it appears scarcely distinguishable from *S. Manceana*. The leaves are light green, the flowers white; a very pleasing rock plant.

BESCHORNERIA BRACKETATA (B. M., 6,641).—A curious amaryllid, native of Mexico; the leaves form a dense rosette, the flowers are in a divided panicle, the tube brown, the perianth green.

SONCHUS JACQUINI (B. M., 6,642).—A bold-habited herbaceous plant, native of the Canary islands; the flowers of great size, golden yellow.

Exhibitions and Meetings.

CRYSTAL PALACE FRUIT SHOW, SEPTEMBER 8 AND 9.

THE exhibition of fruit at the Crystal Palace on the above dates was of small extent as compared with similar shows of previous years; but the quality of the productions was on the whole remarkably good, and a fairly attractive display was the result. The collections of fruit were highly meritorious, but the great feature was formed by the grapes, which were, it may be observed, entirely free from really inferior samples.

COLLECTIONS OF FRUIT had two classes provided for them, one for twelve and the other for eight dishes. In the first-mentioned class Mr. Coleman, Eastnor Castle, Ledbury, occupied the first place with a remarkably fine collection, comprising splendid Alicante and Muscat of Alexandria grapes, excellent Stanwick Elruge nectarines and Bellegarde peaches, good Brown Turkey figs, Pitmaston Duchesse d'Angoulême pears, Moor Park apricots, and two capital pines. Mr. Roberts, Gunnersbury Park, Acton, a good second with a collection, in which were remarkably fine dishes of Black Hamburgh and Madresfield Court grapes and Bellegarde peaches, fine examples of Blenheim Orange and Hero of Lockinge melons, and good smooth Cayenne and Black Jamaica pines. In the class for eight dishes Mr. Oolee, Blickling Hall, Aylsham, was a capital first with Muscat of Alexandria, of that fine golden hue which indicates perfect finish, and Madresfield Court grapes, Lord Palmerston peaches, Pitmaston Orange nectarines, Williams's Bon Chrétien pears, Brown Turkey figs, Greengage plums, and Hero of Lockinge melon; Mr. Goldsmith, Sandhills, Bletchingly, second with a collection in which were fine samples of Alicante grape; and Mr. G. T. Miles, Wycombe Abbey, High Wycombe, a close third.

GRAPES had seven classes set apart for them, and of these two were for collections. In the class for ten distinct kinds, two bunches of each, Mr. Roberts was first with a splendid collection, comprising the following varieties, all of which were remarkable not less for their high finish than for their large size of bunch and berry, namely, Alicante, Buckland Sweetwater, Mrs. Pince, Muscat of Alexandria, Madresfield Court, White Tokay, Alnwick Seedling (very fine), Foster's Seedling, and Black Hamburgh. Mr. Goodacre, Elvaston Castle, Derby, second with a collection, in which Madresfield Court, Muscat of Alexandria, and Lady Downes were remarkable for their excellency. The second class was for five distinct kinds, two bunches, and at the head of the competitors in it was Mr. Allan, Gunton Hall, Norwich, with superb examples of Alnwick Seedling, Chatsworth Seedling, a new black variety of a very promising character not yet in commerce, Gros Colmar, and Trebbiano; Mr. Coleman second with Black Morocco, Black Hamburgh, Lady Downes, and Madresfield Court. The third prize was awarded to Mr. Elphinston, Shipley Hall, Derby, who had two remarkably fine bunches of Golden Queen.

The remaining five classes for grapes were for specified varieties, three bunches of each. The prizes for Black Hamburgh brought only four exhibitors; the samples were all good and the awards were made in favour of Mr. Coleman, Mr. Holmes, Lister House, Clapham Common, and Mr. C. Herrin, Chalfont Park, Gerrard's Cross, Bucks. The competition was rather spirited in the class for Muscat of Alexandria, and the whole of the bunches staged were of large size, but the colour was hardly up to the mark. The prize-takers were Mr. E. Hill, Tring Park, Tring, Mr. W. Johnson, Bayham Abbey, Lamberhurst, and Mr. A. Smith, Warren Hill, Loughton. In the class for Gros Colmar Mr. Elphinstone was first with well-finished bunches of medium size. Madresfield Court was represented by six dishes, but the colour was not good. The successful exhibitors were Mr. E. Hill, Mr. C. Herrin, and Mr. Goodacre. The competition was brisk in the class for Alicante and Mr. W. How, Streatham Common, Mr. C. Herrin, and Mr. Elphinston, who were first, second, and third, respectively, had well-finished examples.

PINE-APPLES were not sufficiently numerous to form a very important part of the exhibition, and in only two of the classes was the competition at all spirited. In the class for Queen, of which four fruits were staged, Mr. Coleman, Mr. G. Ford, West Park, Amptill, and Mr. Bailey, Shardeloes, were the prize-takers in the order of their names. The only exhibitor of a Smooth Cayenne was Mr. A. Barker, Hindlip Hall, Worcester, who staged a good fruit and was awarded the first prize. For a fruit of any other kind Mr. Miles was first and Mr. Goodacre second with Charlotte Rothschild.

PEACHES and NECTARINES were fairly represented, both as regards numbers and quality. For three dishes of peaches Mr. Roberts was first with Barrington and Bellegarde, in splendid condition; Mr. Oolee was second, and staged capital fruits of Princess of Wales and Lord Palmerston; Mr. Miles third, his two best dishes being those of Crawford's Early, a highly-coloured yellow-fleshed variety, and Bellegarde. In the class for a single dish Mr. Coleman was first with Bellegarde, Mr. Roberts second, and Mr. Holliday, Castle Hill, Bletchingly, third with Barrington. For three dishes of nectarines Mr. Coleman was first with very fine fruits of Lord Napier, Stanwick Elruge, and Elruge; Mr. Elphinston a good second with Victoria, Elruge, and Violette Hâtive. In competition for the prizes for a single dish of nectarines Mr. Coleman was first with Stanwick Elruge, and Mr. Oolee and Mr. Holliday were second and third with Pitmaston Orange.

MELONS were staged in considerable numbers, and amongst them were several remarkably well-grown fruits. For a scarlet-fleshed variety Mr. Herrin and Mr. Barker were first and second with Blenheim, and Mr. Bailey was third with Victory of Bristol. In the corresponding class for green-fleshed varieties Mr. C. Herrin was first, and Mr. Kneller, Malshanger Park, Basingstoke, second with Hero of Lockinge, and Mr. George, Putney Heath, was third with Hero of Surrey, a handsome variety with a rich deep green flesh.

PLUMS were sparingly represented. For three dishes Mr. J. Fry, Haydon Hall, Eastcote, Pinner, was first with good samples of Transparent Gage, Emperor, and Belgian Purple. Mr. Goodacre second with Washington, Jefferson, and Transparent Gage, and Mr. W. Coleman third with Jefferson, Emperor, and Kirke's. The prize-takers in the class for a dish of Greengage were Mr. Fry, Mr. Lemmon, Calcot Gardens, Reading, and Mr. J. Wells, Fernhill, Windsor Forest. For a dish of any variety, purple or red, Mr. Goodacre and Mr. C. Herrin were first and second with Pond's Seedling, and Mr. J. Wells was third with Victoria.

MISCELLANEOUS CONTRIBUTIONS included collections of apples and pears from Messrs. W. Paul and Son, Waltham Cross; and Messrs. Choeal and Son, Crawley; fine boxes of roses from Messrs. W. Paul and Son, and Messrs. Paul and Son, Cheshunt; a splendid collection of gladioli from Messrs. Kelway and Son, Langport; and an attractive group of begonias from Messrs. J. Laing and Co., Forest Hill, S.E.

NATIONAL DAHLIA EXHIBITION AT THE CRYSTAL PALACE, SEPTEMBER 8 AND 9.

The exhibition of dahlias held at the Crystal Palace on the 8th and 9th inst., in conjunction with the fruit show, was, regarded as a whole, a great success. It was weak in one or two particulars and some of the details were not so satisfactorily carried out as could have been desired, but the show and fancy flowers were staged in such large numbers and in splendid condition that they made ample amends for weakness elsewhere. The blooms and plants staged in competition sufficed to fill a broad table extending down the southern nave from the central transept to the Crystal Fountain, but the general effect was much marred by the diversity in the dimensions of the stands, the employment of large yellow cards, and the very general neglect to put the boxes in which the stands had been brought underneath the table, or to remove them to some other part of the building.

SHOW FLOWERS were staged in immense numbers and in the most magnificent condition by the leading trade growers. Very keen was the competition in the important class for forty-eight blooms, for not only was there a large number of exhibitors, but the flowers were very closely matched in point of size and finish. At the head of the exhibitors in the class were Messrs. Keynes and Co., Salisbury, who staged grand blooms of James Cocker, Lady Gladys Herbert, Prince Arthur, Gaiety (sport), Mrs. Percy Wyndham, Flora Wyatt, George Rawlings, George Edwards, Arbitrator, Joseph Service, Henry Bond, F. Smith, Herbert Turner, James Stephen, Duke of Connaught, Joseph Ashley, Mrs. Harris, W. P. Laird, William Rawlings, Goldfinder, George Dickson, Henry Walton, Rosy Morning, Enchantress, Emily Edwards, Mr. Spofforth, Admiration, Annie Gibbon, Champion Rolls, Mrs. Stanscomb, W. N. Williams, Thomas Goodwin, Rifleman, Prince Bismarck, Canary, Clara, John Bennett, Michael Saunders, Prince of Denmark, Flag of Truce, James Vick, Miss Cannell, Lord Chancellor, and Triumphant. Mr. C. Turner, Slough, a very close second with splendid blooms of Henry Walton, Lady G. Herbert, James Vick, Royal Queen, Prince Bismarck, Aurora, James Service, Herbert Turner, Fred Smith, William Rawlings, Crown Prince, John Bennet, Alexander Cramond, Criterion, James Cocker, Ethel Britton, Chris. Ridley, Perfection of Primroses, John Wyatt, Modesty, Rev. J. Goodday, Acme of Perfection, Lady Wimborne, Constance, Prince of Denmark, Charles Wyatt (self), Joseph Ashby, John Walker, John Neville Keynes, Richard Edwards, Burgundy, Flag of Truce, Mr. J. C. Reid, Goldfinder, Thomas Goodwin, Cardinal, George Rawlings, Sunbeam, Emily Edwards, Mrs. Percy Wyndham, Mr. Spofforth, Joseph Green, H. W. Ward, John Slater, George Smith, and two or three seedlings; Mr. Boston Calthorpe, Bedale, third, and Messrs. Cannell and Sons, fourth.

In the class for twenty-four Mr. Charles Turner was first with high-class blooms of Henry Walton, George Rawlings, Lady G. Herbert, Burgundy, Perfection of Primroses, H. W. Ward, Alexander Cramond, Royal Purple, Lady Wimborne, Constance, John Standish, Julia Wyatt, Prince Bismarck, Goldfinder, Joseph Green, Mrs. Percy Wyndham, James Vick, Charles Leicester, John Neville Keynes, Ethel Britton, William Rawlings, Herbert Turner, and John Wyatt. Messrs. Keynes and Co. second with W. P. Laird, Prince of Denmark, Fred Smith, William Rawlings, Mrs. Stanscomb, George Dickson, William Dawkins, Duke of Connaught, James Vick, George Rawlings, George Barnes, Prince Arthur, Emily Edwards, Joseph Green, Enchantress, Joseph Ashby, Thomas Goodwin, W. N. Williams, James Cocker, and two seedlings; Mr. W. Boston third, and Messrs. Harkness and Son, Bedale, fourth. The competition was very good also in the class for twelve, and the premier award was made in favour of Messrs. Paul and Son, who had large well-finished blooms of W. N. Williams, George Barnes (self), Lord Palmerston, Constance, J. W. Lord, Criterion, Benjamin Crossland, Emily Edwards, James Service, Flora Wyatt, Chris. Ridley, and George Crikell; Mr. Walker, Thame, second with a superb stand, and Messrs. Saltmarsh and Son, Chelmsford, third.

The competition was less spirited in the amateurs' classes for show varieties, and in many of the stands the flowers were much below the mark; nevertheless a goodly number of excellent blooms were staged by private growers. In the leading class for twenty-four Mr. Glasscock, Bishops Stortford, was first with large and excellent blooms of William Rawlings, Ethel Britton, James Vick, Mrs. Harris, Joseph Green, John N. Keynes, Prince Bismarck, Modesty, Alexander Cramond, the Countess, James Service, Lady Gladys Herbert, W. N. Williams, Prince Arthur, Mr. G. Harris, Herbert Turner, Prince of Denmark, Miss Cannell, Rev. J. Goodday, Sunbeam, Miss M. Batchelor, Miss Edwards, Thomas Goodwin, and Mr. Hodson, Mr. Fletcher, Baildon, Leeds, second, Mr. Hobbs third, and Mr. Godden, Manor House, Maidstone, fourth. For twelve show flowers Mr. Butterworth, Kidderminster, was first, closely followed by Mr. West, Brentwood, and Mr. Glasscock and Mr. Tranter, who were second, third, and fourth respectively. The prizetakers for six were, Mr. Masters, Penenden Heath, Kent, Mr. Monk, Mr. Palmer, and Mr. Mawley.

FANCY FLOWERS were especially well shown by trade cultivators, and made an attractive display. In the trade class for twenty-four Messrs. Keynes were first with grand blooms of Miss Nellie Large, Hercules, Jessie McIntosh, Professor Fawcett, Hugh Austin, John Forbes, Parrot, Chorister, Polly Sandell, Henry Glasscock, Mons. Chauviere, James O'Brien, Maid of Athens, Mrs. Saunders, George Barnes, Singularity, John Saunders, Robert Brunning, Rev. J. B. Camm, and Fanny Sturt. Mr. Charles Turner second with excellent blooms of Peacock, Rev. J. B. Camm, Laura Haslam, Miss Browning, Jessie McIntosh, Fanny Sturt, Professor Fawcett, James O'Brien, Annie Pritchard, Chang, Jeannette, John Lamont, Grand Sultan, John Forbes, Gaiety, Lucy Fawcett, George Barnes, Fred Smith, Magician, Beauty, Miss Lily Large, Mrs. Saunders, and Edward Beck; Mr. Seale, Sevenoaks, third, and Messrs. Cannell and Sons fourth. For twelve Messrs. Rawlings Brothers, Romford, were first with capital blooms of Hugh Austin, Peacock, Rev. J. B. Camm, Chorister, Egyptian Prince, Gaiety, Mrs. Saunders, Hercules, George Brunning, Jessie McIntosh, Barnaby Rudge, and Miss Browning; Messrs. Paul and Son a close second, and Mr. J. Walker third, and Messrs. Gilbert and Son, Ipswich, fourth. In the amateurs' class for twelve the prizetakers were Mr. Glasscock, Mr. Butterworth, Mr. Fletcher, and Mr. Horkney, Stokesley, in the order of their names; and for six the prizes were awarded to Mr. West and Mr. Ridout.

POMPONES were shown in comparatively large numbers, but with two or three exceptions they were not put up so satisfactorily as they might have been. Mr. C. Turner was first with a stand in which the blooms were of splendid quality and very tastefully arranged in bouquets with foliage. The varieties were Favourite, Countess Von Steinberg, Princess Sophia, Nemesis, Lady Blanch, Northern Light, Amelia, Barbier, Titania, Professor Bergeat, Grass an Wein, Gem, Mabel, White Aster, German Favourite, Garnet, Adonis,

Rosetta, Wilhelm Nitsche, Fair Helen, Louis Rodain, Isabel, E. F. Jungker, and Prince of Lilliputs. Mr. Turner was also first for twelve with varieties selected from the above-mentioned. Other successful exhibitors in the section were Messrs. Keynes and Co., Messrs. Paul and Son, and Mr. J. Walker.

SINGLE VARIETIES were more plentiful than the pompones, but in many of the stands the arrangement of the flowers was very indifferent. For twelve single varieties Mr. Turner was first with good and elegantly-arranged blooms of Coccinea, Lutea, Firefly, Scarlet, Canary Bird, Bronze Queen, Alba, The Baron, Huntsman, Foxhall, Mauve and Yellow Gem; Messrs. Keynes and Co. second, and Mr. Ware third. The prizes for six were also awarded to Mr. C. Turner, Messrs. Keynes and Co., and Mr. T. S. Ware. The exhibitor last mentioned also contributed several stands of single blooms to the miscellaneous class.

PLANTS IN POTS were but poorly represented, and contributed but little to the success of the exhibition. For twelve plants of large-flowered varieties Mr. C. Turner was first with dwarf and nicely-flowered examples of Julia Wyatt, Flora McDonald, Faust, Henry Bennett, Crimson Gem, Charles Lidgard, Charles Leicester, Yellow Pet, and Rising Sun. Mr. Turner was the only exhibitor of pompones and single varieties, and Messrs. H. Cannell and Sons the only competitors in the class for four plants of the Gracilis varieties.

PREMIER FLOWERS.—The prize for the premier show flower was awarded to Mr. C. Turner for a splendidly-developed bloom of Herbert Turner, and the premier fancy was a fine bloom of Flora Wyatt, staged by Mr. John Walker.

NEW FLOWERS were not numerous and the show and fancy sections were but sparingly represented.

First-class Certificates were granted as under:—

To Messrs. Keynes and Co. for

Condor.—A show flower of grand build and splendid colour; flowers large, high in the centre, and of a distinct and effective shade of bright orange-red.

Senator.—A fine show flower of great depth, and superbly finished; colour a rich purple, shading to magenta.

Hope.—A pleasing show flower; large, of splendid form, and of a pleasing shade of bright rose.

Acquisition.—A distinct single flower of a rich crimson colour, the florets margined with orange.

Evening Star.—A large well-formed single flower of a rich crimson colour.

To Messrs. Harkness and Son for

Earl of Ravensworth.—A beautiful show flower of a pleasing rosy buff colour; said to be a sport from Vice-President.

To Mr. T. S. Ware for

Pantaloon.—A distinct single flower; the florets blush, with broad band of crimson on each side.

White Star.—A very fine pure white single flower remarkable for its splendid substance.

Christine.—A beautiful single flower of a bright rose-pink colour.

To Mr. Charles Turner, for

Pompon Dahlias Gem, Little Duchess, Isabel, Favourite, and Mabel.

MISCELLANEOUS CONTRIBUTIONS included several splendid stands of asters from Mr. J. Walker and Messrs. Saltmarsh and Son, and a large and attractive display of petunias, zonal pelargoniums, and other subjects from Messrs. H. Cannell and Sons.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, SEPTEMBER 12.

Tuesday last was a dull day at South Kensington, and in the early hours, when business was in progress, the weather was so suggestive of November that we were pleased to see a display of chrysanthemums. They were, however, a poor lot of what are known as "summer-flowering pompones," a class that we could, if very hard pressed, manage to do without, not only in November, but in July, August, and September, when they are in the full tide of their ambiguous splendour. However, we had some better things than a summer snowstorm of white pompones, for there were several extensive collections of dahlias and roses, and a few, a very few, interesting novelties submitted for certificates, and there were sufficient fruits to make us feel that the present is a poor fruitless summer, scarcely capable of mocking us with melons.

In the vestibule was a table filled with a collection of 250 varieties of apples and pears from Messrs. W. Paul and Son, Waltham Cross. In the council chamber a great bank of roses from the same firm gave a cheerful greeting to visitors. In passing round the room we came upon a great lot of dahlias and pentstemons from Messrs. Hooper and Co., Covent Garden, amongst them being the beautiful Cactus dahlia, Dahlia Laurezi, in fine condition. Messrs. Rawlings Brothers, of Romford, put up a lot of show dahlias that were full of show. Mr. Ware, of Tottenham, presented a long line of single dahlias, of better quality than any we have seen this season at South Kensington. Amongst them were many novelties. From the Royal Horticultural Society's Gardens at Chiswick came *Nagelias*, and from Messrs. Charles Lee and Co., Hammersmith, some interesting trees and shrubs. Messrs. Carter and Co. sent a group of showy lilies.

Iresine Formosa, from Mr. Goldsmith, Tonbridge, is an interesting herb with red stems, and leaves that are veined with red and yellow, the principal portion of the leaf being dull green.

Gynura aurantia has enjoyed a moment's fame as a bedding plant, but will probably not be much more heard of. It is a handsome plant in its way, but of a very weedy sort; the broad ovate downy leaves are of a rich purple colour when young, but change to dark green as they acquire maturity. The flowers are like small orange-coloured hawkweeds.

White Queen, single dahlia, in Messrs. Hooper's collection, was conspicuous for size and purity of colour.

Begonia Diadem, from Messrs. Hooper, has divided leaves of a dull green colour, marked with small blotches of grey.

Tyda Robert le Diable, from Messrs. Hooper, is one of the best plants of its class, the habit being all one can desire, and the flowers very richly coloured.

Cupressus Lawsoniana variegata, from Messrs. Charles Lee and Co., Hammersmith, is a meritorious novelty; it is a sported form of the well-known erecta, which is not only a close fastigate tree, but of a peculiarly rich green colour. In this variety of Messrs. Lee's the original fine green colour remains, but is patched and splashed with creamy variegation.

Vanda Hookeri, from Mr. E. Hill, gardener to Sir N. M. de Rothschild, Tring Park, Herts, was the best plant in the room, and the first one placed

before the committee. It is a native of Burneo, much talked of, but little seen hitherto; for although it has been in the country some time, no one can be said to have a stock of it. The richly-veined purple labellum is its principal feature, and this places it in the category of gems "of purest ray serene." First-class Certificate.

Actea spicata, from Mr. Ware, is worthy of attention. It is one of the Banberries, a section of ranunculaceous plants, and is now attractive by reason of its abundant crop of deep red berries. Mr. Ware has a white-berried variety, which is as attractive as the red.

Dahlia Constance, from Mr. Cannell, is described as a "white Jaurezi." But it is scarcely that, or the committee would have given it a certificate by acclamation. It may please many and prove useful as a border flower, but to speak of it critically, we must pronounce it Jaurezi spoiled, for the florets are not of the "cactus" pattern, and the white colour is darkened with much green.

Dahlia Christine, a single variety, from Mr. Ware, is beautiful in form and of a lovely light rose colour; quite a novelty and worthy to rank with Paragon. First-class Certificate.

Dahlia Yellow Queen is a good variety of a clear rich yellow colour, conspicuous amongst the best singles.

Dahlia Violet is a single flower of good quality; the colour intensely rich violet-crimson.

Dahlia Ruby King, another single, from Messrs. Hooper and Co., is a fine addition to this class of flowers. The form is good and the colour is a deep ruby-red of a tone quite rare in flowers and suggestive, we know not why, of the richest stained glass. First-class Certificate.

Dahlia John Henshaw, a grand show flower, from Messrs. Rawlings Bros., Romford. It is large enough for any purpose, the form equal to anything we possess in the noble class of show dahlias, with a perfect centre. The colour is rich ruby-crimson. There is much dignity in this flower. First-class Certificate.

Dahlia James Gilbert, from Messrs. Rawlings, is a fine show flower of a dark maroon-crimson colour.

Dahlia Sir B. Seymour, from Messrs. Rawlings, is a promising show flower, likely to become as famous in its way as the gallant admiral it is named after. The colour is deep maroon.

Perpetual Carnations of the tree carnation class were presented by Mr. Duffield, gardener to H. K. Mayor, Esq., Winchmore Hill. They were of all colours, and were reported to have been cut from plants that have been flowering since March last.

Rose Queen of Queens, from Messrs. Paul and Son, Waltham Cross, justifies all our expectation of it as a beauty that would grow in favour by high merit alone. As now presented it was conspicuous amongst hundreds of its distinct form and exceeding freshness of colour. It is a full globular flower, the colour pink tinted rose, with a delicate satiny lustre.

The Fruit Committee had an easy time of it, there being very few melons to taste. The most interesting of the contributions perhaps, after the few unimportant novelties, were the samples of

Filberts from Messrs. Lane and Son, of Berkhamstead. These comprise the following sorts, Common Purple, smallish, the colour a fine brownish purple; Frizzed, a pretty green nut; Daviana, green tipped with brown; Prolific, brown tipped; Kentish Cob and Cosford, green; Red Skinned, brown and green, particularly handsome.

GREAT INTERNATIONAL HORTICULTURAL EXHIBITION, EDINBURGH, SEPTEMBER 13 AND 14.

The great horticultural exhibition at Edinburgh, which was anticipated with much interest by the horticulturists throughout Scotland and the North of England, was held on Wednesday and Thursday last, and proved, we have much gratification in stating, a great and unqualified success. The Waverley Market, in which the show was held, was filled to repletion with plants, fruits, and cut flowers; the weather was eminently favourable, and the attendance of visitors exceedingly large. As conveying some idea of the vast extent of the exhibition, it may be mentioned that the covered part of the market extends over exactly one and a half acres, that the entries in the one hundred and seventy-seven classes provided in the schedule exceeded two thousand; and indeed, the competitive collections were so numerous that a considerable number of miscellaneous contributions could not be accepted in consequence of the inability of the executive to afford space for them. This is the third of the International gatherings held under the auspices of the Royal Caledonian Horticultural Society, and has unquestionably been the most successful. In the matter of space the present exhibition had a decided advantage over those of 1865 and 1875: the productions were more numerous, and, on the whole, of a higher quality, and the arrangements were more complete and satisfactory. No more suitable place for the holding of a horticultural exhibition could well be found in the United Kingdom than the Waverley Market, which adjoins the Waverley Station; for notwithstanding the large area covered the building does not exceed twenty-five feet in height, and is so well lighted, both by day and night, that everything appeared to the best advantage. The space at the disposal of the executive was turned to good account, and the effect from the narrow gallery running round the building was particularly good. Along the centre a broad flat stage was provided for the large specimen flowering and ornamental plants, and to the right and left of this were three lines of tables, on which plants of moderate size, fruits, and cut flowers were arranged, and round the sides were tables for the vegetables, making no less than nine stages or tables, all of which extended the greater length of the building, with breaks at convenient points to enable the visitors to pass readily from one to the other. At the western end a small space was enclosed with the vines and fruit trees in pots, and in this enclosure were placed the dinner-table decorations, and the apples and pears shown in the competitive and miscellaneous classes.

The schedule, which was of a most comprehensive character, was arranged in eight divisions—the first for pine-apples and grapes, the second for grapes open to those not showing in the first division, the third for miscellaneous fruits in collections and otherwise, the fourth for fruits of foreign growth, the fifth and seventh for ornamental plants and cut flowers, the sixth for dinner-table decorations, and the eighth for vegetables. In all but the seventh division, which was set apart for trade cultivators, the competition was very severe, and the two strongest features were those formed by the grapes, of which about 1,500 bunches were entered, and the specimen plants, which for so late in season were particularly good. Cut flowers were very fine, particularly dahlias, and had the space admitted of their being placed to the best advantage, they would have produced a splendid display of themselves. Dinner-table decorations and table plants were highly meritorious, and the latter,

placed in a single line along the centre of the tables devoted to the grapes, appeared to advantage, and added considerably to the general effect.

As at the previous great exhibitions held in Scotland, the whole of the productions were staged on the evening previous to the opening day, and the judging commenced at six a.m. on Wednesday. By nine o'clock the whole of the judging was completed and the prize-cards attached, and gardeners and their assistants were admitted between that hour and eleven o'clock at a charge of one shilling, an arrangement, it may be added, worthy of the highest commendation.

The exhibition was formally opened about noon on Wednesday by the Lord Provost, Magistrates, and Council. His Lordship said:—I have much pleasure in being here to-day to open this great show, and I have to congratulate the committee of management and the exhibitors of this most wonderful collection of fruits and flowers. To see all these together, filling with their fragrance and their beauty this enormous hall, is a sight that no one here will soon forget. In this market-place, usually devoted to other purposes, a marvellous transformation has been effected, and an empty hall has been changed into a paradise of flowers. During a large portion of my life I have taken a deep interest in gardening, and I have seen many gardens and many flower shows, but never anything like this. We, the Town Council, are much indebted to the promoters of this show for affording the people of Edinburgh an opportunity of witnessing such a splendid display, and for the stimulus it must afford any spectator to cultivate more and more his taste for flowers. And, as regards the fruit, the collection is simply marvellous as contrasted with that of other countries where nature is kinder, and the climate affords greater facilities for fruit cultivation than we have in Scotland. The number of exhibits, I am told, exceeds 2,000, and the committee of management have had no little difficulty in finding places for them all, while the exhibitors include some of the most famous growers in the country. The grapes alone are wonderful, and, speaking generally, the quality and beauty of the whole show cannot but command the very highest admiration. But, ladies and gentlemen, I am merely detaining you from seeing this wonderful exhibition, and I am sure that the more you examine it the greater will be the pleasure you will experience.

FRUIT.

PINE-APPLES were perhaps the "weakest" part of the fruit divisions, for although some good fruits were staged, they were not in proportion to the other subjects. In the class for two fruits of the Queen Mr. Calderdale, Wemys Castle, was first with capital examples, not over-large, but splendidly finished; Mr. Johnston, Glamis Castle, a good second; Mr. McIndoe, Hatton Hall, Guisborough, third. Charlotte Rothschild was well shown by Mr. Goodacre, Elvaston Castle, Derby, and Mr. Hutton. There was a fairly spirited competition for two pines in pots, and Mr. Calderdale was first with two splendid Queens, and Mr. McIntyre, The Glen, Edinburgh, was second with Smooth Cayenne.

COLLECTIONS OF FRUIT had three classes set apart for them, and in that for twelve dishes, including two pines, two sorts of grapes, two melons, and six other sorts of fruit, there were five competitors, all of whom had excellent collections. The first prize, of £15, was awarded, and deservedly so, to Mr. McIndoe, who staged Trebbiano and Barbarossa grapes in magnificent condition, the bunches weighing from 8 lb. to 9 lb. each, well proportioned and splendidly finished, very fine Queen and Charlotte Rothschild pines, Humboldt and Pitmaston Orange nectarines, Violette Hâtive peaches, Best of All and McIndoe's Scarlet Premier melons, Brown Turkey figs, Moor Park apricots, Yellow Magnum Bonum plums, and Williams's Bon Chretien pears. Mr. Goodacre, Elvaston Castle, Derby, second with a collection remarkable for the uniformity of the several kinds, which comprised examples of Muscat of Alexandria and Madresfield Court grapes, two Queen pines, William Tillery and Hero of Lokingree melons, Victoria nectarines, Moor Park apricot, Belle-garde peaches, Brown Turkey figs, and Jefferson plums. Mr. Austen, Ashton Court, Bristol, third with a collection of a high order of merit, in which were Madresfield Court and Muscat of Alexandria grapes, two Queen pines, Salway peaches, Downton nectarines, Blenheim Orange and Victory of Bath melons, Kirke's plums, Brunswick figs, and Doyenné Beussac pears.

There were five competitors also in the class for twelve kinds of fruit, exclusive of pines, and the first place was occupied by Mr. Hunter, Lambton Castle, Durham, with splendid examples of Black Alicante and Muscat of Alexandria grapes, Elvaston nectarines, Grosse Mignonne peaches, Louise Bonne of Jersey and Durandau pears, White Magnum Bonum plums, Best of All melon, Worcester Pearmain apples, and Brown Turkey figs. Mr. Dickson, Mount Melville, a close second with Black Hamburg and Muscat of Alexandria grapes, Noblesse and Barrington peaches, Victoria and Elvaston nectarines, Moore Park apricots, Lawson's Golden Gage plums, Best of All and Read's Greenflesh melons, Doyenné du Comice pears, and White Ischia figs; Mr. McKelvie third.

In the class for twelve kinds of fruit, exclusive of grapes and pines, there were six entries, and Mr. McIndoe was first, staging capital examples of McIndoe's Scarlet Premier and Best of All melons, Beurré d'Amanlis and Louise Bonne of Jersey pears, Brunswick and Negro Largo figs, Kirke's and Jefferson plums, Belle Magnifique cherries, Worcester Pearmain apples, Royal George peaches, and Henskirck apricots. Mr. Williamson, Tarvet, second with a very excellent collection comprising especially fine examples of Victoria and Downton nectarines, Royal George and Noblesse peaches, Jefferson and Kirke's plums, Irish peach apples, Moor Park apricots, Brown Turkey figs, and Jar-gouldie pears; Mr. Fairgreive, Dunkeld, a good third.

GRAPES IN COLLECTIONS formed a very important and attractive feature. There were no less than twelve collections in the class for six sorts, two bunches of each. Hero Mr. McIndoe was first with immense and grandly-finished bunches of Barbarossa, Trebbiano, Mrs. Pince, superbly coloured, Golden Champion, Black Hamburg, and Gros Colmar; Mr. Hunter a capital second with Barbarossa, Muscat of Alexandria, Alicante, Trebbiano, Gros Colmar, and Golden Champion; Mr. A. Kirk, gardener to J. T. Paton, Esq., Norwood, third with Black Hamburg, Duke of Buccleuch, Alnwick Seedling, Muscat of Alexandria, Muscat Hamburg, and Gros Colmar; Mr. McKelvie and Mr. Hammon, Brayton, Cumberland, also exhibited well in the class. The competition was also very spirited in the class for six varieties one bunch of each, and at the head of the competitors was Mr. Hunter with grand examples of Alicante, Trebbiano, Gros Colmar, Barbarossa, and Muscat of Alexandria; Mr. A. Kirk a close second with Black Hamburg, Muscat of Alexandria, Gros Colmar, Duke of Buccleuch, Alnwick Seedling, and Muscat Hamburg; Mr. McKelvie third with a good although somewhat uneven collection, the varieties being Muscat of Alexandria, Black Prince, Calabrian Raisin, Black Hamburg, Buckland Sweetwater, and Gros Colmar. There were six collections of four bunches, and the first prize was awarded to Mr. Elphinstone, of Shipley Hall,

Derby, who had fine bunches of Madresfield Court, Muscat of Alexandria, and Golden Queen; Mr. Dickson and Mr. Roberts, Tullamore, Ireland, second and third.

GRAPES IN DISHES of one and two bunches were staged in immense numbers, and, on the whole, in capital condition. The classes for those were broken up into two divisions, and exhibitors were allowed to show in only one of the two. In the first division there were ten classes for two bunches, and of these eight were for specified varieties. There were ten entries for two bunches of Black Hamburg, and Mr. McIndoe, Mr. McIntyre, and Mr. Roberts, Gunnersbury Park, were the prizetakers, with fairly good clusters. Four competitors only entered for two bunches of Muscat Hamburg, and Mr. Reid, Rockfield, Dundee, was first with small but well-coloured bunches, and Mr. Roberts, Gunnersbury Park, second. There was a spirited contest for the prizes for two bunches of Gros Colmar, and the awards were made in favour of Mr. Wallis, gardener to the Rev. W. Sneyd, Newcastle-upon-Tyne; Mr. Upjohn, Worsley Hall, Manchester, and Mr. Elphinstone, all of whom presented this noble grape in splendid style. The class for two bunches of Lady Downes was well filled, the entries numbering fifteen; the prizetakers were Mr. McKelvie, Mr. McIndoe, and Mr. Wallis. For two bunches of Madresfield Court there was a good competition, and Mr. Goodacre, Mr. Roberts, Gunnersbury, and Mr. McKelvie, who were first, second, and third, staged exceedingly well-coloured examples. Sixteen competitors entered in the class for two bunches of Alicante, and the prizetakers were Mr. Wallis, Mr. Hunter, and Mr. Roberts, Prestwold Hall, all of whom staged bunches large in size, and superbly coloured. In the class for two bunches of any other black sort there were thirteen entries, and Mr. McIndoe and Mr. Wallis were first and second with medium-sized and well-finished clusters of Barbarossa, and Mr. Hudson, Gunnersbury House, Acton, was first with Alwrick Seedling in fine condition. The class for two bunches of Muscat of Alexandria was very strong, there being thirteen entries, and all of a high order of merit. Mr. Day, Griston, was first with magnificent bunches of a rich amber colour, Mr. Mackinnon, Mlville Castle, Dalkeith, second, and Mr. Murray, Culzean Castle, Maybole, third. In the class for two bunches of any white grape other than the Alexandrian Muscat, and the Duke of Buccleuch there were sixteen entries, and Mr. Gray, Lesmadrage, was first with grand examples of Buckland Sweetwater, Mr. Wallis was second, and Mr. Dickson third with Golden Queen.

In the class for one bunch of Black Hamburg the prizetakers were Mr. McIndoe and Mr. Boyd. For Alicante Mr. Roberts, Prestwold Hall, and Mr. Mackonochie, were first and second; for one bunch of Lady Downes the prizetakers were Mr. Elphinstone and Mr. Lee; for one bunch of Alwrick Seedling, which is unusually good this season, Mr. Bell, Clive House, Alwrick, and Mr. Roberts, Gunnersbury Park; for one bunch of Gros Maroc, a valuable black grape of recent introduction, Mr. Wallis and Mr. McIndoe; for one bunch of Muscat of Alexandria Mr. Day and Mr. McKelvie; for Golden Champion Mr. Brown, Abercainey, and Mr. Roberts, Gunnersbury; and for Mrs. Pearson Mr. Wallis and Mr. Austen, Bristol.

In competition for the prizes for the heaviest bunch of black grapes Mr. Roberts, Tullamore, was first with a shapely but poorly-coloured bunch of Barbarossa, weighing about 18 lbs., and Mr. McIndoe was second with a grandly-finished bunch of the same variety, of which the weight was about 9 lbs. Neither of the bunches were weighed, so that exact weight cannot be given. For the prizes for one bunch of a white grape for flavour Mr. Roberts, Gunnersbury Park, was first, and Mr. McIndoe second, with Duchess of Buccleuch, a small-berried white variety of high class quality; for the best flavoured black grape Mr. McIndoe was first with Madresfield Court, and Mr. Bunton second with Black Hamburg. In the class for one bunch for bloom Mr. Wallis and Mr. Johnston were first and second with Gros Colmar.

The prizes offered in the second division were contested with much spirit, and the several classes contained grapes of great excellency. For six varieties Mr. Witherspoon, Chester-le-Street, was first with well-finished bunches of Alwrick Seedling, Foster's Seedling, Madresfield Court, Black Prince, Buckland Sweetwater, and Gros Maroc; Mr. Lane, Trinty, second, and Mr. McLeod third. In the classes for two and one bunches the most successful of the numerous exhibitors were Mr. Finlay, Layton Hall, Darlington; Mr. Young, Mr. Collins, Mr. Shaw, Mr. Watson, Mr. Harper, Mr. Jeffrey Langholm, and Mr. Greig.

VEITCH MEMORIAL PRIZES.—Three Veitch memorial prizes, each consisting of £5 and a medal, were offered by the trustees, one for a collection of fruit and two for grapes. The prize for the best collection of fruit in the exhibition was awarded to Mr. McIndoe for his first-prize collection of twelve kinds, and that for the best two bunches of black grapes in the show to the same exhibitor for the two magnificent bunches of Barbarossa in his collection of twelve. The prize for the best two bunches of white grapes was awarded to Mr. Day for the splendid bunches of Muscat of Alexandria, for which he received the premier award in the class for that variety in the first division.

GRAPE VINES IN POTS were presented in grand style by Messrs. H. Lane and Son, Great Berkhamstead, who were first in the class for a black grape with Black Hamburg, and for a white grape with Foster's Seedling. The vines were of immense size and well furnished with fine clusters, and with the four vines contributed by the firm to the miscellaneous class produced a striking effect.

MELONS were abundant and of excellent quality. Thirty-two fruits were staged in the class for a green-fleshed variety, and the premier award was made in favour of Mr. McIndoe, who had Best of All; Mr. Maule was second with Colston Basset, and Mr. Elphinstone third with Hero of Lockinge. There were twenty entries in the class for scarlet-fleshed kinds, and Mr. McKelvie was first, and Mr. McIntosh, Berwick-on-Tweed, second, with Bloxham Hall; Mr. Watson, Stirling, third.

Figs were admirably shown by Mr. Boyd, Mr. Wallis, and Mr. Heggie, who respectively staged Brown Turkey, White Ischia, and Osborn's Prolific.

PEACHES and **NECTARINES** were plentiful and good. In the class for twelve fruits there were twelve entries, and Mr. McMillan was first with Lord Palmerston, of immense size; Mr. Young second with Walburton Admirable, and Mr. McLeod third with Noble-se. Equally spirited was the competition in the class for six, and Mr. McLeod was first with Lord Palmerston, each fruit of enormous size; Mr. J. Paterson second with Noble-se. In the class for twelve nectarines Mr. George and Mr. Gilbert were first and second with Victoria, a large and handsome variety.

PLUMS and **APRICOTS** were fairly represented. In the class for three plums Mr. Short was first with Jefferson, Kirke's, and Victoria, and Mr. Brunton Drew, who was second, staged Victoria and Jefferson in capital condition.

APPLES and **PEARS** were contributed in immense numbers and in the most satisfactory condition. For six pears, two sorts, Mr. Fraser, Ledbury, was

first with Williams's Bon Chrétien. Mr. Short and Mr. Don contributed the two best dishes of Jatgonelle, and in the class for a collection of pears Mr. Austen and Mr. Williams were first and second. Mr. Brotherton staged a fine dish of Calabasse in the class for the six heaviest pears, and Mr. Young exhibited well. In the apple classes Mr. McIntosh, Mr. Williamson, Mr. Blackie, Mr. Edgar, and Mr. McIndoe were the most successful exhibitors. The exhibitor last mentioned was first in the class for a collection of baking apples with splendid fruits of Annie Elizabeth, Echlinville Seedling, Warner's King, Beauty of Kent, Peasegood's Nonesuch, Winter Hawthorn, Lady Henniker, Nelson's Collin, and Cellini.

Messrs. J. Veitch and Sons, Chelsea, exhibited a very large and splendid collection of apples and pears grown in their Fulham nursery on pyramid trees. Messrs. J. Cheal and Son, Crawley, Sussex, staged a fine collection of apples and pears from cordon trees.

PLANTS.

STOVE and **GREENHOUSE PLANTS** in bloom and remarkable for the beauty of their foliage were staged in splendid style by numerous exhibitors. There were six or seven entries in the great class for ten flowering and fine foliage, and at the head of the competitors was Mr. Letts, Mask, Yorkshire, with large and splendidly-flowered specimens of *Ixora coccinea*, *stephanotis*, *Phenocoma prolifera* Barnesi, *Allamanda Hendersoni*, *Erica Marnockiana*, and immense and well-finished examples of *Croton Queen Victoria*, *C. Weismanni*, *Gleichenia Mendeli*, and *Cycas revoluta*. Mr. Paterson, Milbank, a good second with a collection in which *Erica Austiniana*, *E. Irbyana*, *E. Macnabiana*, *Statice profusa*, *Ixora Williamsi*, *Eucharis amazonica*, and *Croton Weismanni* were particularly good; Mr. Henderson third. In the class for one specimen plant Mr. Souza was first with *Panacratium speciosum*, bearing ten splendid scapes; Mr. Robertson second with a specimen of *Lapageria rosea*, about nine feet high and well furnished with foliage and flowers; *Valota purpurea* was shown in splendid style, and the several specimens produced a brilliant display of colour. Mr. Grossart and Mr. Donald had the two finest specimens. Cape heaths were fairly represented, and in the class for a single specimen Mr. Boyes was first with *E. Marnockiana*, one of the best of the late-flowering varieties.

There was a good competition for four fine foliage plants, and Mr. Hammond was first with *Dasyliro glaucum*, *Buonaparteia jucea filamentosa*, and *Croton majesticus*; and palms in collections of four were well shown by Mr. Henderson and Mr. Graham, and *crotons*, which were considerably above the average both in size and colour, were splendidly shown by Mr. McIntyre, Mr. Hammond, and Mr. Atkinson. *Dracenas* were also remarkably good, the chief prizetakers being Mr. Pratt, Mr. Atkinson, Mr. Henderson, and Mr. Douglas.

FERNS had four or five classes set apart for them, and the most successful exhibitors of exotic kinds were Mr. Curror, Mr. Caming, Mr. Henderson, and P. Neill Fraser, Esq., Rockville, Murrayfield, Edinburgh, honorary treasurer of the Royal Caledonian Horticultural Society. The last-mentioned was first for six kinds with specimens of the most magnificent character, that of *Goniophlebium subauriculatum* being particularly noteworthy; this had about two hundred fronds ranging from eight to twelve feet in length, and suspended from the gallery it produced a very striking effect. The most successful of the exhibitors in the classes for British kinds were Mr. Anderson, Mr. Lyall, and Mr. Kerr.

TABLES OF PLANTS arranged for effect formed a very pleasing feature, and those of Mr. A. Paul and Mr. Hammond, who were equal first in the amateurs' division, and Messrs. Ireland and Thomson and Messrs. Clark Bros., Carlisle, who were equal first in the class set apart for trade growers, were deserving of the highest praise.

NURSERYMEN'S CLASSES for plants were not so well filled as those provided for amateurs, nevertheless a very large number of excellent collections were staged by trade growers. The leading exhibitors in the trade division were Messrs. Ireland and Thomson, Messrs. Downie and Laird, and Messrs. Dickson and Co. These contributors also exhibited large and splendid collections of ornamental plants.

CONIFEROUS TREES were admirably represented by collections from the Lawson Nursery Company and Messrs. Ireland and Thomson, who were first and second respectively in the class for six; both firms staged well-furnished specimens ranging from four to six feet high, and those forming the first prize group consisted of *Retinospora filifera*, *R. plumosa aurea*, *Picea Veitchi*, *Sciadopitys verticillata*, *Juniperus virginicus albo spica*, and *Abies polita*. The Lawson Nursery Company also exhibited two large and very fine banks of coniferous trees, which, arranged at the western end of the hall, added materially to the general effect.

SOFT-WOODED PLANTS in bloom included zonal pelargoniums, fuchsias, lilies, and cockscombs, but with the exception of the latter they do not call for any special comment. The cockscombs were exhibited by Mr. Brown and Mr. Reid, and were furnished with splendid heads.

ORCHIDS were admirably shown by Mr. G. Douglas, Miss Tait, Mr. A. Paul, and Mr. McDonald, and included a splendid specimen of *Renanthera coccinea*, and good examples of *Oncidium grande*, *Laelia elegans*, *Cattleya gigas*, and other good and well-known kinds.

CUT FLOWERS.—These were very successfully shown in the trade classes by Messrs. Downie and Laird, Messrs. Harkness and Son, Messrs. Cocker and Son, and Mr. Campbell, and in the classes set apart for private growers the leading prizetakers were Mr. McFarlane, Mr. Robertson, Mr. Henderson, Mr. W. Veitch, Mr. Simpson, and Mr. A. Kerr.

VEGETABLES.

All the prizes for vegetables were contested with much spirit, and the productions throughout were remarkably good. In the class for a collection of twelve kinds there were fourteen entries, and Mr. Muir, Margam Park, was first with a splendid lot, and Mr. McBean second. Mr. Muir was also first for a collection of salads.

The prizes for potatoes were also keenly contested. In the class for twelve sorts there were twenty competitors, and Mr. Culton, Castle Douglas, was first with remarkably fine samples of Beauty of Hebron, Salmon Kidney, Climax, Beauty of Kent, Scottish Queen, Challenger, Queen of Whites, Grampian, Porter's Excelsior, and Schoolmaster. The competition was equally severe in the class for six, and Mr. Potter was first with Grampian, Mammoth Pearl, Schoolmaster, Woodstock Kidney, and Manhattan; Mr. Mackinnon second.

MISCELLANEOUS CONTRIBUTIONS.

Chief amongst the exhibitors in the miscellaneous class was Mr. B. S. Williams, of Upper Holloway, who had a very large collection of flowering and ornamental-leaved plants. Messrs. J. Laing and Co., of Forest Hill, exhibited an extensive collection of cut begonias, in which many of their fine novelties were well represented.

Notes of Observation.

WINTERING LETTUCE PLANTS.

HAVING to deal with a cold undrained soil, I have to take extra precautions to keep a stock of plants through the winter. The best variety I can find to stand the winter is the Black-seeded Brown Cos. I sow the seed about the 15th of August on a warm border in the kitchen garden, and about the first week in November I prepare a frame for the plants. I place the frame in the most sunny part of the frame ground, and fill it up with soil to within nine inches of the glass. In this bed of soil the plants are put out six inches apart each way. The lights are left on for a few days, as well as at night, until the plants have had time to make new roots in their fresh quarters, and as soon as I see they are getting established I take off the lights both night and day in mild weather. I like them to be fully exposed to a few degrees of frost, and the lights are not therefore put on at night, unless there is a likelihood of as much as 10 deg. of frost. As the frost increases in severity I put on the lights earlier in the afternoon, and cover them with mats, two or three in thickness, according to the state of the weather. In this way I save as many plants as I require in the most severe winters. I may remark that the last winter being so mild I did not put on the lights at all. Notwithstanding this, I shall continue to make the same preparation.

JOSEPH MACDONALD.

TUBEROUS BEGONIAS.

The value of these as bedding plants cannot be too highly estimated. I planted out about fifty the last week in May, in a situation where many plants would have failed to succeed. The effect they have produced has been a pleasing surprise to many visitors. Every one desirous of variety in the flower garden should lose no time in becoming acquainted with the merits of the tuberous begonias.

R. B. M.

CALLIOPSIS TINCTORIA.

This hardy annual was much grown a quarter of a century ago, and it is as well worthy of being cultivated now as at any other time. Although classed as a hardy annual, it does not always survive a hard winter. I therefore sow the seed in a box in the month of August, and keep the plants in a cold pit all the winter. In April they are put out in the borders, where they begin to flower in June, and continue flowering all the summer. It grows about two feet high and produces a continuous succession of flowers, the colours of which are bright orange and dark crimson.

J. M.

ROSEBERRY GOOSEBERRY.

The green gooseberry named *Roseberry* is one of the best for a small garden, as in its early stages it is capital for culinary purposes, and when ripe is a good table fruit of excellent flavour. The tree grows very neatly, and needs no pruning. It should, I think, come into the best dozen.

W. K.

TRADE CATALOGUES.

- JAMES PAGE, HORNSEY, MIDDLESEX.—*Dutch Bulbs and other Flower Roots.*
G. COOLING AND SON, BATH.—*Illustrated Catalogue of Hyacinths, Tulips and other Bulbous Roots.*
JAMES YATES, STOCKPORT.—*Illustrated Catalogue of Continental Flowering Bulbs.*
G. SHREWSBURY, 59, OLD BAILEY, E.C.—*Price List of Gas Conservatory Boilers and Portable Hot-water Apparatus.*
JOHN JEFFERIES AND CO., CIRENCESTER.—*The Best Bulbs for Conservatory, Spring Bedding, &c.*
E. G. HENDERSON AND SON, MAIDA VALE, LONDON, W.—*Catalogue of Dutch Bulbs and other Flower Roots from the Cape and all parts of the World.*
E. S. DODWELL, STANLEY ROAD, OXFORD.—*New Carnations and Picotees.*

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

Replies to Queries.

Disappointed.—The marrows are probably too cold and wet at the roots, and it is too late now to prevent the fruit dropping.

Subscriber.—Horticultural buildings are wanted in Queensland for horticultural purposes. Whether Queensland or Manitoba should have the preference as a place of settlement we could not undertake to determine, save for ourselves alone, and in that case we should certainly prefer the first.

G. Fry.—Your seedling fuchsias are an interesting lot. White Lady, single white corolla, a short flower, the vinous-tinted scarlet sepals contrasting well with the white corolla. Ethel Fry is a double white corolla of great substance, and sometimes inclined to be as round as a ball. The petals are well packed together, of the same length and breadth, white with carmine pencilling; the sepals purplish tinted scarlet, quite reflexed. Two very pretty novelties.

Clematis.—Dartmouth.—It is not advisable to cut back Clematis Jackmanni every year. When it becomes thin and exhausted will be time enough for that operation—say, once in four or five years or less. On the other hand, cutting it back to within a few inches of the ground every year will be unattended with danger, as the new growth will rise with vigour and flower freely.

Wireworm.—"Novice" will not proceed far in practical horticulture without becoming well acquainted with the wireworm. There are, indeed, several sorts of insidious beasts so-called, but they have this character in common, that when unearthed they are about three-quarters of an inch in length, of an ochreous or brownish colour, smooth, horny, and very tough. If spared to run their course they in due time come forth as jumping beetles, soon after which, in the midst of a merry life, the females lay many minute yellowish eggs, which is the last event in their individual history. The true wireworm is like the mealworm, which also is of a pale colour. Some species of millepedes are called wireworms, but are far removed in their relationships.

Names of Plants, Fruits, &c.—P. M., Orwell.—*Mandevilla suaveolens*, *syn. Echites suaveolens*. R. Tuscany.—1, *Carduus argemone*; 2, *C. cinereus*. As regards "worth growing," any plant is worth growing that you take an interest in. When we advise we are of course influenced by our own tastes and prejudices. Thus we consider a holly a finer evergreen than a privet, but the man who prefers privets to hollies will find us always ready to advise him, and as you mention these things we recommend you to give attention to the Chinese privets, if your climate is sufficiently soft for them. In the northern suburbs of London these privets do not last long, and therefore we are cautious about recommending them. W. S.—Your grape appears to be Royal Vineyard, but being out of condition we cannot determine it with certainty. The apple is Quarrenden, also very much out of condition. The shrub must be sent with fruit on it. W. H. C., Dartmouth.—1, Clematis rubro-violacea; 2, Escallonia rubra; 3, not known, having neither flowers nor fruit; 4, Sedum Sieboldi; 5, Sedum japonicum; 6, Asplenium flaccidum; 7, Adiantum formosum; 8, Nephrodium molle corymbiferum; 9, Polystichum angulare proliferum; 10, Pteris tremula. Nos. 1, 3, and 8 not satisfactory specimens, having suffered through being sent loose in a frail chip box. The others were as good samples as could be desired. L. Haslett.—Your plant is the common Bryony, Bryonia dioica.

Obituary.

WE regret to have to record the death a few days since, at his residence at Edmonton, of Mr. GEORGE SMITH, many years a member of the Floral Committee of the R.H.S., and the principal promoter of the National Dahlia Exhibition lately held at the Crystal Palace. Mr. Smith acted as honorary secretary to this undertaking, but illness prevented the activities needful in such a business, and at a quite late hour Mr. Thomas Moore generously supplied his place.

On the 7th inst., at Geneva, Professor PLANTAMOUR, aged 67 years.

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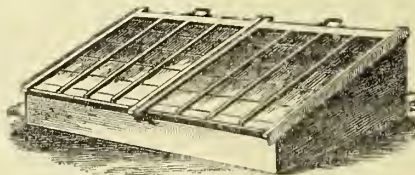
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.			HIGH WATER AT				M. temp. of air, 374, Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sets.	Souths before Noon.	Rises. Morn.	Sets. After.		London Bridge.		Liverpool Dock.				
			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882
24	S	16th Sunday after Trinity.	5 49	8 1	5 54	4 16	1 50	11 2	11 35	7 50	8 27	56.1	Aster alpinus albus, H.....	White.	267
25	M	Person died, 1809.	5 51	8 22	5 52	4 41	3 21	—	0 8	9 33	5 9	55.9	Aster forficatus, H.....	Lilac.	268
26	Tu	St. Cyprian.	5 53	8 42	5 59	5 9	4 46	0 33	0 57	9 54	10 22	55.7	Barkeria Lindleyana, S.....	Purple.	269
27	W	O Full Moon, 5h. 10m. morn.	5 55	9 2	5 47	5 37	6 11	1 20	1 43	10 45	11 8	55.5	Dipladenia boliviense, S.....	White.	270
28	Th	Sir Thomas Biddulph died, 1873.	5 57	9 23	5 45	6 7	7 35	2 4	2 25	11 29	11 50	55.4	Erica mammosa, G.....	Red.	271
29	F	St. Michael. Michaelmas Day.	5 58	9 42	5 43	6 42	8 57	2 50	3 12	—	0 15	55.2	Habrothamnus elegans, G.....	Crimson.	272
30	S	St. Jerome.	5 59	10 2	5 41	7 23	10 15	3 33	3 54	0 37	0 58	55.0	Tritoma uvaria, H.....	Orange.	273

The Gardeners' Magazine.

SATURDAY, SEPTEMBER 23, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

ALL ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES, 143 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Auction Sales for the Ensuing Week.

- MONDAY, SEPTEMBER 25, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.
- TUESDAY, SEPTEMBER 26, AT 12 NOON.—Messrs. Protheroe and Morris, at the Lordship Park Nursery, Stoke Newington; Indoor Nursery Stock.
- TUESDAY, SEPTEMBER 26, AT 3 P.M.—Mr. J. S. Gomme, at Millshot Farm, Fulham; Seakale and Rhubarb Roots.
- WEDNESDAY, SEPTEMBER 27.—Messrs. Protheroe and Morris, at Maryland Point, Stratford; Stove and Greenhouse Plants.
- WEDNESDAY, SEPTEMBER 27, AT 1 P.M.—Mr. J. H. Green, at the Swiss Nursery, Hammersmith; Nursery Stock.
- WEDNESDAY, SEPTEMBER 27.—Messrs. Protheroe and Morris, at Reeve's Nursery, Acton; Nursery Stock.
- WEDNESDAY, SEPTEMBER 27, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.
- THURSDAY, SEPTEMBER 28, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Important Orchids.
- THURSDAY, SEPTEMBER 28, AT 1 P.M.—Messrs. Protheroe and Morris, at the Exotic Nursery, Tooting; Nursery Stock.
- THURSDAY, SEPTEMBER 28, AND TWO FOLLOWING DAYS, AT 11 A.M.—Mr. D. Mitchell, at Mayfield Falkirk; Specimen Orchids, Stove and Greenhouse Plants, and Conifers.
- FRIDAY, SEPTEMBER 29, AT 12 NOON.—Messrs. Protheroe and Morris, at Biggs's Nurseries, Lewisham; Nursery Stock.
- FRIDAY, SEPTEMBER 29, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported and Established Orchids.
- SATURDAY, SEPTEMBER 30, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

THE GROWTH OF FRUIT UNDER GLASS increases in importance with the increase of wealth, the expansion of towns, and the persistent bad behaviour of the weather. Once more in this year 1882, as in many past years, the tables of the wealthy—or, as we may with more propriety say, the comfortable classes—would be without fruit save for supplies from the glass garden or from foreign countries. The open ground crops are few and poor, and the higher classes of garden fruits, such as grapes, peaches, and plums grown on walls, are not surprisingly abundant, and in many instances are of the poorest quality. How long is it since good bunches of grapes were grown on open walls? Many of our readers can answer the question with a little consideration, and the counting of many fingers in running back to a summer that permitted grapes to ripen without aid of glass or artificial heat. In a run of bad years, there must be a rise in the productive value of glass, provided only the nation can pay for it, and happily we are still a long way from the ruin and “smash-up” that is always predicted, and is to be brought about now by a Tory Government, now by a Liberal Government, and some day by no government at all. The fruit houses will increase in proportion to the demand for first-class fruit, and the means of intending eaters of fruit to pay for them. The point of primary importance is that Nature does not wage war with the

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horticultural builders; indeed, she seems to take great interest in their proceedings, and to wish them well; and one might almost suspect her indefinable personality of a quiet hunger for a per centage on the undertakings. Cold summers make glass houses in lands where wealth accumulates and men do not decay. The extent to which constructive industry in this department of horticulture has attained is more than an average citizen could believe or understand. It tells emphatically of the growing wealth of this country; our citizens can afford to cover broad acres with crystal, and if early peaches cost a guinea each first hand in glass, labour, coke, and rent, they can eat the peaches without a qualm, because they can earn the money to pay for them in the mill, or on 'Change, or by the very simple expedient—which everybody feels himself competent to—of establishing a penny paper.

Reviewing this subject by the aid of about half a century of reminiscences, we begin to be haunted with a doubt if the fruits now, and for some years past, grown under glass, are as good as they once were, even in our time, say twenty years ago. Are the grapes as good? Are the peaches and nectarines as good? Are the melons and pines as good? These are mighty questions. We do not forget the story of “Old Wisdom” in one of our Christmas numbers, who forgot that time tells upon ideas no less than on trees, walls, and teeth. But we incline to the belief that unfavourable seasons have told with marked effect on fruits grown under glass, as they have upon fruit grown in the open. Is it so? Are the grapes as good as they were twenty, or, say, ten years ago? Are the peaches and nectarines equal to the crops we used to gloat over in times preceding the Crimean war, or even in years subsequent to that event? The champagne drinkers say that their favourite wine lacks the richness they have been accustomed to. It seems to be generally admitted that champagnes are not so good as they ought to be, but opinions are divided as to the cause. Some say the public taste inclines to “dry” wines, and this encourages the makers to produce thin acid wines, that in a certain way resemble bad brandy and water. Others say that the seasons have been unfavourable to the production of rich wines, and to these we lean, as having facts on their side. But it is an interesting question if fruits grown under glass are as good as they ought to be, and we submit the question to the consideration of our readers.

THE WORCESTER EXHIBITION OF FINE ARTS will close on the 17th of October.

ST. PETERSBURG INTERNATIONAL HORTICULTURAL EXHIBITION AND CONGRESS will be held from May 17 to 18, 1883.

MR. T. RORKE has left Killakee to take charge of the gardens and home farm of Kileroney House, Bray, Wicklow, the residence of M^r. D'Arcy, Esq.

MR. J. L. JENSEN, director of Bureau Ceres, Copenhagen, has favoured us with a long letter on the subject of the potato disease, with a request that it may appear in full. We shall present it to our readers as soon as space can be spared for it.

THE LORD MAYOR, THE SHERIFFS, and the officers who usually take part in civic ceremonies were summoned somewhat suddenly to the Hague, to present to the King of the Netherlands the gold casket containing the welcome voted by the Corporation on the occasion of his Majesty's visit to England. The promoters of the Potato Exhibition therefore secured the generous aid of Mr. Alderman Polydore de Keyser, who opened the show and presided at the luncheon.

EPING FOREST was on Sunday last the scene of a great “demonstration” of members of working men's clubs and institutes, for the purpose of celebrating the recent acquisition of the forest as a place of recreation for the people. Many thousands of working men with their wives and families assembled in Fairmead, where Mr. J. Lowe, of Hackney, presided. He said this meeting was the precursor of meetings to be held annually to afford working men of all parties and opinions a common platform for association in defence of their mutual interests.

REPLY POST-CARDS.—On and after October 1 next, double or reply inland post-cards, bearing an impressed halfpenny stamp on each portion, will be sold to the public at all post offices, at the following prices:—Stout cards—one, 1½d.; two, 2½d.; three, 4d.; four, 5½d. five, 6½d.; six, 8d.; 6s. 8d. for a parcel of 60. Thin cards—one, 1½d.; two, 2½d.; three, 3½d.; four, 4½d.; five, 6d.; six, 7d.; 11s. 8d. for a parcel of 120. The reply cards will not be sold in sheets, like the single cards. These cards will only be available for transmission between places in the United Kingdom. The regulations laid down in regard to single post-cards will be equally applicable to reply post-cards.

THE INTERNATIONAL HORTICULTURAL EXHIBITION AT EDINBURGH, on the 13th and 14th inst., proved so great a financial success as to somewhat exceed the anticipations of the executive. On the opening day the sum of £551 was taken at the doors, the visitors, inclusive of ticket-holders, numbering 15,000; and on the second day there were 15,100 visitors, exclusive of ticket holders, and the money taken at the doors amounted to £513, the total receipts for admission being £1,064.

INSTANCES OF THE FALL IN THE VALUE OF AGRICULTURAL LAND are reported from Kent. Shortly before the commencement of the long period of depression in agriculture, a wealthy northern cloth manufacturer purchased an estate in the Hundred of Hoo for £23,000. Recently he died, and, in accordance with the terms of his will, the trustees have put the estate in the market, and have actually offered it at £9,000, timber, valued at £600, being included in the purchase. A purchaser has not yet been found. Another estate, situated near Dover, for which £39,000 was paid a few years ago, is now in the market for £28,000.

THE NAMING OF HOUSES in the suburbs of towns is attracting attention as a nuisance. When houses rise in a discursive way they must be named, for numbering is impossible. But when compact masses and lines of houses are formed, the municipal authorities should number them, and the Post Office should refuse to deliver letters unless in the addresses the numbers are given. The people who give their houses fanciful names may act foolishly, but it serves no useful purpose to rail at them. The "Fernery" may be destitute of ferns, and the "Willows" may be represented by birches or by nothing. Any name may serve to distinguish a house, and must be recognized so long as a distinctive name is necessary. But the moment numbering becomes possible the local governing powers become responsible for the adoption of a rational system. The postal authorities are too lenient in the matter. If they would insist on having numbers in all possible cases none could resist them.

WASPS.—The following appeared in the *Times* of Wednesday: I have for the last ten or twelve years destroyed these troublesome feeders on fruit with methylated chloroform, and this involves the necessity of waiting till night when all are at rest. But pulverized "commercial cyanide of potassium," one or two table-spoonsful may be put into the entrance of the nest at any time of the day, and if quietly done does not in the least disturb the ingress of the insects. They readily enter, never to return, so that in twenty-four hours every individual is destroyed. The entomologist may then dig them up, or they may remain; they can do no more mischief. I was curious to know the contents of a large nest, measuring nine inches across, having eight tiers of cells. I counted 3,400 wasps, and five of the tiers were full of pupæ, which I did not count. Such simple and inexpensive means I consider a public benefit to be made known as much as possible, and therefore send it to you.—PETER SQUIRE, *Basmead Manor, St. Neots, September 18.*

THE STATE OF TRADE is instructively illustrated by a series of reports in the *Warehousemen and Drapers' Trade Journal* of September 16. From these it is concluded that the spring and autumn returns have been fairly good, although the summer has not proved so favourable for business as had been anticipated. In agricultural districts trade is still suffering from depression caused by the bad harvests of recent years, and the prospects for the coming season depend greatly upon the results of the harvest now in progress, which it is too early yet to estimate accurately. Grouping the metropolitan reports according to postal districts, those from the Western division are perhaps the best. The East-end returns are not quite so encouraging. In some cases an improved trade is reported, but in most the average appears scarcely to have been sustained. In North London trade appears to have been slightly better, certainly up to an average, though complaints are made in this, as in other districts, of the severity of competition and the smallness of profits. In the South of London (S.W. and S.E.) an average trade has been done. In the central districts also business has been generally up to the average. The Irish reports as to trade are decidedly favourable, more so than had been anticipated, and, taken in connexion with indications of an improved state of feeling, are encouraging.

HAY AND CORN DRYING COMPETITION AT READING.—The judges appointed by the Royal Agricultural Society to test the merits of the different appliances adopted by the competitors for a prize of one hundred guineas, offered for the most efficient and economical method of drying hay or corn crops artificially, either before or after being stacked, presented their report at a meeting held at the society's rooms on Saturday under the presidency of Lord Vernon. The *Mark Lane Express* says: "There were eight competitors, six of whom employed the Neilson system of exhaust fans for drying in the stack; the two remaining competitors using, in one case, hot air applied before stacking, and in the other a system of ventilation assisted by hot air applied after stacking. The two last-named systems were only tried on hay, but a selected three of the various adaptations of Neilson's system were submitted to an extended trial, both on hay and barley, and all of them upon hay in the stack. The judges decided that none of the exhibitors proved that they were able to make good hay in wet weather. In a few instances where fairly good hay was obtained, equally good, if not better, might have been secured without the application of fans. The trials of the three selected fans on corn were even less satisfactory than those upon hay, none of the machines having succeeded in effectually drying the corn in the stack. Under these circumstances the judges reported that they did not feel justified in awarding the prize, and the stewards concurred in this decision."

SALE OF DR. PATERSON'S ORCHIDS.—On Thursday, the 14th inst., a large portion of the remarkably fine collection of orchids formed by Dr. Paterson, Bridge of Allan, was sold by auction at Edinburgh, by Messrs. Smith and Dewar. The whole of the specimens, which had been grown in houses more freely ventilated than is generally considered desirable, were in the most luxuriant condition, and realized good prices. The vandæ were particularly good, and every plant in the sale-room was furnished with the most perfectly developed foliage down to the rim of the pot. The prices obtained for some of the leading specimens were as under:—*Lælia superbies*, with thirty pseudo bulbs and three flowering growths, £21; *Odontoglossum vexillarium*, about two feet in diameter, £15 15s.; *Epidendrum prismatocarpum*, with sixty-one pseudo bulbs and fifteen growths, £11 11s.; *Lælia anceps Barkeri*, with ten growths and about thirty inches in diameter, £27 6s.; *Angræcum sesquipedale*, about two feet high, and, as in the case of the vandæ, furnished with leaves to the rim of the pot, £18 18s.; *Cattleya gigas*, with twelve pseudo bulbs, £6 6s.; *Cattleya Triana Symei*, with ten pseudo bulbs, £40 19s.; *Acrides Fieldingi*, a fine specimen with twelve young plants at the base, £26 5s.; *Acrides suavissimum*, £17 17s.; *Chysis bractescens*, with ten pseudo bulbs and two growths, £10 10s.; *Cattleya labiata*, £40 19s.; *Vanda suavis*, five feet high and with three young breaks, £22 1s.; the same, three feet high with three young breaks, £19 19s.; *Cattleya mendeli*, with twelve pseudo bulbs, seven having leaves, £28 7s.; *Dendrobium thyrsiflorum Walkeri*, with forty-five pseudo bulbs, £38 17s.; *Cattleya labiata Warneri*, nearly two feet six inches in diameter, £47 5s.; *Cattleya Skinneri*, with thirty-nine pseudo bulbs, £8 8s.; *Aerides Reichenbachianum*, about twelve inches in height, £9 9s.; *Masdevallia ignea*, about fourteen inches in diameter, £8 18s. 6d.; *Vanda tricolor Patersoni*, three feet high, with two young growths at the base, £22 1s.; two medium-sized specimens of the same variety sold for £16 16s. each, and two smaller plants for £14 14s. and £9 9s. respectively. A magnificent specimen of *Anthurium scherzerianum*, about five feet in diameter, realized £21. The sale realized nearly £1,000, and the principal purchasers were Messrs. J. Veitch and Sons, Chelsea; Mr. B.S. Williams, Upper Holloway; Baron Schroder, Englefield Green; M. Godefroy, Argenteuil, Paris; and Mr. W. Thomson, jun., Clovenfords.

MORE ABOUT TUBEROUS-ROOTED BEGONIAS.

In a recent paper we gave some hints of raising tuberous-rooted begonias from seed, addressed to such amateurs as possess little previous knowledge in regard to the matter, and who are without much convenience for growing the plants, and but little heat. Under such circumstances an amateur cultivator can scarcely expect to raise, harden off, and bed out begonias in one season, especially in such a summer as that we have just passed through.

But there are growers of begonias who possess every convenience for raising and growing on quickly seedling plants, and it is our desire to show what they may do in six or seven months, provided they make an effort with good fertilized seed obtained from a reliable source. Let us by way of example set forth what is done in the way of raising seedling begonias at Messrs. Sutton and Sons' nurseries at Reading.

There the seed is sown on January 1, so as to get a start with the beginning of the year. The same soil is used as that for the seed of gloxinias, and the first seedlings begin to appear within a month from the time of sowing. As soon as the tiny plants have made two seed leaves, which is when they are about six weeks old, they are lifted out, and a few placed in large 60-size pots, using a soil of a rather sandy nature; the soil is pressed firmly about the roots so that it may retain moisture, and it is also placed in a convex form so as to throw the water off to the sides of the pots. If the plants have too much water given to them it becomes stagnant in the soil, and a green growth covers the surface, and when this appears it can only be got rid of by a process which is detrimental to the young plants. About ten, or it may be twelve, plants are placed in a pot. If the pots have too many plants as occupants they only rob one another of sustenance, and, like other things that it is desirable should go right from beginning to end, the plants must be preserved from receiving a check at the start. The temperature in which the plants are growing should be kept from 65 deg. to 80 deg., with great humidity; and every gleam of sunshine that can be concentrated on the house will be found of great service to the plants. It must, however, be remembered that seedling begonias are quickly scorched up by the sun, so too much attention cannot be given to the plants at this stage. In March the plants are potted singly into large thumb or 72-size pots, and plenty of sand is used in the soil: it is found that insects shun a gritty surface, and it makes the soil so porous that water readily passes through it. After this potting the plants are placed in a heated pit filled with stable manure, the bed having been prepared a fortnight previous.

As the days lengthen and the sun acquires power the young plants must be carefully shaded, as a scorching sun overhead and a brisk heat below would soon wither them up. Watering must be done with care and judgment. Tepid water should be used, and the plants be sprinkled frequently overhead according to the weather. In May the plants require shifting into large 60's pots, using a little more loam and potting the plants a little firmer in the compost than on the previous occasion, and leaving plenty of room for water. As the plants increase in size more room must be given them, so that light and air may keep them robust. By June the plants should be in 48-size pots and showing flower. If well grown they make very pretty flowering specimens at this stage; but if it be desired to increase the size of the plants the blooms should be pinched out, and a shift given into a larger

size pot. It will be found from the time the plants are in large 60-size pots that occasional waterings with manure water, after being well soaked with clear water, will be found of great advantage, and materially improve their condition in every respect.

During August we saw at Messrs. Sutton and Sons' Portland Road Nurseries, at Reading, a large number of beautiful specimen plants in 48's, and some in 32-size pots, grown from seed sown on January 1. There was a large number of them and they were admirably done. They were truly wonderful specimens seven months from seed. But what can be done at Reading can also be done elsewhere; and it is the purpose of this paper to endeavour to induce others to attempt the same process of production. SEMPER AUGUSTUS.

TEA-SCENTED ROSES.

At no time in the history of the rose have the tea-scented varieties been in such high favour as at present, and never were they so largely cultivated. This is easily accounted for by the rapid production of glass-houses, for the plants they are intended for are bound to increase in proportion. But I question if there is any flowering hardy plant except the hybrid perpetual rose that is produced in such great numbers every year as the tea-scented roses. At the very lowest computation there have been not less than 200,000 propagated annually for several years past in England alone. The only mystery is that out of this large number we find comparatively few in private gardens. When visiting the large rose nurseries I frequently ask where all the plants of tea roses go to, but I cannot gain any satisfactory information farther than they are always sold, be the number propagated ever so large. It is very certain that a good many of them do not live many years after they have left the nursery, and I have not the least doubt but what, if they were all alive, there have been enough plants sent out from the English nurseries alone during the past ten years to plant an acre of ground in every parish if the plants were put out three feet apart. I consider this a very moderate estimate, because it is not at all an unusual occurrence for any of our largest rose growers to send out 2,000 to 3,000 every year; but why they should subsequently pass away is a matter that I think, in the interest of all lovers of the rose, should be made a subject for inquiry.

To me it seems pretty clear that although the number of cultivators has increased, the knowledge that the tea-scented roses are not so hardy as the hybrid perpetuals and other families of roses has not grown in a proportionate manner, and as a consequence they have been planted at unsuitable times and in unsuitable positions, and in this way a large number have been lost. To guard against these losses in future it may be well to remind those who are seeking for information in this matter that they are suitable as standard roses only in the most favoured climates, owing to their being somewhat tender, and they cannot be induced to live through very severe winters without ample protection if they are grown in the form of bushes. And further that they ought not to be planted in the autumn, but some time in the month of April or May. Those who are short of suitable space in which to winter them out of the reach of frost may be advised not to purchase the plants until all danger of hard frost is past in the spring. If the order is given in the autumn there will be no difficulty in having the delivery of the plants delayed until the spring. Orders given now will secure any number of plants, and also any particular varieties that are wanted. But where they can be wintered in pits or cool houses it may be advisable to obtain them in the autumn, provided the plants are in pots.

In the matter of protection sufficient has been written to show that when planted in beds or borders they require protection of some sort to shield them from very severe frost. The first point bearing on this is as much as possible to select a position for the plants where they will be sheltered from the cold north and east winds. This will be the first step to reduce the necessity of protection to the lowest point. There is no better shelter for them than a wall or wood fence. In many gardens a wall with a border in front of it can be devoted to them. In that case such tender varieties as Niphetos, Madame Falcot, and Isabella Sprunt should be trained to the wall, and the others grown as bushes in the border. The best way of protecting the bushes is to put between the branches and around them some dry bracken and bind it up loosely. I prefer bracken to anything else, as if it is placed loosely about the plants it does not retain so much moisture as straw or old matting, as the air will draw through it and keep it dry. Those against the wall should have their branches unnailed and drawn together in bundles, and some dry bracken placed round them.

To protect the roots from harm place six inches of earth over them, and pile it up round the stem to the same height. All this work should be done about the middle of November, and gradually remove the earth from the roots and the bracken from the branches at the end of March. I consider it a very important matter to protect the stems and roots, as when so protected I have known during my experience the branches to be killed, but the roots and that part of the main stem that was covered with earth have escaped uninjured. When such is the case, and a plant has good roots and six inches of main stem above ground, it does not take long for it to recover itself. In positions where earth mounds would be considered objectionable cocoanut-fibre refuse may be substituted with very good effect. At one time it was the practice, and I believe it is still retained in some gardens, to dig up all those grown in the bush form and plant them again close to a south wall close together, and cover them up with old mats during the winter. But I find in practice that plants so treated take a long time to establish themselves again when put back to their old quarters in the spring. They therefore come into flower late,

and rarely produce full well-developed flowers. However, I am bound to say it is a good plan to secure all parts of the plant alive, which cannot always be depended upon even when protected as I advise, if they are left exposed in the open beds and borders when the thermometer goes down to zero.

The most successful way of growing tea roses where there is not room to plant them out under glass is to grow them in pots. This plan of course requires room and time to attend to them; but, all things considered, few plants that are grown in pots give a more satisfactory return. With a very little artificial heat they may be had in flower early in the new year, and the same plants will flower again during the ensuing summer if properly treated. Indeed, it is not at all difficult where there is a sufficient number of plants and the requisite space to have them in flower all the year. But to accomplish this there must be relays of plants, and the two divisions that are to furnish flowers very late in the year, and the others very early, must be specially treated. Those that are to flower during the other period of the year do not require any particular management; a season of rest for the space of six weeks in the summer is all they require, and then there will be no difficulty in getting from them two crops of flowers in the year. Of course this set of plants will be at rest in the ordinary way through the short winter months.

I have not anywhere seen tea roses for cutting from grown more successfully with a minimum amount of trouble than is practised by Mr. Vallance, the gardener at Redland Lodge, Bristol. He does not grow a large number of plants, but the system is as suitable to a hundred plants as it is to a single dozen. His plan is to grow them in pots; they are wintered under glass out of the reach of frost, and when the frost is past in the spring they are brought out and plunged just below the rim of the pots in a warm corner of the kitchen garden. A layer of rotten manure is placed on the surface close up to the stem of the plants, into which the surface roots soon find their way, and a vigorous growth is the result. I did not inquire what course of treatment they had in other respects, but no doubt they have an annual shift into a pot a size larger, and of course they are well supplied with water in dry weather. When I saw the plants in the month of August last there were plenty of buds upon them.

I have remarked above that the tea-scented varieties are not adapted for standard roses, the only exceptions being Gloire de Dijon and Belle Lyonnaise. The first-named is especially suitable for a standard, as it is the most hardy of any in the family. It generally suffers more from the hands of the pruner than from frost. In eight cases out of ten it is pruned too much. Most people think that because it is a standard it must have a handsome head, and be pruned accordingly. But this is a mistake; only the old exhausted wood should be cut out, and the very longest growth shortened back a little.

The best kinds for walls or climbers are Gloire de Dijon, Climbing Devoniensis, Marie Van Houtte, Cheshunt Hybrid (this is a grand rose for all purposes), Safrano, and Marechal Niel for warm positions. The best twelve for pots or for growing as bushes in the open ground are President, David Pradel, Niphetos, Homère, Devoniensis, Souvenir d'un Ami, Letty Coles, Perle de Lyon, Madame Falcot, La Tulipe, Eliza Sauvage, and Catherine Mermet.

The newly-introduced section of hybrid teas are for the most part very disappointing. With me, The Honourable George Bancroft and Michael Saunders are the two best. These have full bold flowers, with colours bright and clear. The last-named is a fragrant flower, but of the others which I have tried the less said the better.

HAILSTORMS AND FORESTS.—The Geneva correspondent of the *Times* writes, under date September 1: "Hailstorms, as is well known, often play sad havoc in Switzerland as well as in other parts of Europe. They generally last only a few minutes, but in that time the crops of a whole district may be destroyed, trees stripped of their fruit and leaves, and even potatoes in the ground hacked to pieces. Birds are sometimes killed by the hundred, and a grape vine touched by a hailstone is ruined for ever. Seven years ago there was a hailstorm in this canton, which in less than five minutes did damage estimated at a million of francs. In some districts there are mutual hail insurance societies, as in other countries there are mutual fire insurance societies. In these circumstances everything relating to the phenomena and causes of these visitations is studied with great interest, and papers on the subject read at the late meeting of the association of Swiss Geographical Societies, held this week at Geneva, by Herren Beaumont and Riniker, of Aargau, are attracting considerable attention in scientific circles. The utility of forests as a safeguard against avalanches and a hindrance to *tourments* and snowdrifts, has often been pointed out, but it has never before been suggested that forests are a preservation against hailstorms. Such, however, is the opinion of Herr Riniker, who is chief forester of Canton Aargau. He says that where there are forests there are no hailstorms, and in support of this theory he adduces a remarkable fact, for the accuracy of which he and many others can personally vouch. In the south of Aargau there is a little chain of mountains known as the Lindenberg. The Lindenberg is about 20 kilometres long, of an average height above sea level of some 800 feet, and completely covered with wood. About twenty years ago the forest was divided in two places by wide gaps, with the consequence that the valleys at the foot of the mountains were soon afterwards visited with frequent hailstorms. The hail-charged clouds were seen to traverse the gaps. In 1863 the wider of the two open spaces was closed by a plantation of firs, and since 1871 no hailstorm has crossed the forest. In explanation of this phenomenon Herr Riniker suggests that, as hail-clouds are saturated with positive electricity, and trees conduct from the earth negative electricity, the meeting of the two currents develops sufficient heat to prevent the complete congelation of the clouds, and even to thaw the hailstones contained in them—for the clouds of this description pass very near the earth—and so convert the frozen particles into rain. If further observation should confirm the accuracy of Herr Riniker's conclusions in this regard, the importance of forests in countries where hailstorms are frequent will be greatly increased."

THE GRAND NATIONAL DAHLIA SHOW AT THE CRYSTAL PALACE.

THE magnificent collection of dahlias exhibited by the National Dahlia Society at the Crystal Palace at Sydenham, on the 8th and 9th inst., was such a signal success that we hope they will give us one like it every year. There is no reason why dahlia shows should not be held not only annually but as frequently as rose shows, for no flower is better adapted for exhibition purposes than the dahlia.

The rows, three and four deep, of splendid cut blossoms staged under the awning in the centre of the Crystal Palace were all so beautiful that it was not wonderful that the judges should have some difficulty in making their awards. Their task could not have been an easy one, for the public were barred out for more than an hour after the time, and from twelve to past one eager faces were seen from beyond the rows of chairs, like Peris outside the gates of Paradise, gazing at the flowers from a distance, which did not lend enchantment to the view, being simply tantalizing. Watching the umpires going round the stands with note-books of portentous size, discussing gravely the respective claims of the aspirants to the honours of Flora's kingdom, was an inevitable but unprofitable employment.

When at length the barriers were thrown down, there was an eager rush inside. Then the reason of such careful deliberation became at once apparent, for there were seen to be nineteen classes, with four prizes in each. A report of the awards you have given us in full.

The flowers were tastefully arranged, the colours setting each other off in harmonious contrast, from the palest primrose to the darkest shades as near black as possible, through all the changing tints of yellow, salmon, flame, brick-red, scarlet, crimson, purple, and mahogany.

It was a bright sunny day, and the slanting light from underneath the awning fell upon the flowers in a way that would have gladdened the heart of a painter.

At the end of the stand, at the top of the table at this feast of beauty, we found half a dozen wonderful specimens of *Senator*, a splendid red-purple dahlia of large size and perfect shape, for which a First-class Certificate had been awarded to Messrs. Keynes and Co., of Salisbury, who had First-class Certificates for two others close by—*Hope*, an excellent pink, very large, and *Condor*, a clear bright salmon. On the right there was a First-class Certificate awarded to Messrs. Harkness and Son for dahlia *Earl of Ravensworth*, a very bright pink flower of immense size, and commendation for colour to Mr. Harris for *Beauty of the Grove*, a lovely pink. Indeed, commendation for colour might well have been awarded to them all, for the variety and brilliancy of the tints and shades, especially of red and yellow, were marvellous. We know of no other flower that could have given such a diversity of colour.

Deep crimson was represented by *Sir Garnet*, Mr. G. Harris, *James Cocker*, and *Cardinal*. Blood-red by *Joseph Green*, *James Service*, and *Alexander Cramond*. Maroon by *Ovid*, *Chris. Ridley*, and *Burgundy*. Purple-red by the *Duke of Comaught*, *Sir Sydney Herbert*, and *Prince Bismarck*. Flame colour by *Mons. Chauviere* and *Miss Batchelor*. Carmine by *James Willing* and *Lady Wimborne*. Pink by *George Barnes*, *Rosy Morn*, *Beauty of the Grove*, *Barmaid*, *Clara*, *Nancy*, *The Countess*, and *Criterion*. Of the yellows there were *John Neville Keynes*, *Adelaide*, and *Perfection of Primroses*. Primrose, *Acme of Perfection*, *Prince Arthur*, and *George Critchett*, a rather brighter colour; while *Toison d'Or* and *Yellow Perfection* were of a deep golden yellow.

We looked in vain for a pure orange dahlia, but we saw several of a clear pure salmon colour, such as *Vice-President* and *Condor*.

Perhaps the most beautiful flower in the whole exhibition was *Lady Wimborne*, a brilliant rosy carmine dahlia, exactly like a rose in colour, and severely perfect in shape.

There were a great many examples of two colours in the same flower, one of the most lovely being *Lady Gladys Herbert*, light pink, each petal surrounded with light cherry-red. *Queen Mab* had white petals, edged with scarlet. *Prospero*, *Peacock*, *Maid of Athens*, and *Fanny Sturt* were all red, tipped with white; and *Northern Spy* a deep red, like velvet, each petal tipped with pink. *Robert Burns* was of two shades of crimson, and *George Barnes* light and deep pink.

On the whole flame colour and crimson predominated. The nearest approach to scarlet among the show varieties was *Rising Sun*, and of the pompones *Glare of the Garden*.

But the real scarlet dahlia was undoubtedly the cactus dahlia, *Juarez*. It is not too much to say that this singular flower gives us the most intense and dazzling scarlet we have ever seen in the whole of the horticultural world. There was a stand entirely devoted to alternate bunches of this and the white form of the same variety, furnished by Messrs. Cannell and Sons, of Swanley, and the blaze of scarlet almost made one's eyes ache, and cast a stand of scarlet pelargoniums opposite quite into the shade.

The pompones were very attractive, and looked charming arranged in bunches on stands all to themselves.

The single dahlias were also very pretty, but they are not to be compared with such glorious bowls of gorgeous colouring as we have just described. They looked very bright and starlike, and were displayed to the best advantage. They are ornamental in the garden, and they have their place at the horticultural table, but it is not anywhere near the head of the board. They have been greatly improved, and long may they continue to be so; but when we read in a morning paper that floriculturists have reverted to the single dahlias we feel bound to protest against so ignorant a misstatement. There is as much difference between the best of the singles and such an emblem of cultivation and gradual development as *Lady Wimborne* or *Lady Gladys Herbert* dahlias as between a wild hedge rose and such universal favourites as *La France* and *Maréchal Niel* roses. Amongst the floral competitors for the prizes of the day was a stand of well-grown asters, and on one side we came upon a grand stand covered with the richest African marigolds, orange and lemon, large double petunias, cockscombs, begonias, and scarlet pelargoniums, and the centre of the stages was filled with choice and graceful palms, dracænas, crotons, and marantas; but all the other flowers and plants in the building served but as foils to set off the exceeding beauty of the dahlia. G. L.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADV.]

HEAT.

Read before the Gardeners and Amateurs' Mutual Improvement Society, Westerham, by J. H. JEWELL.

AN eminent living divine, the Rev. Hugh Macmillan, in a paper read before the Royal Society, says:—

"The blossoming of thought for a single definite purpose often suggests many collateral thoughts which cannot be made use of at the time, but which if dropped into suitable soil will afterwards germinate and bring forth profitable fruit."

When I first undertook to prepare a paper on "Rain" for this society, I had no idea of going beyond that subject; but the variety of "collateral thoughts," which have sprung up in the preparation of that paper has enabled me to bring under your notice other subjects in affinity therewith, i.e., dew, frost, and for this evening the concluding paper of the series, the subject being Heat.

The results to be obtained by a careful examination of natural phenomena afford at all times much pleasure to the inquiring mind, and enable the student of nature to deduce from the consideration of the ulterior and more hidden causes of physical processes much matter for thought and contemplation.

In my present subject I have met with no such degree of difficulty in endeavouring to present to you in concise terms its various phases, and to prevent unnecessary mystification I have almost entirely avoided the technicalities of science, that my exemplification may be more readily understood.

Of the great natural agent Heat perhaps nothing can make us so readily sensible of its power as our bodily sensations; and thus we are influenced to deduce its effects in the various changes which it is capable of producing in all substances, viz., by expansion, fusion, and evaporation. Different liquids undergo different amounts of expansion for an equal increase of temperature. Mercury undergoes the smallest expansion, only about one-third of that of water, and one-eighth the amount of alcohol. And the effects of expansion are forcibly shown by the alteration of the dimensions of bodies; as, for example, if a bar of metal be taken of such dimensions as would fit accurately to a socket when cold, and then made hot and applied to the same space, it would be found impossible to insert it, having become enlarged in all its dimensions, but when again reduced to its cold state it would fit the vacuum as before. Again, if we place liquid in a glass bulb which has a narrow neck, and plunge it into hot water, or near a stove or fire, we shall gradually see the liquid rising in the stem, proving its expansion by the increased volume shown in the tube. If a portion of air be confined in any vessel, the application of heat will compel it to occupy a space much larger, and on this principle the idea was first suggested of constructing an instrument to note the changes of temperature, and which is known to us as the Thermometer. The scale generally adopted in England is that of Fahrenheit.

We may regard almost every existing substance as a source of heat. The sun no doubt is the most important one, and the heat when condensed in the focus of a lens becomes exceedingly intense. I remember some extraordinary effects of this condensation some years ago, when my old friend Dr. Bachoffner was the manager of the Polytechnic Institution. He used to illustrate these effects by concentrating the sun's rays by means of a lens and concave mirror, whereby he would cook a steak or chop in a few seconds, and he would melt platinum by the same means and perform many wondrously interesting experiments.

The phenomenon of evaporation is made perceptible to our imagination by its disappearance; this may seem paradoxical, but heat tends to disperse in vapour, or by exhalation, any solution or fluid. Place a drop of water on any non-absorbent substance, watch it attentively, and you will find it gradually diminish, till every trace of it is lost to your notice, and yet it is still in existence, though you observe it not; the drier air has absorbed it. Thus a knowledge of the nature and properties of air enables us to understand this phenomenon. We know that the water has only undergone a species of comminution, and has not even been separated into the simple elements of which it is composed, but if any doubt be entertained of this fact just try a very simple experiment. Get a perfectly dry white glass phial that will hold some six or eight ounces; let a drop of water fall into it, cork it up tightly, place it in a warm room; in a short space of time the drop of water will have disappeared, and if the temperature of the room be sufficiently hot the bottle will seem quite dry. Now remove it to a colder temperature; the vapour will be condensed and appear in minute globules on the inside of the vessel sufficient in bulk to form the drop of water placed within it.

Heat can be produced artificially by any means which propagate agitation internally in bodies, such as friction, percussion, by chemical action, and by electrical action, also by vital power: all these produce or develop heat.

The modern doctrine of science is, that all force in nature is really one—that all the apparently innumerable forces of nature are only different forms of one force. That when any force seems annihilated it is not really so, but only turned into something else; so a blow if stopped produces heat. The motion that disappears is turned into heat; another kind of motion in the molecules, so some have supposed (though there are still a few difficulties in the way of this theory) that the heat of the sun, the source of which is an infinite puzzle to men of science, is owing to the blows which he is always receiving from the falling in upon him from all sides of comets and other planetary bodies, all such blows turning into heat.

Sir Humphrey Davy found out that heat could be generated by rubbing two pieces of ice together; thus he liquefied the ice. And another experiment will show also that bodies possess heat; thus, if on a cold frosty day a plate of gold be rubbed briskly against another plate of gold they will both gradually get hotter and hotter, until they at length become red-hot and at the point of melting; yet the plates will lose nothing of their weight, but swell and grow bigger in all their dimensions.

Professor Tyndall tells us that in chemical action atoms however small being brought together, and clashing as it were one with the other, produce new compounds; as in the heating and combustion of finely-powdered antimony, when it is brought into contact with chlorine gas, or the heat generated by combustion, or from other chemical changes. These he regards as the result of motion which the eye cannot detect, but which must occur before the elements come into contact, combine and form new compounds.

Boerhaave designates this hidden heat elemental fire, as it requires no air or pabulum to sustain or preserve it. He tells us that elemental fire may be increased in many ways, by a swift agitation of one body against another. We all know that the striking of a flint and steel will produce sparks; we frequently see sparks fly from a skid when attached to the wheel of a waggon. A knife whetted briskly on a dry rough stone yields sparks of fire. Knowing this, yet we could barely believe fire was in existence till our senses beheld it still. Boerhaave tells us that no fire was generated out of what was not fire before. He says the fire existed before, though not perceptible to our senses,

and all the effects of friction were merely to collect and bring together a quantity thereof.

It was said formerly that when metals were struck with a hammer, or with a die in the coining press, they became hot, because their density was increased, and therefore their capacity or containing power for heat was altered; but this can be clearly shown is not the true explanation. Lead, for instance, which becomes hot by percussion, does not increase in density; heavy shot used for battering iron plates becomes sensibly very hot after having struck the plates.

There is a very old proverb, which, like many a trite old saying, is true: "There is no smoke without fire;" but it would be totally untrue to say, There is no fire without smoke. There are a multitude of chemical phenomena in which much heat is disengaged, and even much light is set at liberty, without any real combustion taking place. All combustion supposes a chemical affinity, a relative attraction between the burning body and the oxygen which serves to aid the burning.

The chemists of old used four principal degrees of heat in their operations, or rather classed heat under four degrees. Thus the first was equal to the natural heat of the body, or rather of a hen brooding on the eggs, which was the standard employed, and this degree was measured by applying the thermometer to a hen; and some of these early experimentalists hatched chickens by keeping a fire continually at this degree to confirm the test. The second degree of fire was considered to be the heat of a scorching sun, which gave man pain and inflamed the skin, even to the raising of blisters, but heat which did not destroy or consume the parts. The third degree was that of boiling water, which separates and destroys the parts of bodies. This degree was thought perfectly stable, because water when once it boils is at its utmost degree of heat, and cannot be raised a degree further by any addition of fire or fuel. The fourth degree was that which melts metals and destroys everything else. These were the degrees of heat known to the ancient chemists; but our later philosophers go a step further—they have a fifth degree, which not only melts metals, but causes gold to emit fumes and evaporate.

Of the various notions as to the cause of heat, two only survive the siftings of time and experiments—the theory of emission and the theory of modulation. According to the first, the cause of heat is a material imponderable fluid capable of passing from one body to another, and where molecules are in a state of continual repulsion. The first exists in all bodies in combination with their ultimate atoms, whose actual contact it prevents.

The name of Caloric is given to the agent which causes in us the sensation of heat, acting also on inorganic bodies. It is caloric which melts tin, boils water, and makes iron red-hot. But what is caloric? It is a fluid according to some; others describe it as a molecular motion of matter; it is imponderable; we cannot detect it by its weight: no human instrument has as yet been invented sufficiently delicate for that purpose. We know that by concentrating the sun's rays we can gain intense heat; but even in the experiment of a combination of powerful lenses on one scale of a balance of extreme sensibility no derangement of equilibrium is effected; the increase or diminution of heat in any body is therefore unaccompanied by any alteration of weight.

Heat radiates from all bodies in straight lines and in all directions, and in the law of its emanation it resembles light, diminishing in the same proportion as the sine of the angle of emanation; but though the laws of the free emanation of light and heat are similar, those of their transmission through substances are very different. When a metallic body is only slightly heated in a fire we have heat unaccompanied by sensible light, but if we collect in the focus of a burning lens lunar rays, although they were originally transmitted from the sun, we should be unable to detect the slightest semblance of heat.

The undulating theory holds that heat is produced by a vibrating movement of the molecules or atoms of hot bodies, which movement is transmitted to the molecules of other bodies through the medium of a very subtle and elastic fluid called ether, in which it is propagated in the same way as waves of sound are in the air.

With undulating philosophers, then, this action, change, or motion, constitutes fire; but fire, popularly so called, is the result of combustion, of burning something which is its fuel. But combustion comprises every phenomenon in which any body whatever combines either with the oxygen of the air, or with pure oxygen in a closed vessel artificially prepared. It is not necessary that a body should become actually inflamed to be ranked amongst combustibles. We know that many inflammable matters will at times burn slowly and completely exhaust their combustible properties without producing any flame.

What we know of vital power is heat generated by chemical action—it is really slow combustion; we call it animal heat. Without this our physical life would cease. In scientific language this heat is caused by the "combustion of hydrogen and carbon in the capillary vessels." These vessels are as small as hairs and permeate the whole human body. We all know if we cut or prick ourselves blood will inevitably flow. The blood flows from these capillary vessels; the blood contains hydrogen gas and carbon. By breathing we inhale oxygen gas: this gas combines with the carbon in our blood and causes combustion or heat by forming carbonic-acid gas; thus a constant fire is kept up within the human frame. If it failed for want of food (which makes carbon), or from want of oxygen (pure air), we should perish. Animal heat is not very high, viz., from 90 to 104 degrees. Nevertheless it slowly consumes the body; every muscle, nerve, and organ is wasted away by it, and has to be perpetually renewed. The lamp of life must be constantly supplied, just as an ordinary lamp requires to be supplied with oil; but the animal consumption is much slower than the lamp.

Food is the fuel of the body, without it the capillary fires consume the human frame itself while substance enough remains to keep them burning; when that fails they expire. Life goes out, and the man is said to be starved to death. Want of food will cause the body to shrink. The fat of the body, which is the most combustible, goes first; afterwards the muscles, animal heat expires, and death closes the sufferings of starvation.

As oxygen creates the animal heat, which is life, but which also consumes the body, it follows that pure air, by increasing combustion, will also create appetite, hunger being the craving of the human frame for fuel to supply its hourly consumption. Therefore, good air will give a good appetite; exercise also increases animal heat by causing a greater consumption of oxygen than can be respired by sedentary habits.

In sleep we breathe more slowly than when awake; consequently we require no food during our somnambulancy, less oxygen being introduced into the lungs, and our food-fuel consumes slowly till we awake.

In cold weather we require flesh-food and fatty and starchy matter, as they contain more carbon and hydrogen, which when formed in the blood produce a larger amount of heat than any other food.

In summer we naturally prefer fruit and vegetables to a greater extent than in the winter, because they produce less blood and are not of so combustible a nature as meat: on this account the natives of tropical climates by a wise instinct live greatly on vegetable diet, such as rice, maize, &c.

Slow combustion is always going on in every warm-blooded animal. The result of starvation from deficiency of fuel is feeble and feeble, animal heat, until the fuel is all burnt out and deadly cold ensues. In animals, the hydrogen and carbon in the food they consume is the source of power. The horse without hay or oats is as powerless as the steam engine without coals or the voltaic battery without zinc. Nature is more prodigal of heat than we can imagine, and far distances art in her appliances. This has been proved by careful calculations, and it has been found that the most economical of our furnaces consumes nearly twenty times as much fuel to produce the same quantity of heat as an animal produces.

Farmers and others frequently sustain very serious losses by what is termed latent heat; or what is developed in spontaneous combustion. We know that we can produce heat by heaping up stable manure, leaves, the mowings from the lawn, and other sources; we know how frequently haystacks are destroyed by the generation of heat from hay that has been stacked too soon; and Mr. Gallati, a clever experimentalist, has discovered that there is a wonderful heating action in sundry oils when imbibed into the substance of cotton waste, and he tells us by subjecting this soaked cotton to a moderately-elevated temperature he was able to expedite the process, and the result showed the comparative danger or safety of different kinds of oil. It appears that with a temperature of 30 deg. above blood heat cotton waste soaked in olive oil underwent combustion in five or six hours; lard oil produced combustion in four hours, and seal oil in less than two hours.

Professor Graham, who reported on the burning of the Amazon steamship, stated there were instances on record where olive oil mixed with sawdust had ignited, and of greasy rags from butter when heaped together taking fire within a period of twenty-four hours.

Whenever oxygen combines with carbon to form carbonic acid an extrication of heat takes place; however minute the amount, such a combination occurs much more extensively during the germination of seeds and impregnation of flowers than at any other time. At the first of these periods extrication of heat takes place to a considerable amount. The same may be remarked in the germination of barley heaped up in rooms previous to being converted into malt; in the latter it also occurs; but in consequence of flowers not being confined in close cases the heat is lost as soon as it is disengaged, and never accumulates, except in a few special instances. It is only when large quantities of flowers expand within close cases that this phenomenon is particularly remarkable. Accordingly, in the spathe of araceous plants it has been remarked at its greatest intensity. Three celebrated French savants—Lamarck, Senebier, and De Candolle discovered that the flowers of *Arum maculatum* between the hours of three and seven p.m. were warmer than the external air, viz., seven deg. Réaumur scale; while Schulz also found that the spathe of *Caladium pinnatifidum* was warmer by some four or five degrees than the surrounding air between six and seven o'clock p.m. Messrs. Hubert and Bory de St. Vincent state that at sunrise the spathe of *Arum cordifolium* acquires in the Isle of France an elevation of 30 deg. above the atmosphere. It has also been found that in winter plants have a higher temperature than the surrounding atmosphere, and in summer a lower one; and under peculiar circumstances the heat of certain plants is elevated in a remarkable degree. We know that heat is necessary for germination and for vegetable impregnation, and we must therefore conclude that Nature has given to plants the power of extricating for themselves an additional supply of caloric at this important period.

Heat is communicated from one body to another by conduction, absorption, reflection, radiation, and convection. Conduction means the communication of heat from one body to another by contact. Some bodies conduct heat well, others are bad conductors. The absorption of heat means the sucking in instead of diffusing it: every good conductor of heat is therefore a bad absorber of it. Reflection of heat is heat thrown back from polished and bright surfaces; for instance, a well-polished meat screen will reflect back much heat; well-polished boots are cooler than dirty ones from the same cause; a dusty boot absorbs heat. Heat is radiated from one body to another where a non-conducting medium separates them. A fire radiates heat, the burning fuel emitting rays which warm us when near them. Dull and dark substances are radiators. Convection of heat means heat communicated by being carried to another thing or place. Water is made hot by convection.

Thus far, I have endeavoured to give an epitome of what some of the greatest thinkers of this and past ages have said about heat; but after all what is it? All we know or see is the effect of force: we do not see force, we see motion or moving matter; we only know certain changes of matter, for which changes Heat is a generic name. The thing heat is unknown, and probably man will ever remain ignorant both of the ultimate structure of matter and of the minutiae of molecular action; but from this hidden force, in a state of sufficient activity, we can produce sensible combustion with flame or incandescence, and this manifestation is known to us as fire.

If, therefore, fire consumes and destroys, it also creates, vivifies, and nourishes. Its daily task, its common work, is not destructive, but most serviceable and benignant. Day by day, and year by year, in innumerable forms, it is silently at work, quickening and sustaining the world, feeding, civilizing, and comforting man. It roars in thousands of furnaces, and shines on millions of hearths, to serve and comfort us. It passes like a vital stream through all the arteries and veins of the universe. It looks down upon us from the benignant sun; sending us rain and fruitful seasons; rejoicing over the abundance it creates. It consumes that which is dead in order to feed and nourish that which is living, and although it can and does occasionally devastate, we ought also to remember that though it burns and destroys, it also gives life, conserves life, supports life, and we must not forget that while destruction is but the occasional and accidental effect of fire, its real and constant task is to cherish, comfort, and bless.

THE "PICTORIAL WORLD" weekly newspaper has accomplished what is known to be a difficult task, the development of a distinctly new feature in journalism. As a first-class illustrated paper designed more especially for household use, it has long been honourably known. But it now appears, not only with many mirrored views of the world's affairs, but with coloured portraits of the most eminent British leaders in arms, law, literature, and art. Thus the foundations are laid for a truly national portrait gallery, specially provided for those who can subscribe sixpence a week to be the actual possessors of the several pictures

THE MANY-LEAVED TROPEOLUM AS A BASKET PLANT.

In the admirable drawing of *Tropeolum polyphyllum* at page 468 the rigid growth of the plant is most truthfully suggested. It is a constantly recurring problem how to overcome this or that bad habit of a plant, and our Editor has a happy way of advising us to encourage and enjoy the natural habit, or, as we sometimes say, the "faults" of a plant. This is doubtless good advice as a rule, and conformable to the doctrine that the "best" expression of any plant is its natural expression. But if we cannot alter the habit of a plant we may accommodate our arrangements so as to secure beauty in some form or other. Mr. Laing noticed that begonias with drooping flowers were often most beautiful things, if we could but see them. And so he hit upon the happy expedient of growing them in baskets suspended overhead, combining a legitimate use of baskets, which are often

THE TUBEROSE AS A HARDY OR HALF-HARDY PLANT.

THE service rendered to cyclamen culture by the "rapid system" proposed twenty years ago in the *Garden Oracle* and GARDENERS' MAGAZINE has an exact parallel in similar services rendered to the culture of the tuberose, the first rational code of which was published in the Magazine, October 27, 1866. That, indeed, was not a "rapid," but a slow system, but it removed the tuberose from the stove to the cool house, and brought it within reach of thousands who until the cultivation was thus systematically simplified had carefully avoided the tuberose. Mr. R. A. Salisbury, in the first volume of the *Transactions of the Horticultural Society*, described the routine of the outdoor culture practised by himself at Chapel Allerton, where, he states, he had grown it for several years with such success as a hardy plant that



TROPEOLUM POLYPHYLLUM AS A BASKET PLANT.

much abused, and a legitimate mode of displaying a splendid class of pendent flowers.

It has been my happy lot to conquer *Tropeolum polyphyllum* in the same manner. The photo sent herewith will enable your artists to produce a truthful picture that may be useful to many practical men. We see at times the most unsuitable of plants located in baskets, and then we wonder perhaps what baskets are for—whether to conceal plants or display them, whether to make them look ridiculous, or to display to high advantage their natural characteristics. As regards the general case, however, I will leave that to abler pens. It is sufficient that I have found *Tropeolum polyphyllum* thoroughly tractable as a basket plant, and a valuable addition to what you have occasionally denominated the "aerial garden."

R. W.

he secured not only perfect flowers, but ripe bulbs to keep up the stock. In one part of his paper he says, "If a sufficient degree of heat in summer can only be obtained to bring the leaves out to their full magnitude that of the roots follows of course, and very little more care than what is bestowed upon the artichoke will preserve them from the severest frosts." Therein you have the gist of Mr. Salisbury's paper. He planted the roots in April in a well-prepared bed of light loam, and he obtained not only a good bloom but good roots to follow, and offsets for increase of stock. It follows we may all do the same "if a sufficient degree of heat in summer can only be obtained." It is the "If" that stands in the way, for assuredly the past five summers have been too cold for tuberose to ripen their bulbs, however satisfactorily they might have de-

veloped their flowers. This season, as in any past season, we are dependent for supplies of strong-flowering bulbs on imported stock, grown in Italy, or Asia Minor, or America, or Africa, or India. These cloudy skies will not make tuberose bulbs except in some accidental or exceptional manner. We occasionally have, or at least have had, torrid summers, and the papers are then well supplied with records of the flowering and fruiting of plants that in ordinary seasons barely live, and in extra cold seasons simply die. We are rather too familiar now with the ordinary and the extra cold seasons to be in any way encouraged to treat the tuberose as a hardy plant, but for all that it is a very easy matter to employ it as a bedder, whether in large or small plantations, for the contribution to the garden in the season of garden parties of the most delicious and penetrating of all the summer spices that properly belong to the garden.

The stove is not the proper place for the tuberose. It is not a tropical plant. The temperature of the greenhouse is always sufficient for the tuberose, and the best way to grow it is the slow way as opposed to the rapid way, for when hurried the blooms are thin and the stem unreasonably long and wiry. But to keep the bulbs dry until April is not good practice. It is much better to pot them in the autumn or winter as soon as they come to hand, and then sort them in lots for the several purposes for which they are intended. In any case they should be all kept cool and dry for about a fortnight in a shed or any other convenient place quite safe from frost. Then those wanted in flower early should be put on gentle bottom heat and have a little water, and thereafter may be transferred to the coolest part of the stove or forcing pit, and have increased supplies of water as the growth progresses, and of course increased pot room as required.

But those intended for planting out should have no water all the

The pot culture of the tuberose is an extremely simple matter, and no one will ever fail who will just keep in mind that it may be grown as a hyacinth, but is not so hardy, and is less rapid in its movements. If the bulbs after being potted are kept too cold and too damp they will rot, and in any case they require but little water in their early stages, and should never have a drop until they show signs of growth. To regulate the time of their flowering is an easy matter, but hard forcing does not suit the plant, and should never be attempted except by experienced cultivators. The slow system, so far as I can see, admits of no improvement on the plan I proposed in 1866.

This consists in selecting the largest and heaviest bulbs, and potting them early and growing them slowly. The compost that suits them best is one consisting of about equal parts of peat, loam, and leaf-mould, with half a part of sharp sand. Our rule has been to pot the earliest lot singly in small pots, and shift on when needful; and to pot the late ones in 32-size, three bulbs in a pot; these to have no shift. If the stuff is reasonably moist when this is done there will be no necessity for watering until some time has elapsed, and some healthy root action has commenced. The floor of a cool dry house or shed is the proper place for them: I would not on any account pack them in coal-ashes or fibre out of doors, because a heavy rain followed by a severe frost might make an end of them altogether. After about six weeks' occupation of the cold floor, they should go to a warmer place, and have a little water. A temperature of 60 deg. will start them well for an early bloom, and as soon as leaves appear they should be in the fullest daylight. Those for later flowering will start well on a sunny shelf in an ordinary greenhouse, and very soon after the leaves appear the flower spike will be seen rising from the central crown. The leaves of this plant are not strikingly beautiful,



A FIELD OF TUBEROSES IN SOUTH AFRICA, GROWN FOR MESSRS. CARTER AND CO.

winter through unless they show their green tops, in which case they must be kept going in greenhouse temperature as slowly as will be safe and in a very full light. The forwardest of these should be set aside for flowering in the greenhouse and cool conservatory, and the least forward should in the month of March be transferred to a pit, to be kept as hardy as possible for planting out in May and June. The bed should be in a sunny position, and the soil should be a rich loam well drained. It scarcely matters how rich it is, and it scarcely matters how much water you give during warm weather, for this is one of the most thirsty plants in the world when growing freely in a temperature ranging from 65 deg. to 80 deg. The hottest weather ever known in this country will suit it perfectly, and then is the time for heavy watering to ensure the production of a rich and abundant bloom.

In all its requirements the tuberose agrees nearly with the canna, but is a more thirsty plant. During the past four or five years cannas have been but little heard of, because the summers have been too cool for them. But their time will come again, and probably has come again, for we seem to be "turning the corner." But when the canna becomes once more a conspicuous plant in the garden the tuberose will be capable of competing with it, but will appeal to the olfactory more directly than to the visual organs, although the delicate waxy appearance of the flowers is always gratifying, and affords the eye pleasurable rest in a scene where strong colours prevail.

Messrs. Carter and Co. have endeavoured, by means of an engraving we are favoured with, to convey an impression of the aspects of a great plantation of tuberose. The scene is a flower farm in South Africa, the labourers are Kaffirs, and the crop they are tending consists of tuberose for the special refreshing of British gardens.

but they must taken care of none the less. I leave all the suckers in order to obtain a good mat of the flaccid leaves, but it is the general practice to cut out the suckers, on the theory that they weaken the bloom. I never could discover the advantage of removing the suckers, for they do not weaken the bloom, and therefore I keep them to augment the leafage, of which we cannot have too much.

The flowering on this system will commence in June and continue to October. By a very slow process the flowering may be deferred to November and December, but this is a nice business, because when once the flower stem appears it needs encouragement, and if you keep the plant so cold as to check the growth overmuch the flower stem may rot at the collar. However, by potting very late and growing very slowly, you may secure a good bloom at the very end of the year; but the natural season is from June to October. In any case, however cool the plants may be up to the time of flowering, it will be found that the flowers will not open in a temperature below 60 deg., and will not be fully fragrant in a temperature less than 70 deg. It follows therefore that when retarded for a late bloom they must be finished in a warm place, and in the fullest daylight possible. S. H.

FUCHSIA MRS. RUNDALL will obtain special attention amongst the novelties of the season, by reason of the excellent coloured plate of it just issued by Messrs. H. Cannell and Sons. It belongs to a section in which comparatively few good varieties are to be found, the tube and sepals being of a warm salmon-tinted flesh colour, and the corolla vermilion red. It is a showy variety, the flowers being large and very distinct in colour.

The House, Garden, and Home Farm.

THE ARMY SURGEON.

OVER that breathing waste of friends and foes,
 Tho wounded and the dying, hour by hour,
 In will a thousand, yet but one in power,
 Ho labours through the red and groaning day.
 The fearful moorland where the myriads lay
 Moved as a moving field of mangled worms,
 And as a raw brood, orphaned in the storms,
 Thrust up their heads if the wind bend a spray
 Above them, but when the bare branch performs
 No sweet parental office, sink away
 With helpless chirp of woe,—so, as he goes,
 Around his feet in clamorous agony
 They rise and fall; and all the seething plain
 Bubbles a cauldron vast of many-coloured pain.

SIDNEY DOBELL.

THE HOUSE.

WINDOW boxes should now be cleared of their summer occupants, and be replenished with hardy evergreens, such as the green and variegated aucubas, boxes, and euonymus and the arbor-vites and cupressus that may be obtained at a cheap rate. The plants selected should range from six to twelve inches in height and be of a proportionate diameter, and in arranging them in the boxes over-crowding should be avoided. The subjects enumerated will be of equal service for potting for the decoration of the window-sill, and in no case should they be so large that they cannot be readily put in an eight-inch pot. Very frequently evergreens potted up for the purpose indicated are too large and exclude the light to an injurious extent from the apartments.

THE GARDEN.

CARNATIONS.—Layers to be potted or transplanted as soon as rooted in sandy soil; avoid rich soil or stimulating manures, as they must not be encouraged too much, or they will make a luxuriant growth, which will be very detrimental during winter, for then it is necessary that they should rest.

CAULIFLOWERS of the last sowing to be pricked out under hand glasses, and a few to be potted in 60-sized pots to push on for extra early supply, as they can be planted early in spring on a warm well-manured border, and have the shelter of old lights or inverted pots or thatched hurdles, in case of late morning frosts.

CHRYSANTHEMUMS require plenty of water, and twice a week liquid manure, but not a drop of the latter must touch the leaves. See to any tying that has been neglected. Pot up at once those grown in the open ground for the purpose, or, if to be moved to make beds and ribbons, clear the ground, dig it over, and plant them in the places where they are to bloom at once, or make all ready and move them as soon as there are signs of rain. Plants potted up from the open ground to be kept shaded and frequently sprinkled till they recover. Of course they must be lifted with good balls, and be potted firm, with plenty of drainage. Thin the buds of the plants grown for cut blooms. Most of the large incurved varieties give the best blooms from the top buds.

CONSERVATORY AND GREENHOUSE.—Tender pot plants should be at once housed. There is nothing more to be gained in the way of hardening; in fact, a little sun-heat under glass would ripen the wood of plants that are still in a sappy condition much more effectually now than sunshine out of doors. Defer the use of fires as long as possible, but if any special reason requires it, let no rules without reason interfere; set the fires going, dry the house, and have a change of air while there is no fear of a chill. By good management much may be done now with sun-heat. Plants recently potted and housed must be kept a little close to encourage root action. Do not keep them very wet at the roots; in fact, after the first watering when potted, let them go nearly dry at the root before watering again. Keep the houses clean and dry, so as to allow of as much ventilation as possible among hard-wooded plants. If the weather is mild, and wind westerly, give air at night to Camellias, Azaleas, Heaths, Epacrises, and other subjects of like habit and hardiness.

FRUIT STORING, where there is any to store, must have due attention and the fruits be gathered with the greatest care. When a fruit parts readily from the stalk it may be considered ripe enough; or if the pips are dark coloured it will be safe to gather. As a rule, it is well to let all keeping fruit hang as long as possible; but the line must be drawn somewhere, and when a crop is really ripe it is folly to leave it on the trees. All keeping fruit should be gathered dry, and should be handled with care, and should be housed in some sort of way at once, for if left out the dew will injure it if the rain does not. Small quantities of apples and pears may be kept in the most perfect manner in large red glazed pans with lids. The best samples should be collected for this select mode of storing, and all bruised and ugly fruit should be set aside for immediate use. The samples to be stored in pans should be quite dry, but should not be wiped with a cloth, because the natural gumminess of the skin is an aid in their preservation. Pack a pan full, put on the lid at once, and in about a month remove them by careful handling into another similar pan, and in the process throw out any that threaten to go wrong. By this simple procedure a few bushels of the finest apples and pears may be kept in a cool store room more perfectly than by any other method; but of course a great bulk of fruit must be stored in the outhouses and sheds and fruit rooms in the usual way, being kept as cool and dry and dark as possible.

ORCHID HOUSE.—We have several times cautioned cultivators against using an excess of heat and moisture at the decline of the season. By withdrawing the supplies of water orchids will go to rest safely at a much lower temperature than is usually adopted; Cattleys especially must be kept cool now to make them rest.

PINES ripening their fruit must be kept warm and have less water. Be careful how you give water now, and keep up the heat in the succession pit.

WEEDS will be a plague to the overworked and the idle gardener, while the best kept land will be full of seeds blown upon it from the sluggard's garden, and the first shower will bring them up in terrific force. All that we have to say about them is that they must be kept down, for they will not only choke the rising crops in seed-beds and spoil the look of everything, but they very much tend to keep the ground damp and cold, when if they were away it would get dry and warm, to the benefit of all the proper crops upon it.

THE HOME FARM.

FARM work of special importance comprises in the very first place the saving of every scrap of the summer production, and this should be done completely, the ricks being thatched as soon as possible, and barns and granaries being made secure against weather and rats and all other possible destroyers. There is now plenty of work for the horses, for as fast as they get their carting done the ploughshare will be ready for them, and they will have a large part to perform in preparing for the sowing of Rye, Winter Vetches, Trifolium, Italian Rye-grass, and Wheat. The maintenance of milch cows in good condition at this season is an imperative necessity, and the food they are able to obtain from the pastures should, if necessary, be supplemented by cut fodder, such as clover, tares, and cabbages. In addition they ought to have a little cake or hay, and they may also have a small quantity of turnips; but the feeding of cows with these roots requires care and watchfulness, for if the supply is too liberal a disagreeable flavour will be imparted to the milk, cream, and butter. Cows should, as the weather becomes cold, be kept under cover at night, and calves must be well looked after, and unnecessary exposure to either cold or damp be carefully avoided.

THE CROWN IMPERIAL.

Fritillaria imperialis.

It is not often in the present day we meet with the crown imperial, although it is one of the "old-fashioned" flowers that were in great favour before bedding came into fashion. It is a noble flower, peculiar in character, and adapted for a style of gardening that effects a kind of compromise between the old style and the new. Having an entrance court much overshadowed by large trees, and desiring to keep this court in a state of permanent but changing gaiety, we had prepared for the purpose a series of compartments faced with handsome mouldings in Ransome's imperishable stone, and a central jardinet of the same material. In place of earth these compartments were filled with cocoanut-fibre refuse, and in this material pot plants were plunged to make ornamental groups ever varying, and always beautiful. The practice carried on through a series of years developed into what was called the plunging system, because the pot plants were plunged in the clean brown fibre instead of being planted in open soil. The most complete success was attained in this business, and groups of plants were grown for every season of the year, comprising hollies and ivies and other rich evergreens for the winter, and all kinds of flowering plants for other seasons. In due time a trial was made of crown imperials, and we obtained a collection of about a dozen sorts, of which we potted in the autumn about a score bulbs of each. In an airy cool plant house, these came into flower about a fortnight in advance of the usual time of flowering out of doors, and they proved singularly useful by reason of the brilliant green of their leafage, and the distinct tones of orange, red, and buff, of their somewhat singular flowers. After the first essay we were careful never to miss a season in having a display of these flowers in connexion with our plunging system.

The crown imperial is a member of the great family of lilies. The species of fritillaria are about thirty in number, whereof only one is met with wild in England, and that but rarely. This one is the snake's head" fritillary, *F. meleagris*, of which a few years since we saw a collection of about sixty varieties in the interesting nurseries of Messrs. Krelage in Haarlem. The grand old gardeners of the times of Elizabeth and the Stuarts thought much of the crown imperial. Parkinson commences his book of "The Garden of Pleasant Flowers" ("Paradiseus," p. 27) with this subject, saying, "The Crowne Imperial for his stately beautifullness, deserveth the first place in this our garden of delight, to be here entreated of before all other Lillies," and he devotes two pages to the description of it, taking note that "the whole plant and every part thereof, as well rootes, as leaves and flowers, doe smell somewhat strong, as it were the saour of a foxe, so that if any doe but come neare it, he cannot but smell it, which yet is not unwholesome."

The crown imperial requires a rich deep soil and a sunny exposure. The bulbs being planted in September or October will produce their flowers in the subsequent March and April, and will die down early enough for the occupation of the ground by summer flowers. To do justice to this noble lily, it should be abundantly fed; hence in preparing the soil for it, manure should be liberally added, and in the spring, when the stems are rising, it will be an advantage to mulch around the stems with fat old manure to feed those surface roots that appear at the base of the stems. If grown as thus advised, every bulb will produce two or three stems, and each of these will produce a large bulb. Thus the crop may be said to prove profitable without resorting to the sowing of seeds. It has been our custom, as soon as the stems were in some degree decayed, to lift the bulbs and store them in a cool place in sand, until the time for planting them again. If it is intended to raise plants from seed, it will be advisable to sow the seeds as soon as ripe, at the end of May or early in June, and it will be safer to sow in pans or boxes than in the open ground.

The smaller fritillaries are better adapted for pot culture than the crown imperial, although, as remarked above, we have made a pot plant of the latter to some purpose. A very important species, because of its variations as well as its intrinsic beauty, is *F. meleagris*, the snake's head lily. In "Maund's Botanic Garden" (vi. 215) we are informed that as many as four distinct varieties may be obtained, but, as remarked above, we have seen at least sixty in one garden in Haarlem, and these varied so much that their specific identity was a matter of question with a party of experts, until Mr. H. Krelage himself gave the assurance that they were veritable seedlings of *F. meleagris*. Mr. Niven, in his edition of "Maund," figures the *multiplex* variety, which has a perianth of many segments, the colour rosy purple, with light and dark spots.

A collection of fritillaries should include selections of the varieties of *F. meleagris* and *F. imperialis* to begin with, for these are eminently "useful," and worth growing in quantities. Then, to add to these, there are some five and twenty species known, but the question is where shall we find them. The beautiful Golden Fritillary, *F. pudica*; the Miniature Fritillary, *F. parviflora*; and the Slender Fritillary *F. lanceolata*, are the only sorts we can readily hear of through current catalogues of plants in commerce. As for the rest, they are scattered about in botanic gardens, whence they are obtainable by those who understand the magic method by which rare plants are passed from hand to hand.—*Hibberd's Familiar Garden Flowers.*

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "Sapo Carbonis Detergens" (as doctors prescribe) impressed on each tablet and wrapper, without which none is genuine.—[Avert.]

Exhibitions and Meetings.

INTERNATIONAL POTATO EXHIBITION, SEPTEMBER 20 AND 21.
The International potato exhibition held at the Crystal Palace on Wednesday and Thursday last proved in every way an unqualified success. In extent it was fully equal to the largest of the shows held during the past seven years, and in quality it was considerably above the average, no really inferior dish being staged in the immense number of collections brought together. The remarkable uniformity of the competing collections was indeed one of the distinguishing features of the gathering, and no stronger proof of the healthy influence exercised upon cultivators by these exhibitions could be desired than was afforded upon this occasion. In all the classes the competition was very strong, and altogether about two thousand dishes, inclusive of those contributed to the miscellaneous class by trade growers, were staged, and produced a display of the most interesting and instructive character. The exhibition was as usual held in the north nave, and the tables on which the tubers were arranged were tastefully decorated with plants by Mr. Head, the garden superintendent of the Crystal Palace. At midday on Wednesday the exhibition was, in the unavoidable absence of the Lord Mayor, opened by Mr. Alderman De Keyser, Sheriff-Elect, who also presided at the luncheon of the judges, committee, and the supporters of the movement. The arrangements, it must be said, were admirably carried out, and everything worked as smoothly as could possibly have been desired.

The most important class in the schedule was that for twenty-four varieties in which the whole of the prizes were given by the Crystal Palace Company. There were thirteen competitors and the first prize of £10 10s. was awarded to Mr. W. Ellington, West Row Gardens, Soham, for a collection of the highest excellence. The tubers were rather large as compared, with some others, but they were perfect in finish, and brought the exhibitor much praise. The varieties were Early Border, Fiftie's Annie, Pride of America, Mr. Bresee, Woodstock Kidney, Sutton's Prizetaker, Rector of Woodstock, Grampian, Wiltshire Snowflake, Reading Russet, Early King, Triumph, Schoolmaster, Matchless, White Emperor, Adirondack, Porter's Excelsior, Covent Garden Perfection, Blanchard, Vicar of Laleham, International, Carter's Eight Weeks', Bresee's Prolific, and Queen of the Valley; Mr. T. Pickworth, Loughborough, a good second, with tubers of rather small size, but of splendid quality; the varieties represented were Sutton's Reading Russet, Magnum Bonum, Queen of the Valley, Reading Hero, Grampian, Ashtop Fluke, Blanchard, King of the Flukes, American Purple, Bresee's Prolific, Peachblow, Woodstock Kidney, Beauty of Kent, Fox's Seedling, Sutton's Prizetaker, Magnum Bonum, Vicar of Laleham, Porter's Excelsior, Brownell's Superior, Schoolmaster, Fenn's Cricket Ball, Wiltshire Snowflake, Matchless, and Scotch Champion; Mr. H. E. Gribble, Canon Hall, Maidenhead, third with a splendid lot of tubers representing the following varieties, namely, Bedford Prolific, Extra Early Vermont, Magnum Bonum, Beauty of Hebron, St. Patrick, Manhattan, Porter's Excelsior, Triumph Defiance, Early Oxford, Early King, Wonderful Kidney, Vicar of Laleham, Schoolmaster, Covent Garden Perfection, Myatt's Prolific Ashleaf-Grampian, Radstock Beauty, Adirondack, International, Mr. Bresee, Heather Bell, Rector of Woodstock, and Beauty of Kent; Mr. Finlay, Wroxton Abbey, Banbury, fourth, with a highly meritorious collection; Mr. W. Kerr, Dargavie, Dumfries, fifth; and Mr. J. Caunce, Winmarleigh, near Garstang, sixth.

The second class was for eighteen varieties, open to gentlemen's gardeners only, and the whole of the prizes were given by Messrs. Sutton and Sons. There were nineteen collections all more or less good, and at the head of the competitors was Mr. J. Matthews, Woodstock Park, Sittingbourne, who had tubers rather above medium size, very evenly matched, and of splendid quality. The varieties were Holborn Favourite, Pride of America, Beauty of Kent, Reading Abbey, Brownell's Superior, Magnum Bonum, Triumph, Woodstock Kidney, Adirondack, Sutton's First and Best, Beauty of Hebron, Bedford Prolific, Pride of Ontario, Early Goodrich, Trophy, Wiltshire Snowflake, Reading Russet, and Myatt's Prolific Ashleaf. Mr. J. Hughes, Haydon Hall Gardens, Byfield, was a close second with superb samples of Jackson's Improved Kidney, Garibaldi, Woodstock Kidney, Vicar of Laleham, Cosmopolitan, Mr. Bresee, Adirondack, Purple Ashleaf, Sutton's Fiftyfold, Triumph, Porter's Excelsior, Sutton's Fillbasket, Advance, Blanchard, Reading Russet, Radstock Beauty, Sutton's Prizetaker, and International; Mr. West, Northlands, Salisbury, third with Adirondack, Woodstock Kidney, Trophy, Blanchard, Beauty of Kent, Beauty of Hebron, Mammoth Pearl, International, Vicar of Laleham, Porter's Excelsior, Webb's Surprise, Extra Early Vermont, Matchless, Radstock Beauty, Triumph, Bresee's Prolific, Bountiful, and Queen of the Valley; Mr. H. E. Gribble fourth, Mr. Finlay fifth, and Mr. W. Skarratt, Maidenhead, sixth.

The prizes for twelve varieties, to comprise equal numbers of English and American kinds, were provided by Mr. Alderman Hadley, Messrs. Bliss and Sons, and Messrs. Ure and Co., and brought out a strong competition. There were eleven entries, and the premier award was made in favour of Mr. T. Pickworth, who staged splendid examples of Beauty of Hebron, Amazon Queen, Triumph, Trophy, King of the Flukes, Queen of the Valley, International, Late Rose, Ashtop Fluke, Matchless, Woodstock Kidney, and Magnum Bonum; Mr. R. Dean, Ealing and Bedford, a very close second, with most excellent dishes of Adirondack, Matchless, Magnum Bonum, Queen of the Valley, Advance, Radstock Beauty, Early Rose, Vicar of Laleham, International, Triumph, Snowflake, and Edgecote Seedling; Mr. W. Ellington a good third, with Porter's Excelsior, Grampian, Early King, Reading Russet, Schoolmaster, Blanchard, Trophy, Matchless, Pride of America, Queen of the Valley, Triumph, and Adirondack; Mr. H. E. Gribble, Mr. Finlay, and Mr. J. Bull, Wisbeach, fourth, fifth, and sixth respectively.

In the class for nine dishes the prizes were given by Mr. C. Fidler, Reading, and there were no less than twenty collections. The first prize was awarded to Mr. J. Hughes for very fine samples of Adirondack, Purple Ashleaf, Beauty of Hebron, Manhattan, Porter's Excelsior, Reading Russet, Blanchard, Queen of the Valley, and International; Mr. C. Hott, Wokefield Park, Mortimer, a capital second, with Purple Kidney, Webb's Surprise, Wonderful, Reading Russet, Fiftie's Annie, Vicar of Laleham, International, Fenn's Standard, and Garibaldi; Mr. J. Buller, Bargams Hall, Sittingbourne, third, with Beauty of Kent, Schoolmaster, Beauty of Hebron, White Emperor, Trophy, Pride of America, Breadfruit, Vicar of Laleham, and Magnum Bonum; Mr. J. Bull fourth, and Mr. F. Hart, Faversham, fifth. Very strong also was the competition in the class for six dishes; and the finest of the twenty-four collections staged was that from Mr. Pickworth, who had Reading Russet, Woodstock Kidney, Grampian, International, Blanchard, and Ashtop Fluke, in exceptionally fine condition; Mr. Finlay

second, with Edgecote Seedling, Blanchard, Woodstock Kidney, American Purple, King Noble, and Triumph; Mr. Tooley, Banbury, third, with International, Beauty of Kent, Magnum Bonum, Mr. Bresee, Schoolmaster, and Queen of the Valley.

Prizes were offered by Messrs. Harrison and Sons for four "dishes of potatoes, the largest and handsomest, six tubers on each dish, any variety," and they were contested with much spirit, there being ten entries. Mr. Pickworth was first with four dishes of International, the tubers of immense size and good shape; Mr. W. Ellington second, with Queen of the Valley, White Elephant, Silverskin, and International; Mr. H. E. Gribble third, with International, Trophy, White Elephant, and Vicar of Laleham. The class for three dishes of coloured rounds, in which the prizes were given by Mr. R. Dean, contained nineteen lots, all more or less good, and the premier award was made in favour of Mr. Pickworth, who had excellent samples of Reading Russet, Blanchard, and Queen of the Valley; Mr. F. Miller, Northdown, Margate, second, with fine tubers of Vicar of Laleham, Blanchard, and Reading Russet; Mr. R. Dean, third, with good samples of Grampian, Vicar of Laleham, and Radstock Beauty; Mr. H. E. Gribble fourth. In the class for three white round; in which the prize donors were Mr. Wright and the Amies' Chemical Manure Company, there were ten competitors. The post of honour was occupied by Mr. R. Dean, with splendid dishes of Model, Porter's Excelsior, and Bedford Prolific; Mr. W. Ellington second, with Porter's Excelsior, Schoolmaster, and Bedford Prolific; Mr. Kerr third, with Reading Hero, Porter's Excelsior, and Schoolmaster; Mr. O. Goldsmith, Polesden Lacey, Dorking, fourth. There were seventeen competitors in the class for three dishes of white kidneys, in which the prizes were given by Messrs. Thomas Gibbs and Co. The first prize was taken by Mr. R. Dean, who had superbly-finished samples of Woodstock Kidney, Edgecote Seedling, and International; Mr. F. Miller second, with good samples of Jackson's Improved Kidney, Yorkshire Hero, and Woodstock Kidney; Mr. H. E. Gribble third, with Advance, International, and Magnum Bonum in fine condition; Mr. W. Ellington fourth. The class for three coloured kidneys contained thirteen entries. The first prize, which was presented by Mr. Shirley Hibberd, was awarded to Mr. R. Dean for fine examples of Beauty of Hebron, Mr. Bresee, and American Purple; Mr. Ellington second, with Mr. Bresee, Beauty of Hebron, and Purple King; Mr. F. Miller third, with American Purple, Mr. Bresee, and Defiance; Mr. Akhurst, Faversham, fourth.

The competition was spirited for two dishes consisting of Sutton's First and Best and Sutton's Magnum Bonum, and the prizes were awarded to Mr. W. Finlay, Mr. R. Stowe, Kimbolton, Mr. J. Matthews, and Mr. Ross in the order of their names. For two dishes consisting of Sutton's Reading Hero and Woodstock Kidney there were fourteen entries, and the awards were made in favour of Mr. F. Miller, Mr. Pickworth, Mr. W. Finlay, and Mr. H. Wood. The prizetakers for two dishes consisting of Sutton's Reading Abbey and Sutton's Redskin Flourball were Mr. Akhurst, Mr. W. Finlay, Mr. Pickworth, and Mr. Cornish, all of whom presented capital samples of these two varieties.

The class for a single dish "new varieties in commerce, not offered to the public before season 1882," was both strong and interesting. The prizes were given by Messrs. Hooper and Co., and there were thirty-six competitors. In the result, Mr. F. Miller was first, with Reading Russet, a very handsome red round of high-class quality; Mr. P. McKinlay, Headley Lodge, Penge, second, with Reading Russet, and third with Sutton's Prizetaker; Mr. W. Ellington fourth, with Reading Russet, Mr. W. Kerr fifth, with Queen of the South, a small white kidney of good appearance; and Mr. T. Pickworth sixth. There was a spirited contest for Mr. C. Turner's prizes for one dish of Schoolmaster, and the awards were made in favour of Mr. W. Kerr, Mr. C. Osman, Mr. W. Ellington, and Mr. P. Cornish.

A goodly number of new varieties were staged, and first-class certificates were conferred upon—

Recorder, W. K.—A large and handsome white kidney, remarkable for its productiveness and high quality on the table. Raised and exhibited by Mr. R. Dean.

Alderman de Keyser, R. K.—A distinct and handsome red kidney, the tubers large, flattish, and of a bright red colour. A heavy cropping variety of excellent quality. Raised and exhibited by Mr. R. Fenn.

James Abbiss, W. R.—A white round of great promise; tubers of medium size, even in outline, and with a slightly netted skin of a pale tawny colour. Raised and exhibited by Mr. R. Fenn.

Sir Walter Raleigh, W. R.—An excellent variety; the tubers rather above medium size, handsome in shape, and with a white skin. Raised and exhibited by Mr. C. Ross.

The trade collections formed, as usual, a very important feature. Messrs. Sutton and Sons exhibited a collection of one hundred and thirty splendid dishes. Messrs. Webb and Sons, Messrs. Harrison and Sons, Messrs. C. Lee and Son, and Mr. Fidler exhibited large representative collections; and Messrs. Daniels Brothers staged samples of White Elephant.

The judges were: Mr. Shirley Hibberd, Stoke Newington; Mr. James Douglas, Ilford; Mr. W. Earley, Ilford; Mr. E. Bennett, Rabley; Mr. James Woodbridge, Brentford; Mr. J. Tegg, Bearwood; Mr. J. Roberts, Gunnersbury; Mr. W. Emerton; Mr. P. McKinlay, Penge; Mr. A. Dean, Bedford; Mr. J. Laing, Forest Hill; Mr. G. T. Miles, High Wycombe; Mr. J. P. Jones, Reading; and Mr. J. Burley, Bayswater.

THAME (OXON) HORTICULTURAL SOCIETY, SEPTEMBER 14.

The annual exhibition of this society was held in connection with ploughing matches, in which some twenty teams did capital work on clover ley and barley stubble; the weather being all that could be wished for.

The horticultural show was held in Mr. James Marsh's orchard, and bore favourable comparison with many of those which had preceded it.

The exhibits filled four large tents, one being devoted to a display of painted terra cotta and other works of art. In this tent were several paintings in oil, one by Mr. J. Ives, draper, Thame, being a truthful portrait of Mr. John Walker, seedsman, and another by Mr. Simson, equally meritorious, was a dish of apples (Blenheims), and a brace of snipes. Mr. Ives also exhibited his needle-work picture (Dante watching the departed into heaven); this was considered a beautiful conception. The painted pottery staged in competition was represented by about seventy pieces, all very truthful in the patterns and figures represented.

As usual, Mr. John Walker made a fine display at one end of the large tent, where, in a perfectly-arranged group, he had most effectively staged some eighty specimens of fuchsias, geraniums, coleus, sedums, cupheas, and ferns, and boxes of blooms, viz., twenty-four German asters, twenty-four French asters, twenty-four zinnias, twenty-four roses, forty-eight dahlias (show and fancy), bunches of single dahlias, and bunches of bouquet dahlias, the mass forming a pleasing *tout ensemble*.

The only device "in vegetable substance" was a very cleverly executed model of West Wycombe Church and Cemetery. Mr. Ives did not compete on this occasion in this class.

The show of greenhouse plants was rather limited, the winning group of eight specimens being staged by Mr. Buckfield, gardener to the Earl of Macclesfield, Shirburn Castle Gardens, and comprised some large crotons, pandanads, ferns, and palms. The exotic and hardy ferns were very fresh, and the single specimens included a fine standard orange tree (*Citrus nobilis*) in a large pot, from Derton House, bearing some thirty fully ripened large-sized fruits; this was awarded a first, the second card going to a handsome specimen of *Vallota purpurea*, its twelve scapes being crowned with about sixty scarlet trumpet-shaped blooms. In this class there was a fine *Lilium auratum*, an *Adiantum cuneatum*, and a specimen of *Ficus elastica* fourteen feet high. The display of fuchsias and geraniums was altogether a good one, the plants being neat specimens, and well-flowered. The cut blooms included quite an array of boxes of roses, dahlias, asters, and verbenas and zinnias. The wild flowers were very pretty as staged in sets of eight bouquets each. This class produced seven exhibitors; the class for twelve bouquets of garden and greenhouse flowers brought out four competitors. One tent was devoted to table decorations, and hand-bouquets by the ladies, which were tasty arrangements, but they were fewer than for some years past. In this latter tent were several exhibits of honey, and very excellent window plants staged by cottagers.

The show of fruit was large, the collections being most creditable to the exhibitors, both professionals and amateurs.

The vegetables in the open and members' classes were of general average quality, the cottagers' productions in these departments being large and very superior, the potatoes, carrots, parsnips, and collections of sorts being above the average. About 1,000 potatoes were staged in competition, the premier variety being Magnum Bonum.

The band of the Royal Horse Guards (Blue) entertained the large concourse of visitors by a series of splendid executions of new and ancient selections of music, Mr. Charles Godfrey wielding the bâton.

The judges for the whole show were Messrs. J. W. Daniells, Swyncombe Park Gardens, and — Broadfoot, gardener to Colonel Miller, Shotover House, Oxon. The arrangements were admirably carried out by Mr. J. J. Shrimpton and Mr. Walker (secretaries of the Horticultural Society).

Oxford.

WILLIAM GREENAWAY.

HARBORNE POTATO EXHIBITION.

The third annual potato exhibition was opened on Friday, in the Masonic Hall, Harborne. The exhibits, numbering about one thousand, were ranged in rows varying from four to eight dishes deep, and occupied nearly the whole of the space both in the concert hall and banquet room. The rooms were tastefully decorated with plants. The principal prize, a silver cup, given for the best collection of twelve varieties, fell to the lot of Mr. C. W. Howard, of Canterbury; Mr. C. Winstone, Harrison's Road, Harborne, took the second, value £3; and Mr. C. Cox, of Banbury, the third, £1 10s. The other winners were:—Class B (open), for six varieties, distinct: 1st, Mr. E. Burden, Moseley; 2nd, Mr. G. Branstone, Erdington; 3rd, Mr. C. W. Howard, Canterbury. Class C (open): 1st, Mr. C. W. Howard, Canterbury; 2nd, Mr. G. Branstone, Erdington; 3rd, Mr. C. Cox, Banbury. Class D (open), for best two dishes of any new variety: 1st, Mr. C. W. Howard, Canterbury; 2nd, Mr. C. Cox, Banbury. Class E (open), for the best two dishes of cooked potatoes: 1st, W. Monk; 2nd, W. Shingler; 3rd, R. Lamb, all of Harborne. Classes for gentlemen's gardeners—Best six varieties, nine tubers of each: 1st, C. Winstone; 2nd, W. Shingler; 3rd, R. Lamb. Best two dishes, one round, one kidney: 1st, R. Lamb; 2nd, H. Simpson; 3rd, W. Shingler. In the amateur classes there was a very good show, and the prizes were principally taken by Messrs. F. Horton, A. Wise, R. Slater, T. Wathes, W. Bradley, and T. Price. In the special open classes, Messrs. Webb and Sons' prizes for the best twelve tubers of Webb's Schoolmaster, were taken by: 1st, Mr. C. W. Howard, Canterbury; 2nd, G. Branstone; 3rd, T. Wathes. Messrs. Webb and Sons' special prizes for the best collection of six varieties of potatoes were awarded as follows: 1st, C. Winstone; 2nd, G. Branstone; 3rd, W. Shingler. Messrs. Sutton and Sons offered prizes for the best collection of their varieties, to include two of Suttons' strain, and the 1st was awarded to Mr. C. W. Howard, Canterbury; 2nd, C. Cox; 3rd, C. Winstone; 4th, G. Branstone. Mr. W. Merris, Harborne, offered prizes for the best six dishes of potatoes from selected varieties, and the 1st was taken by P. McGregor; 2nd, R. Lamb; 3rd, W. Shingler. Special prizes were awarded Mr. T. Price for a special collection of American Rose, and Mr. W. Monk for a dish of Ashleaf Kidney. A large number of persons attended the show, which will close this evening.

ALLOTMENTS FOR THE POOR.—Where lands are allotted under Enclosure Acts or otherwise appropriated for the benefit of the poor of a parish, portions of them are required by a statute of the last reign to be let in small quantities to industrious cottagers of good character being day-labourers or journeymen settled in or near the parish. From various causes, however, the provisions of this statute have only been partially carried out. Accordingly an Act of Parliament has been passed this year giving these benefits to all the irremovable poor and extending them in other ways. The new Act applies to land held for the benefit of the poor of any parish in or adjoining that in which it is situate and whereof the rents or produce are distributed in gifts of money, doles, fuel, clothing, bread, &c. Cultivated and uncultivated lands alike are subject to the Act. Where the land is not used as a recreation ground or otherwise for the general benefit of the inhabitants, the trustees are to take proceedings for letting it in allotments of an acre or less each to cottagers, labourers, and others. A suitable portion of the land is to be set apart for these allotments, and special directions are given in the Act as to the public notice to be given each year about the rent required, &c. In the letting no undue preference of any persons is to be shown. Priority is, however, to be given to the cottagers and labourers who live in the parish where the land is situated. If all the land then set apart is applied for, a further portion is to be set apart for the same purpose; and so on until the whole of the trustees' land is lot in allotments, or no further applications are received. In any future charity scheme to be made by the Charity Commissioners, a provision is to be inserted for letting in allotments some portion of any land belonging to the endowment. Moreover, the rules which the trustees are directed to make as to the letting, &c., are to be subject to the approval of the Charity Commissioners; and any four cottagers or labourers, or any trustee, may appeal to them as to the rules. The new Act contains, it may be noticed, a clause saving old rights under previous Acts on the same subject.

JOTTINGS FROM THE EDINBURGH EXHIBITION.

As supplementary to the full report published last week of the Edinburgh International Horticultural Exhibition, held on the 13th and 14th inst., I now propose jotting down a few notes on matters that struck me as being likely to prove interesting and instructive to horticulturists generally.

EARLY OPENING OF THE EXHIBITION TO GARDENERS.

The admission of gardeners to the exhibition at a very low rate previous to its being opened to the general public was largely taken advantage of, for no sooner were the doors opened than the gardeners from the surrounding districts poured in, and at once commenced in earnest an inspection of the immense array of plants, fruits, flowers, and vegetables brought together in response to the liberal schedule of prizes offered. The arrangement, which has been found to work so well at previous international gatherings at Edinburgh, and at Glasgow and Dundee, is without question one which may be adopted with advantage at any similar exhibition held in London, should we be fortunate enough to ever have one. By admitting the practicals at nine a.m., an opportunity is afforded them of criticizing the merits of A's grapes, B's peaches, and C's melons, without being jostled by the visitors, who are satisfied with a cursory glance at the productions. Moreover, when the general body of visitors enter the building, two hours later, they are not likely to have their progress checked by knots of earnest men deep in the discussion of some one of the many matters of interest that engage the attention of the horticulturist on these occasions, as the more difficult points will be settled by that time. At ordinary exhibitions, that only last for a day, it is not of course practicable to admit gardeners before the other visitors, as there is only barely time to complete the arrangements and judging by mid-day; but where the show is of two days' duration and the staging is completed on the evening previous to the opening, there is no difficulty in the matter.

AUTUMN FLOWERING HEATHS.

It is such a rare occurrence to meet with any of the Cape heaths that may be had in perfection during the autumn season that special reference may be made with advantage to those forming part of this great exhibition. In the classes specially provided for them, and in the general collections, there were between twenty and thirty large specimens, all more or less well bloomed, and their charming colours presented a pleasing contrast to the masses of greenery with which they were surrounded. Particularly good amongst the kinds exhibited were *Erica Aitoniana* superba, a very beautiful form with light pink flowers; *E. Austiniana*, a beautiful hybrid with light pink flowers suffused with carmine; *E. McNahiana*, bright rosy red, very attractive; *E. Marnockiana*, bright rosy red, one of the finest of the late flowering kinds; *E. retorta* major, bright reddish pink, pleasing and effective, and *E. Irbyana*, a very brightly coloured variety. It may not be possible to have the whole of these in good condition so late in the season in the South of England, but they may be had in perfection until quite the end of August, a fact well worthy of the attention of exhibitors, for all the kinds enumerated make capital exhibition specimens.

VALLOTA PURPUREA.

Seldom, indeed, is this invaluable bulbous plant presented at a public exhibition in such fine condition as on this occasion; for, instead of two or three small plants bearing eight or ten flowers, there were nearly a dozen specimens of the most magnificent proportions. They were indeed so good, and presented such an attractive appearance, that it was impossible to avoid a feeling that the exhibition, which was rather deficient in colour, would have been materially improved by their numbers being quadrupled. All the specimens were of large size and splendidly flowered, and that to which the first prize was awarded was furnished with sixteen flower heads. This specimen occupied a pot about twelve inches in diameter, and had evidently been formed in the course of last winter with strong bulbs, which were regularly distributed over the pot. Large specimens may be produced by shifting on the bulbs from year to year without dividing them, but it is rather slow work; and when a specimen is required as quickly as possible there is no better plan than to select a given number of bulbs, according to the size of pot, and arrange them as in the case referred to. Some of the exhibitors had ruined their chance of success by keeping the plants in a shaded position until both foliage and flower scapes were so drawn out that the leaves fell about, and left the whole of the scapes bare. *Vallotas* cannot be grown in too light a position, and should be placed out of doors as early as it is safe to expose them until they are coming into bloom. Even in the far north they will make a splendid growth outside, the precautions being taken to place the pots on a hard surface and to keep a sharp look-out for slugs, which are very partial to the tender tops of the flower scapes when they are first making their appearance.

NOTABLE FERNS.

There was no lack of good ferns in the exhibition, but two collections, although widely differing in character, were so good in their way that both attracted a very large share of the attention of visitors who are at all interested in ferns, and one proved very interesting to the general body of visitors. The collection which received the admiration of all classes of visitors was that of six exotics shown by P. Neill Fraser, Esq., of Rockville, Murrayfield; this consisted of *Goniophlebium sub auriculatum*, the finest of all stove basket ferns, with upwards of two hundred fronds, ranging from eight to twelve feet in length, and perfect in development. Whether or not the finest specimen of this elegant fern ever exhibited it would be difficult to say, but none of the horticulturists present—and there was a goodly muster from all parts of the United Kingdom—could call to mind its equal, and it is not surprising that Mr. Fraser should feel proud of it. *Goniophlebium sporadocarpum*, a grand mass about four feet across. *Pteris serrulata cristata* major, an immense specimen, about seven feet in diameter, and furnished with not less than two hundred fronds; *Nephrolepis tuberosa compacta*, a fine example both in point of size and finish; *Lygodium scandens*, a splendid pyramid, fully six feet high and between three and four feet through; *Pteris asaberula*, five feet in diameter, and every frond perfect. The other notable collection was shown in the class for twelve dwarf British ferns, by Mr. Anderson, of the Pilgrimage Buildings, Edinburgh, who is well deserving of the highest praise for the cultural skill evinced. The plants occupied five and six inch pots, and ranged from three to six inches in height, the majority being four and five inches high, although fully grown. The collection was one particularly worthy of the attention of those who have but little space; and for the information of this class of cultivators I give the names, which are as follows:—*Blechnum lonchites*, *Polypodium vulgare cornubiense*, *Blechnum spicant*, *B. spicant cristatum*, *Trichomanes radicans*, *Asplenium trichomanes incisum*, *A. tricho-*

maues confluent, *Woodia ilvovis*, *Asplenium fontanum*, *A. lanceolatum* macrodon, *A. septentrionale*, and *Cystopteris montana*.

CUT ROSES,

For so late in the season, were very fine, and the flowers in the first prize box of twenty-four, from Mr. H. Dickson, of Belfast, were so good that they well deserved the praise bestowed upon them by Canon Hole at the banquet. The varieties shown in the box were Alfred Colomb, Mme. Jacquiere, Francois Courtin, Baroness Rothschild, Mario Rady, Princess Beatrice, Beauty of Waltham, La France, Mrs. Jowitt, Paul Neyron, Mme. Charles Wood, Souv. Victor Verdier, a dark flower of excellent quality, Due de Rohan, Senateur Vaisse, Bouquet d'Or, Marquise de Lignoris, Barthelomy Joubert, Mme. Nachury, Dr. Audry, Julius Finger, Mme. Victor Verdier, George Moreau, Comtesse de Serenye, Captain Christy, Paul Jannin, Mme. Clemence, Joigneaux, Lady Sheffield, Etienne Levet, Francois Michelin, Annie Wood, Marquise de Castellane, Alfred K. Williams, and John Stuart Mill. Considering the beauty of the roses and the attractiveness of the other cut flowers, it is much to be regretted that they should not have had a place on one of the stages occupying a central position in the market. The exhibition was much wanting in colour, and the very subjects capable of affording it were packed together in a corner, in which they could not be seen until the visitor was close upon them. The objectionable practice of showing rose-blossoms with foliage not belonging to them is not unknown to the Northern growers, and the Royal Caledonian Horticultural Society—as indeed should the societies on this side of the Tweed—take the necessary steps to put it down.

BIG BUNCHES OF GRAPES.

What unsightly objects were, with two or three exceptions, the bunches of grapes staged in the class for "the heaviest bunch"! They were either ill-formed or badly-coloured, and not more than three of the bunches were really fit to put upon a gentleman's table. The big bunches, in fact, formed the most objectionable part of the exhibition, and it is quite time that a protest was made against giving prominence to grapes that are hardly fit to eat, and seldom otherwise than obnoxious to the eye.

ABERCARNEY SEEDLING GRAPE.

Under the name of Abercarny Seedling was shown a grape so like the Alicante in the shape of the bunch and the berry and in colour that the most experienced grape grower could not tell them apart, yet the judges allowed it to pass muster as a distinct variety. In each division for single bunches classes were provided for Alicante and other specified kinds, and one for "any other variety"; and in the second of the two divisions Abercarny Seedling was allowed to carry off the premier award in the "any other class." As well might Black Hamburg, Madresfield Court, or Lady Downes—for which also there were classes—have been exhibited as "any other sort."

A WONDERFUL PINEAPPLE.

Amongst the pineapples in pots was one containing a plant each of the Queen and the Smooth Cayenne. To the plants was attached a letter, in which the exhibitor stated that one plant had produced a Smooth Cayenne and a Queen Sucker, both of which had been grown on and were there exhibited. After reading the letter and taking a glance at the fruit, I thought I had a wonderful pineapple before me, but an examination showed that there were two distinct plants in the pot, that in no way supported the statement of the exhibitor. The possibility of pine suckers becoming mixed in any way when removed from the old stools appears to have been overlooked by the exhibitor, who would have done well to have consulted some of his friends before sending the plants and accompanying statement to Edinburgh.

A VISITOR.

Replies to Queries.

Names of Plants.—S. Y. B. 1, *Hibiscus luteo-plenus*; 2, *Hibiscus rosa-sinensis fulgidus*; 3, *Hibiscus rosa-sinensis zebrinus*; 4, *Plumbago capensis*; 5, *Jasminum sambae*; 7, *Davallia canariensis*; 7, *Anthurium scherzerianum*.—N. Davey. Your plant is *Caliphuria subdentata*. It is figured in our issue for May 25th, 1878, p. 259.—G. A. Your scrap is a Francoa, but we must have a leaf as well as open flowers to name it properly.—J. Hudson. 1, *Dorstenia cordifolia*; 2, *Eranthemum crenulatum*; 3, a *Fittonia*; 4, *Chironia decursata*.—R. W. W. The plant is correctly labelled *Co-operia pedunculata*; but we must own to a preference for the older name, *Zephyranthes Drummondii*.

Literature.

Brighton as it is, 1882. (Beale and Co., Brighton.)—In some respects this cheap and showy description of Piccadilly-on-Sea is acceptable, because of the interesting information it conveys. But inasmuch as it is intended as a reply to the *Lancet* it seems to fail of its purpose and tends to compel people to look at the delightful watering place through the wrong end of the telescope. If Brighton intends to fight the medical paper let it do so without the aid of pictures and pamphlets.

History of a Lump of Coal. By ALEXANDER WATT (Johnson, 6, Paternoster-buildings).—In this handy brochure will be found as good an account of the origin, properties, and uses of coal as in any work at the command of the general reader, and better than in any of the current books of "popular science." The subject is full of wonders, and it is one in which all are interested, for in any and every walk of life some knowledge of coal is absolutely necessary. For one shilling, Mr. Watt offers a treatise that might be cheap to many at a guinea.

TRADE CATALOGUES.

S. DIXON and Co., 34, MOORGATE STREET, LONDON.—*Catalogue of Dutch Bulb Roots.*

MESSINGER and Co., LOUGHBOROUGH.—*Illustrated Catalogue of Horticultural Buildings.*

H. CANNELL and SONS, SWANLEY, KENT.—*Autumn Catalogue of Florists' Flowers, Bulbs, &c.*

J. LAMONT and SONS, 2, HOPE STREET, EDINBURGH.—*Catalogue of Dutch Flowers, Roots, &c.*

EMIL LIEBIG, HANDELS GARTNEREIEIEN, DRESDEN.—*Catalogue of Azaleas, Camellias, Ericas, Roses, &c.*

BARR and SON, 34, KING STREET, COVENT GARDEN.—*Autumn Catalogue of Bulbs and Plants.*

Markets.

COVENT GARDEN.

FRUIT.			
Apples.....	per 4 sieve	3s. 0d.	to 5s. 0d.
Cob Nuts.....	per lb.	0s. 6d.	to 0s. 8d.
Figs.....	per doz.	2s. 0d.	to 4s. 6d.
Grapes.....	per lb.	1s. 0d.	to 2s. 6d.
Lemons.....	per 100	5s. 0d.	to 8s. 0d.
Peaches.....	per doz.	2s. 0d.	to 4s. 0d.
Pears.....	per lb.	1s. 0d.	to 2s. 0d.
Pine-apples, Eng. .	per lb.	3s. 0d.	to 4s. 0d.
Plums.....	per 4 sieve	5s. 0d.	to 7s. 6d.

VEGETABLES.			
Artichokes, Globe, per dz.	3s. 0d.	to	6s. 0d.
Beans, French.....	per lb.	0s. 2d.	to 0s. 4d.
Beet.....	per doz.	1s. 0d.	to 1s. 6d.
Cabbages.....	per lb.	0s. 9d.	to 1s. 6d.
Carrots.....	per bunch	0s. 4d.	to 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d.	to	3s. 0d.
Cucumbers.....	each	0s. 8d.	to 1s. 0d.
Endive.....	per doz.	1s. 0d.	to 1s. 6d.
Garlic.....	per lb.	0s. 10d.	to 1s. 0d.
Herbs.....	per bunch	0s. 2d.	to 0s. 4d.
Horse-radish, per bundle	3s. 0d.	to	4s. 0d.
Lettuces, Cabbage, per dz.	0s. 6d.	to	1s. 6d.
Lettuces, Cos.....	per lb.	0s. 4d.	to 1s. 6d.
Mushrooms.....	per basket	1s. 0d.	to 3s. 0d.
Onions.....	per bushel	0s. 4d.	to 0s. 6d.
Onion Spring.....	per bunch	0s. 4d.	to 0s. 6d.
Parsley.....	per bunch	0s. 4d.	to 0s. 6d.
Radishes.....	per bunch	0s. 1d.	to 0s. 2d.
Small Salading.....	per pun.	0s. 2d.	to 0s. 4d.
Spinach.....	per bushel	2s. 6d.	to 3s. 0d.
Tomatoes.....	per lb.	0s. 6d.	to 1s. 0d.
Turnips.....	per bunch	0s. 4d.	to 0s. 6d.

FLOWERS.			
Abutilons, per doz. blooms	0s. 2d.	to	0s. 4d.
Asters.....	per doz. bun.	2s. 6d.	to 3s. 0d.
Bouvardias.....	per bunch	0s. 9d.	to 1s. 0d.
Chrysanthemums, per doz. bunches	4s. 0d.	to	8s. 0d.
Calceolarias, per doz. bun.	5s. 0d.	to	8s. 0d.
Eucharis.....	per doz.	2s. 6d.	to 6s. 0d.
Fuchsias.....	per doz. bun.	5s. 0d.	to 6s. 0d.
Gardenias, per doz. blooms	2s. 6d.	to	6s. 0d.
Gladioli.....	per doz. bun.	7s. 6d.	to 10s. 0d.
Heliotropiums.....	sprays	0s. 6d.	to 1s. 6d.
Lapagerias, per doz. blms.	1s. 0d.	to	5s. 0d.
Liliums.....	per doz. blooms	2s. 6d.	to 4s. 6d.
Marguerites, per doz. bun.	0s. 6d.	to	1s. 0d.
Mignonette.....	per doz.	3s. 0d.	to 5s. 0d.
Sunflowers, per doz. blms.	1s. 0d.	to	2s. 6d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d.	to	0s. 6d.
Roses.....	per doz.	1s. 0d.	to 2s. 6d.
Roses, Tea.....	per doz.	1s. 0d.	to 1s. 6d.
Stephanotis, per dz. sprays	3s. 0d.	to	6s. 0d.
Sunflower, per dz. blooms	0s. 6d.	to	1s. 0d.
Tropæolum.....	per doz.	1s. 0d.	to 2s. 0d.

POTATO MARKETS.			
BOROUGH AND SPITALFIELDS.			
Kent Regents, per ton	90s. 0d.	to	100s. 0d.
Kidneys.....	100s. 0d.	to	0s. 0d.
Essex Regents.....	80s. 0d.	to	100s. 0d.
„ Magnum Bonums.....	80s. 0d.	to	90s. 0d.

CORN.—MARK LANE.

Wheat, Red, new.....	per qr.	47s. to 44s.
Wheat, White, new.....	per qr.	49s. „ 46s.
Flour, town-made whites, per sack of 280lbs.....		38s. „ 43s.
Flour, households.....		35s. „ 37s.
Flour, country households, best makes.....		35s. „ 37s.
Flour, Norfolk and other seconds		31s. „ 35s.
Barley, Maltling.....	per qr.	35s. „ 41s.
Barley, Grinding.....		24s. „ 30s.
Malt, English.....		32s. „ 42s.
Malt, Scotch.....		35s. „ 42s.
Malt, old.....		28s. „ 35s.
Malt, brown.....		28s. „ 32s.
Oats, English.....		22s. „ 30s.
Oats, Irish.....		22s. „ 30s.
Oats, Scotch.....		22s. „ 30s.
Rye.....		40s. „ 42s.
Beans, English, Mazagan.....		26s. „ 40s.
Beans, Tick.....		30s. „ 41s.
Beans, Winter.....		37s. „ 40s.
Peas, Grey.....		30s. „ 36s.
Peas, Marple.....		42s. „ 40s.
Peas, White.....		40s. „ 41s.

METROPOLITAN MEAT MARKET.

Beef, prime.....	per 8 lbs. 5s. 0d.	to 5s. 4d.
Beef, middling.....	per 8 lbs.	4s. 2d. „ 4s. 6d.
Beef, inferior.....	per 8 lbs.	3s. 4d. „ 3s. 8d.
Mutton, prime.....	per 8 lbs.	6s. 2d. „ 6s. 6d.
Mutton, middling.....	per 8 lbs.	5s. 4d. „ 5s. 8d.
Mutton, inferior.....	per 8 lbs.	4s. 4d. „ 4s. 10d.
Lamb.....	per 8 lbs.	5s. 4d. „ 6s. 8d.
Veal, prime.....	per 8 lbs.	5s. 0d. „ 5s. 4d.
Veal, middling.....	per 8 lbs.	4s. 0d. „ 4s. 4d.
Veal, inferior.....	per 8 lbs.	3s. 4d. „ 3s. 8d.
Pork, prime.....	per 8 lbs.	5s. 0d. „ 5s. 4d.
Pork, middling.....	per 8 lbs.	4s. 4d. „ 4s. 8d.
Pork, inferior.....	per 8 lbs.	3s. 8d. „ 4s. 0d.

HAY MARKET.

WHITECHAPEL.		
Prime Clover.....	per load	100s. to 145s.
Inferior do.	"	60s. " 95s.
Prime Meadow Hay ..	"	100s. " 112s.
Inferior do.	"	50s. " 90s.
Straw	"	30s. " 41s.

COAL MARKET.

East Wylam.....		16s. 6d.
Wallsend—Thornley.....	per ton	18s. 0d.
„ Hetton.....		19s. 0d.
„ Hetton Lyons.....		17s. 0d.
„ Lambton.....		18s. 6d.
„ Wear.....		17s. 0d.
„ Tunstall.....		17s. 0d.
„ Tees.....		17s. 3d.

MONEY MARKET.

Consols.....	99½ to
Reduced 3 per cent.....	98½

Law.

THE PLANTING OF GRAVES IN CEMETERIES.

AN important case illustrative of relative rights and official usages in respect of the entry of gardeners into cemeteries, came before the Lambeth Police Court, on Monday last.

Charles Sparrow, gate-keeper at Nunhead Cemetery, appeared to a summons for having assaulted on the 11th of September Alfred Wyatt, formerly head gardener at the cemetery. Mr. O'Brian appeared for the complainant; and Mr. A. E. Marshall for the defendant. The complainant stated that he was formerly in the service of the London Cemetery Company as head gardener at the Nunhead Cemetery. He was discharged in 1879, and since then had been employed by several persons owning graves to attend to the same by planting flowers and keeping them in order. Several times when he had gone to the cemetery to do his work he had been refused admission. On the 11th inst. he was employed to look to a grave belonging to a Mrs. Dean. He was supplied with a written application, to be presented to the superintendent of the cemetery authorizing him to do such work. Mr. Chance, upon looking at the document in question, pointed out that it stated "please permit bearer." Mr. O'Brian submitted that it was the right of an owner of a grave to employ an agent to perform the work, and he should show, he believed, before the case was concluded that there was a feeling against the complainant. Mr. Chance said he had nothing to do with that; but it was urged on the side of the defendant that there was a right to prevent his doing the work. Mr. Marshall observed that parties had a due right with regard to burial, but then only under certain conditions laid down in the by-laws of the company. The complainant proceeded to say that he presented the application to Mr. Martin, the superintendent, as was usual in such cases, and he said complainant could not be admitted. Complainant insisted on his right to do the work, when Mr. Martin sent for a constable and afterwards directed the defendant to turn complainant out of the cemetery. The defendant then seized him by the arm suddenly and turned him out. Mr. Marshall stated in answer to Mr. Chance that the complainant was dismissed from the service of the company for misconduct, and the directors by a resolution ordered that he should not be admitted to the cemetery. The officials only acted under their order. After considerable discussion the magistrate held that the complainant might be excluded from the cemetery as a gardener, but not as one of the public. He therefore fined the defendant 5s., but on the application of Mr. Marshall consented to grant a case.

STRIPED MARIGOLDS, which are usually denominated "French," obtain considerable attention in the north, and a severer rule of judging them prevails than in the southern counties. Messrs. Stuart and Mein, of Kelso, remind us of the kind of quality required by some samples that are strikingly regular in form and markings.

Sales by Auction.

Stoke Newington, N.—Trade Sale.
MESSRS. PROTHEROE and MORRIS are instructed by Messrs. STROUP and SONS (in order to make room for other stock), to **SELL BY AUCTION**, on the premises, the **LORSHIP PARK NURSERY, GREEN LANE, STOKES NEWINGTON, N.**, on **TUESDAY, SEPTEMBER 26**, at Twelve o'clock, 1,500 *ARALIA SIEBOLDI*, 3,000 *ASPLENIUM BULBIFERUM*, 1,000 *GREVILLEA ROBUSTA*, 500 *DRACENAS*, 500 *PALMS*, in variety; 500 well set *CAMELIAS* and *AZALEAS*, 1 to 4 feet; 500 *YUCCAS*, 2,000 *IVIES*, 3,000 *EUONYMUS*, 3,000 *CLIMBING PLANTS*, and other stock, the whole of which are well established in pots, and worthy the attention of the Trade and other extensive buyers.

May be viewed. Catalogues had on the premises; and of the Auctioneers, 8, New Broad Street, E.C.

Acton, W.—Trade Sale.

MESSRS. PROTHEROE and MORRIS are instructed by Mr. REEVES to **SELL BY AUCTION**, on the premises, the **NURSERY, ACTON**, on **WEDNESDAY** next, **SEPTEMBER 27**, 20,000 *FERNS* in great variety, including 3,000 *Adiantum cuneatum*, *Palms*, *Crotons*, *Ficus* 2 ft. to 3 ft. 6 in., *Specimen Camellias* and *Azaleas*, *Bouvardias*, including the new Double White "Alfred Neuner," and other stock.

May be viewed. Catalogues had on the premises, and of the Auctioneers, 8, New Broad Street, E.C.

Fulham, Sunbury, and Hampton.—By Order of the Executors of Mr. R. A. Osborn, deceased.

MESSRS. PROTHEROE and MORRIS are favoured with instructions to **SELL BY AUCTION**, at the Mart, Tokenhouse Yard, City, E.C., on **THURSDAY, OCTOBER 5** at Two o'clock precisely, the following **PROPERTIES**—

FULHAM.—In One or Two Lots.—An attractive Freehold Building Estate, known as Osborn's Nursery, situate in New King's Road, having frontages of about 2,000 ft. to existing roads, and containing a total area of 44. 0r. 11p.; also the modern detached brick-built residence and seed shop, with conservatory attached; these premises could be utilised for any other business, and notably that of a licensed victualler.

SUNBURY.—The Freehold Property, known as Osborn's Old Nursery, containing an area of 17a. 0r. 11p., together with the goodwill of the nursery and seed business, which was established in the year 1700; there is a detached eight-roomed house, nine newly-erected green-houses fitted and heated upon the most improved principles, ranges of pits, stabling, sheds, and other out-buildings; the property has frontages of 1,100 ft. to two public roads, the greater portion of which is particularly adapted for building purposes, without deteriorating the remainder of the land for carrying on the present business.

HAMPTON.—A compact Freehold Estate, known as Osborn's Nursery, possessing a frontage of 732 ft. to Broad Lane, and containing an area of nearly five acres; it is now cultivated as a nursery, but is also eligible for building.

Particulars and plans of the several estates are now ready, and may be had at two Mart; of Messrs. Walker, Belward, and Whitfield, Solicitors, 5, Southampton Street, Bloomsbury, W.C.; and of the Auctioneers and Surveyors, 8, New Broad Street, E.C., and Leytonstone.

NOTE.—The purchasers will have the option of taking by valuation, within seven days, the whole of the beautifully grown stock in trade, but should they not decide to do so, it will be sold by Auction on the premises, due notice of which will be given.

Leytonstone.—Re P. E. White, in Liquidation.—To Small Capitalists.—In two Lots.

MESSRS. PROTHEROE and MORRIS are instructed to **SELL BY AUCTION**, at the Mart, LONDON, E.C., on **THURSDAY, SEPTEMBER 28**, at Two o'clock, the **BENEFICIAL INTEREST** in the **LEASES** of the commanding Shop in the High Street (which could be used for any other business), and also of the Cottage and Nursery Ground in Temple Street. Held at low rentals. The Stock in Trade, Glass Erections, and Utensils will be included in the purchase of the respective Lots.

Particulars and Conditions of Sale may be had at the Auctioneers' Offices, 8, New Broad Street, E.C.

To the Trade and Private Gentlemen.—Lewisham, S.E.—Important Clearance Sale, in consequence of the land and premises being required by the Local Government Board for the erection of new building.

MESSRS. PROTHEROE and MORRIS will **SELL BY AUCTION**, by order of Mr. J. Biggs, on the premises, **THE NURSERIES, HIGH ROAD, and GEORGE LANE, LEWISHAM**, on **FRIDAY, SEPTEMBER 29**, at Twelve o'clock precisely (in consequence of the large number of lots), without reserve, the **INDOOR STOCK-IN-TRADE**, comprising 50,000 *FERNS*, including 20,000 *Adiantum*, 10,000 *Lomaria gibba*, *Pteris*, Tree and other *Ferns*; 2,000 *Bouvardias*, specimen white *Camellias* and *Azaleas*, *Palms*, *Eriacs*, *Cenizas*, and *Solanums* in large quantities; 200 *Encharis amazzonica*; also the first portion of the Outdoor Nursery Stock, consisting of an assortment of *Evergreens* and *Conifers*, trained *Fruit Trees*, a nearly new plant van, and sundry effects.

May be viewed. Catalogues had on the premises; and of the Auctioneers and Valuers, 8, New Broad Street, E.C., and Leytonstone.

Friday next.—Orchids.

MESSRS. PROTHEROE and MORRIS will **SELL BY AUCTION** at the Mart, Tokenhouse Yard, City, E.C., on **FRIDAY** next, Twelve o'clock, a grand lot of established and semi-established *ORCHIDS* from Mr. W. B. Freeman, Bristol, and 120 lots of established *Orchids* being the entire collection of a private gentleman who is giving up their culture.

Catalogues at the Mart, and 8, New Broad Street, E.C.

The Westbourne Nursery, Harrow Road, N.W.—Annual Sale.

MESSRS. PROTHEROE and MORRIS will **SELL BY AUCTION**, by order of Messrs. WOODROFFE and SONS, on the premises, as above, on **TUESDAY, OCTOBER 3**, at Twelve o'clock, 4,000 *Cenizas*, 2,000 *Bouvardias* (red and white), 1,500 *Chrysanthemums*, 2,000 *Double Primulas*, 1,000 strong *Poinsettias*, 1,000 *Alecasias*, 1,000 *Hydrangeas*, 1,000 *Solanums*, well berried; 300 *Azaleas*, well set; 1,200 *Cyclamen persicum*, a fine strain; *Eucharis amazzonica*, in large 14 in. pots; a variety of *Stove Plants* and other stock.

May be viewed. Catalogues had on the premises, and of the Auctioneers, 8, New Broad Street, E.C., and Leytonstone.

Sales by Auction.

Dutch Bulbs.—Sales every Monday.

MESSRS. PROTHEROE and MORRIS will **SELL BY AUCTION**, at the Mart, Tokenhouse Yard, City, E.C., every **MONDAY**, at Half-past Eleven o'clock precisely, over 800 lots of first-class *HYACINTHS*, *Tulips*, *Crocus*, *Narcissus*, *Snowdrops*, and other *Roots*, from Holland, in lots to suit the Trade and private buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

Hyacinths, *Tulips*, *Crocus*, *Narcissus*, *Iris*, *Scillas*, *Snowdrops*, and other *Flower Roots*, from Holland.

M. R. J. C. STEVENS will **SELL BY AUCTION**, at his GREAT ROOMS, 38, KING STREET, COVENT GARDEN, W.C., every **MONDAY, WEDNESDAY, and SATURDAY**, during **SEPTEMBER**, at Half-past Twelve precisely each day, consignments of *DUTCH BULBS*, arriving weekly from well-known Farms in Holland, in large and small Lots, to suit all buyers.

On view the morning of Sale, and Catalogues had.

The White House Nursery, Park Lane, Tottenham.
MESSRS. NORMAN, SON, and LOWRY will **SELL BY AUCTION**, on the premises as above, on **MONDAY, SEPTEMBER 25**, at One, about 50,000 *Bedding* and other *PLANTS*, including varieties of *Begonias*, *Bouvardias*, *Colons*, *Solanums*, *Chrysanthemums*, *Heliotropes*, *Pelargoniums*, *Fuchsias*, *Calceolarias*, *Gardenias*, *Ferns*, *Ficus*, *Elasticas*, *Rose Trees*, &c., &c.

Three large Greenhouses, 80 ft. by 12 ft. each, about 1,000 ft. of Hot-water Tubing, with Furnaces, and a few lots of Household Furniture.

On view the Saturday prior. Catalogues had on the premises; and of the Auctioneers, 1, Gresham Street, City.

Surrey, near Woking Station.—Hook Heath Nursery.

M. R. H. W. COPUS has received instructions from Mrs. CHAPMAN, who is leaving, to **SELL BY AUCTION**, on **TUESDAY and WEDNESDAY, OCTOBER 3 and 4**, at Eleven for Twelve o'clock precisely, without reserve, the whole of the *STOCK* of the above Nursery.

Catalogues are now ready, and may be had free by post, of the Auctioneer, 16, Friary Street, Guildford, and at Woking Station.

To be Let.

CAPITAL BUILDING SITE (adjoining New Inn Strand, and close to the Royal Courts of Justice) TO BE LET on 80 years' lease, or **FREEHOLD TO BE SOLD**, area 6,000 super. feet; suitable for a variety of purposes, but pre-eminently for law offices and chambers.—For particulars apply to Messrs. EDWIN FOX and BOUSFIELD, 99, Gresham Street, Bank. (12,318)

SPRINGFIELD NURSERY, ST. HELIERS, JERSEY—TO LET on LEASE, that desirable NURSERY, with 350 ft. of glass, part vinery, and heated; with dwelling-house, shop; every convenience; on 1½ acres of ground; stock or part can be taken.

Wanted.

WANTED, in neighbourhood of Sydenham, a strong and willing *LAD* to assist in garden; a previous knowledge of the work indispensable. Address, stating previous situation, wages, &c., to O. P., MORLEY, Stationer, London Road, Forest Hill, S.E.

CUTTINGS WANTED of best *Bedding Geraniums*, as *Vosvius*, *Wonderful*, *Crystal Palace*, *Gem*, *John Gibbons*, *Flower of Spring*, *Mrs. Pollock*.—Address, with price per hundred, to L. L., 36, Waterloo Road, Dublin.

TEXAS, N.S.—Splendid openings for practical *GARDENERS* to take up Land and grow *Fruit* and *Early Vegetables* for the Northern Markets. Small capital required. Send for Map and Pamphlet free.—W. G. KINGSBURY, 41, Fin-bury Pavement, London.

Situations Wanted.

A GARDENER, Scotch, wishes a place where two or three would be under him; can be well recommended: 11 years' experience; age 29; single.—ROBT. MCCORMIE, Batch Wood, St. Albans.

A YOUNG MAN, age 25, single, several years' practical experience in out as well as indoor Gardening, wants *SITUATION* in a private house or by a landscape gardener; good character, and willing to be useful.—A. B., 4, York Terrace, Clapham.

A S GARDENER.—By a steady married Man; age 32; wife could look after poultry; no objection to a Cow; can be generally useful; 16 years' experience; can be well recommended.—Address T. H., Gardener, Baughurst Rectory, Basingstoke, Hants.

A S GARDENER (Head Working) where one, two, or more are kept, and neatness and good order is required; age 36; married; thoroughly practical in all branches; wages moderate; highest references.—C. H. F., 63, Eden Grove, Holloway, N.

A S SECOND in the Houses (or under in a large establishment).—Six years' experience inside and out; age 21.—R. ROBINSON, Sunningdale Nursery, Bagshot.

A S UNDER GARDENER.—Wanted, by a respectable Young Man; age 21, a *SITUATION* where he could improve himself; partly in the Houses; 3½ years' good character; both preferred.—Address, stating particulars, to G. W., 41, St. Albans Road, Watford, Herts.

FOREMAN, in a Gentleman's Garden.—Age 26; single; well recommended.—J. W. Moss, 114, Bridge Street, Leominster, Herefordshire.

GARDENER (Head).—Age 31; two in family; fifteen years' experience in *Plants*, *Grapes*, *Peaches*, *Melons*, *Cucumbers*, *Flower* and *Kitchen Garden*; good references.—JAS. HOWELL, 4, Alpha Cottages, Greenham, Newbury, Berks.

Situations Wanted.

GARDENER (Head, Working).—Age 39; married, no family. W. R. STRONG, who is leaving Mrs. Reid, Kenwold Court, Virginia Water, near Staluoos, is open to an engagement as above.

GARDENER (Head, Working).—Thoroughly trustworthy, energetic, and well-skilled in every department of Gardening; first-class character and references.—A. B., W. H. Smith and Son's Book-stall, Portsmouth.

GARDENER (Head, Working).—Age 40; married; 20 years' experience in all branches of the profession; charge of Land and Stock; wife Poultry or Dairy; excellent testimonials.—WILLIAM FRANKLIN, East Carlton, Norwich.

GARDENER (Head, Working); aged 28; married, one child.—R. PARKER is desirous to obtain a Situation as above; 12 years' experience in good Gardens; reference to Mr. Taylor, Head Gardener, Duncevan, Weybridge; good previous references.—Present address, Duncevan, Weybridge.

GARDENER (Head, Working) seeks *RE-ENGAGEMENT*; married; good practical experience in *ORCHIDS*, *Stove* and *Greenhouse Plants*, early and late *Forcing*, *Vines*, *Pines*, *Melons*, *Cucumbers*, *Flower* and *Kitchen Gardening*, &c.; Land and Stock if required; highly recommended.—E. DUMPER, 24, Warwick Place, Kensington, W.

GARDENER (Head, Working, where two or three are kept).—Married, no family; 25 years' experience; six years' good character; understands forcing grapes and all kinds of fruit and ferns and flowers, and flower kitchen garden; also land and stock; Wife can manage small dairy or take charge of house.—S. P., 95, Watlington Street, Reading, Berks.

GARDENER (Head), or to grow first-class *Fruits* and *Flowers* for market: has had over 20 years' experience in every branch of the profession; well up in *Forcing*, and good *Grape grower*; also *Flower* and *Kitchen Gardener*; married, no family; good reference.—J. D., at H. Rosier's, Ramsbury, Hungerford, Berks.

GARDENER (Head or good Single-handed), by a very respectable married Man; thoroughly understands his profession; takes great interest in his work; suburbs of London preferred; highest references.—GARDENER, 2, Park Villas, Parkfield, Putney.

GARDENER (Head, or good Single-handed).—Age 30; married, one child age seven; thorough practical knowledge of the profession; good character.—J. B., 1, North End Villa, Crayford Road, Erith.

GARDENER (Head or Single-handed).—Age 33; married, no family; has a thorough practical knowledge of his business; good character and references.—Address WOODROOF, 21, Canterbury Terrace, Maida Vale.

GARDENER (Head or Single-handed).—Well up in *Vines*, &c., *Kitchen*, *Fruit*, and *Flower Garden*; age 40; good character; wife good plain Laundrywoman.—H. L., 26, Range Road, Gravesend.

GARDENER (Head or Single-handed).—Married, age 33; understands *Melons*, *Cucumbers*, *Stove* and *Greenhouse Plants*, *Flower* and *Kitchen Garden*, also *Vines*; five years' character.—F. JONES, Newark, Wotton-under-Edge, Gloucestershire.

GARDENER (Second).—Aged 24; nine years' experience; 2½ years' good character.—Please address, stating wages and particulars, to C. OSBORNE, Hartsbourne Manor, Bushey Heath, Herts.

GARDENER (Single-handed or Second).—Age 26; ten years' experience; good character; married.—W. D., 45, Glenhurst Road, Brentford, Middlesex.

GARDENER (Single-handed).—No objection to *Pony and Trap*; understands *Vines* and *Cucumbers*, and the general routine of *Kitchen* and *Flower Garden*; age 20; good character; total abstainer.—J. CASBON, jun., Millfield Nursery, Peterborough.

GARDENER (Single-handed or otherwise).—Well experienced; age 35; married, no family; good references.—Address A. M., 25, Campden Street, Campden Hill, Kensington, W.

GARDENER (Single-handed, or where help is given).—Married, no encumbrance; age 43; *Vines*, *Cucumbers*, *Flower* and *Kitchen Garden*.—Address J. JAVVIS, 17, Foxhill Road, Reading, Berks.

GARDENER (where another is kept).—Age 28; single at present; 14 years' experience in all branches; good characters from present and previous employers.—Apply to A. B. C., Yateley, Farnham, Hants.

GARDENER, under the Foreman, in a Gentleman's establishment.—Age 20; good character; total abstainer; no objection to Outdoors.—GARDENER, 3, Benson Terrace, Busham Manor Road, New Thornton Heath, Croydon.

GARDENER (Under), inside and out of the House.—Young; four years' good character from present employer; both preferred.—G. PROSSER, The Gardens, Portlerry, Cowbridge, Glamorganshire.

HEAD GARDENER, or good *SINGLE-HANDED*; understands *Vines*, *Cucumbers*, *Flower*, *Kitchen Gardens*, &c.; married; age 38; one child; eight years' good character.—S. PARK, Thurston, Winton, Norfolk.

JUST THE MAN YOU WANTED (Abstainer), to take apart or fix complete Hot-water Apparatus; likewise to make on its bed the Horizontal Tubular Boiler, the only Boiler that suits growers for market; good work; low charges.—W. T. HOOK, 7, Victoria Terrace, Elton Road, Norbiton, Surrey.

RICHARD SMITH and CO. beg to announce that they are constantly receiving applications from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—St. John's Nursery, Worcester.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, 40° to 50° F. Chas. Wick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
1	S	17th Sunday after Trinity.	6 1	10 21	5 40	8 10	11 24	4 17	4 39	1 19	1 42	54.7	Aster amellus, n.	Pale Blue.	274
2	M	Cambridge Michaelmas Term begins.	6 3	10 40	5 38	9 5	After.	5 0	5 22	2 3	2 25	54.5	Aster dumosus, n.	White.	275
3	Tu	King's College opened, 1831.	6 5	10 59	5 35	10 5	11 11	5 45	6 10	2 47	3 10	54.3	Bouvardia Hogarth, G.	Scarlet.	276
4	W	(Last Quarter, 2h. 17m. morn.	6 7	11 17	5 32	11 7	1 51	6 37	7 7	3 35	4 2	54.0	Chrysanthemum indicum nanum, n.	Blush.	277
5	Th	Sir Francis Grant died, 1878.	6 9	11 35	5 30	Morn.	2 23	7 40	8 15	4 32	5 5	53.7	Nerine Fothergilli major, G.	Scarlet.	278
6	F	Faith, Virgin and Martyr.	6 10	11 53	5 27	0 13	2 52	9 0	9 45	5 40	6 25	53.4	Sedum spectabile, n.	Pink.	279
7	S	Archbishop Land born, 1573.	6 12	12 10	5 25	1 17	3 15	10 23	10 53	7 10	7 43	53.0	Vallota purpurea, G.	Scarlet.	280

The Gardeners' Magazine.

SATURDAY, SEPTEMBER 30, 1882.

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ADVERTISEMENTS for the current Number should be forwarded, NOT LATER than Wednesday, to W. H. and L. Collingridge, 143 and 149, Aldersgate Street, London, E.C. Trade Advertisements, Sixpence per line; Five lines and under, 2s. 6d.; Front Page, Ninepence per line; per Column, £3; per Page, £9; Situations Wanted, &c., four lines (28 words) and under, One Shilling; and Threepence for every additional seven words. A REMITTANCE should accompany each order, with stamps for a cop (post free, 2d.)

IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

ALL ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES, 143 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Auction Sales for the Ensuing Week.

MONDAY, OCTOBER 2, AT 2 P.M.—Mr. Morgan, at Potter's Nurseries, Sutton, Surrey; Stocks and Vinerias.
TUESDAY, OCTOBER 3, AT 12 NOON.—Messrs. Protheroe and Morris, at the Westbourne Nursery, Harrow Road, N.W.; Indoor Nursery Stock.
THURSDAY, OCTOBER 5, AT 2 P.M.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse Yard, E.C.; Freehold of Osborn's Nurseries.
FRIDAY, OCTOBER 6, AND FOLLOWING DAY, AT 12 NOON.—Messrs. Protheroe and Morris, at Ponsford's Nursery, Brixton; Nursery Stock.

THE NATIONALIZATION OF THE LAND has been much talked of in days gone by, and in the coming winter will probably serve as a theme for many endeavours to create an agitation. There are many reasons for believing that a subject of this kind serves a purpose of usefulness, even if no direct results follow upon its dissection and discussion. Men who are blessed (or cursed, as the case may be) with a reforming spirit and a passion for "progress" must have a "cause" to keep them going, or the accumulation within them of superfluous energies might lead to an explosion of a most dreadful kind. When a vast assemblage gathers in Hyde Park to demand the release from prison of an unfortunate nobleman who has endeavoured to de-nationalize a bit of land and failed in the endeavour, a quite wholesome proceeding is in progress, because the crowd obtains a kind of entertainment it can thoroughly enjoy; and while employed in denouncing tyrants in an *al fresco* way it is thoroughly conscious that a farce is being acted, and that the only practical result will be that everybody concerned in the performance will be the better for it through taking exercise in the fresh air. It is our rule to allow these agitations to run themselves out in their own way, and as a rule they harm nobody and come to nothing, and it would be a foolish restriction of popular pastimes to interfere with them, even if they sometimes occasion a little inconvenience to genteel people.

The proposed Nationalization of the Land will probably take higher ground than the average of agitations should it attain to any definite organization, and it will be well if it is not left wholly in the hands of the class who usually lead in such matters, for it demands for its reasonable treatment more than a fair average of historical and legal knowledge, as well as the instinct of equity and a strong presiding common sense.

There are two distinct modes of procedure in the possible but improbable "Nationalization of the Land." By one course of action we gratify every man's desire to possess a bit of terra firma, and in doing so perhaps render the "bit" worthless, or worse than worthless, because an incumbency and a ground of quarrel, and less adapted to furnish bread to its owner than to provide him with a cheap and too welcome grave. Suppose we sweep out all the present owners, and then cut up the country into lots of such a size that every man who wants a plot may have it on the payment of some small sum for a plan and a few registration fees. It is very easily done on paper, but a community blessed with a remnant of reason would never entertain the proposal to work a change in that whole-

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sale way, because it would in practice prove a greater revolution than was ever heard of before. It may mean any amount of misery, and wrong, and bloodshed; it certainly must mean starvation and death, not to a few, but to the bulk of the community. But there are people who harbour a dream of some such thing, and therefore it is better to recognize than to ignore the notion.

There are two matters to be kept in mind by framers of Utopias. One is that the institutions of the world are products of the potentiality known as Human Nature. The hundred years' agony of France, dating from July 14, 1789, has furnished to the current of history a lesson on this head of such breadth and depth that it is impossible for any one to grasp it suddenly. But it tells of the constancy of human nature as a force amid the inconstant actions by which it is represented. The last great war in which France was beaten to the dust by Germany was as direct a consequence of the destruction of the Bastille as the falling of the bricks and stones a century ago, when the Goddess of Liberty was pleased to paint her face a blood-red colour. Turn out the landlords and create a fresh lot, and the difference will be that you have multiplied the evils you were hoping to cure. The other fact to be borne in remembrance is that a policy of levelling down is inevitably demoralizing. We are perpetually levelling down in Ireland, and one result is that the pauperized peasant levels down in his own peculiar way those who would administer the affairs of the country in a wise and humane manner. The Utopians differ from the Practicals in this, that they put their own dreams in place of the facts of history and human nature. Say that kings, princes, dukes, and bishops are excrescences and ought to be abolished; what then? For the next democratic movement we shall want leaders, shouters, and pot-whollapers, and really we cannot get on without them. The leaders that have the sanction of ages may properly claim, and will probably secure, a fuller and more lasting regard than those that rise with the froth and need sifting, and washing, and sorting, that we may well distinguish between the pure patriots—for in truth there are such—and the fishy fishermen who are ever looking around to see what they can catch, whether to swell their bellies, or their pockets, or their pride.

But there is a rational way of advocating the Nationalization of the Land. It must be founded on broad views of public policy, and be guided by the teachings of history. It is not difficult to imagine, however hard it may be to realize, a state in which private ownership of land is by law and usage rendered impossible. It is quite a pity that we cannot find a state so circumstanced as to serve for an example, for human nature seems to have determined, from the very beginning of the world, that land may be made property like a flint implement or a half-brick that may be "shied" at the first disturber of our delightful dream. But we repeat that it is possible to imagine a state in which private ownership of land is impossible. In such a state there ought to be complete happiness, for the sufficient reason that, as taxation and representation should go together, according to the modern doctrine, so state ownership of land should supersede taxation altogether! The state should be the landlord, and the rent of the land should supply all the needs of the state and render taxation unnecessary, superfluous, ridiculous, in fact, a "blunder and a crime." What a glorious consummation, and what a pity we cannot accomplish it by a stroke of the pen. But we are weighed down by the mighty web of social, political, and tribal institutions that have been carefully cultivated from the very beginnings of human society, and so the reasonableness of the idea is in a great degree discounted by facts. However, such a view of the subject is legitimate, and if we turn to the practical side we see, in the possible conversion of the idea into a fact, a work in which the wisest and the best may take an honourable part.

When we regard the Nationalization of the Land from this last point of view we find ourselves on a very different platform to that provided by agitators hitherto. It is larger as to space; it is more liberal in spirit; it has philosophy in its favour, even if—as is the fact—all history and usage are against it. But this view of the question is at least worth discussing, and may serve for intellectual recreation, while perhaps tending to nothing higher. At all events, if ever the Nationalization of the Land is carried out honourably, peaceably, tenderly, and defended from the damage of dreams, it will demand a sacrifice of many millions of money, and the devotion to it of the highest intellectual and moral powers, not for years only, but

perhaps for centuries. Let us suppose an impossibility to be achieved. We have agreed on a plan, and foresee clearly how the whole of the private property in land may be transferred to the state, and the means are found to compensate the owners. It would require a hundred years at least to carry the proposal into effect; and, considering the complex nature of our interests and institutions, it would be a greater work than the emancipation of the serfs in Russia, which is even now far from completed. There is a bad and a good way of considering how the land may be "nationalized," and we should like to see the good way obtain the preference by those who are disposed to find amusement in the discussion of the subject.

LIVERPOOL CHRYSANTHEMUM AND FRUIT EXHIBITION will be held in St. George's Hall on November 21 and 22.

BRIXTON HILL CHRYSANTHEMUM SOCIETY will hold its annual exhibition on Thursday, November 9, and following day.

THE DAIRY SHOW at the Agricultural Hall, Islington, will open on Tuesday next, October 3, and continue to the end of the week.

MR. ALGERNON CLARKE, formerly secretary to the Central Chamber of Agriculture, has just become editor of *Bell's Weekly Messenger*.

MR. E. J. LLOYD, F.C.S., of the Royal Agricultural Society of England, will, during the winter months, give a course of lectures at King's College, London, on agriculture. The first lecture will be delivered on the 12th inst.

A NOTE ON HORTICULTURE IN ITALY, by M. Joly, has been reprinted from the Journal of the Central Society of Horticulture of Paris. It contains many interesting particulars of the rural industries of Italy, and of the societies representing the interests of the field and the garden.

BOROUGH OF LAMBETH CHRYSANTHEMUM SOCIETY.—The annual exhibition of this enterprising society will be held in the Lecture Hall, Borough Road, on Monday, November 13, and two following days, and, owing to the increase in the number of growing members, a very successful gathering is anticipated.

AMERICAN TREES.—The American Museum of Natural History in New York has received from Mr. Morris K. Jessup the necessary funds for making a full collection of the 420 varieties of trees which grow in the United States. Upwards of 375 of these specimens have already been received.

NEW USE FOR RED CABBAGE.—A firm of Austrian manufacturing chemists is now employing *cauline*, the colouring principle of red cabbage, as a base for a whole series of dye-stuffs—ultramarine and peacock blues, light and bronze greens, purples and crimsons. The new dyes are highly praised in some Continental technical journals for their effectiveness and the ease and simplicity with which they can be applied to any material whatever.

THE PLANTING OF POTATOES IN AUTUMN is not in favour with potato growers generally, but doubtless there is something to be said in its favour, although in many instances it has failed completely. Very much, we suspect, depends on the character of the winter following the planting. Last winter was so mild that potatoes were safe even if covered by the merest film of soil. A correspondent who signs "J. Hythe, Southampton," thus records his experience in a letter that appeared in the *Times* of Saturday last: "Your report on the Potato Exhibition just reminds me that the subject of autumn sowing might again be ventilated in your columns to the advantage of the nation. Last autumn, seeing some letters in the *Times* on this subject, I made a small trial and planted 57 roots the first week in November. Last week we dug them and weighed 106 lb. of fine 'Magnum Bonums.' There were very few small ones. My other potatoes, spring sown, are not to be compared with the autumn sown, and nobody in my neighbourhood has such an excellent crop. Certainly my experiment has been very small and the last winter all in their favour. Still, I record the facts as above with the desire, with your help, to obtain the experience of others."

OUR FOOD SUPPLIES were treated in a novel manner in a paper read in the Social Science Congress by Dr. Charles R. Drysdale, who said the main problem of human beings was, how to get the amount of food required by the wants of the organism. Adducing many statistics, he urged that Europe was importing at present one-twelfth of her food, and would soon import one-sixth of it. One thing was clear, that the Continent in future could send us no meat, but would, on the contrary, be a competitor with us for meat supplied from other hemispheres. Our monthly consumption of meat was about one million of sheep already, and 1,000 inhabitants were daily added to the population of the islands; so that it was indeed a dismal look-out for all those who objected to the inhabitants of Europe becoming, like the Chinese and Hindoos, vegetarians. Great Britain consumed more meat per head (109 lb. per head annually) than any other European nation, and her unceasing activity and energy required that this kind of easily-digested albumen should be used by her people. Italy, again, consumed only 18 lb. of meat per person per annum, and was sunk in lethargy and superstition. France and Germany consumed more than any other Continental nation except Belgium. Meat was becoming dearer year by year, and so were milk and other dairy products. Beef was 2d. a pound dearer in 1882 than in 1881 at Smithfield, and in Germany the poorer classes were quite unable to get any of it. But the death-rate was very much higher among ill-fed nations and classes than among the well-fed, and in this country the mean age at death among the rich was 55, while among the poor it was not 30.

CONSERVATORY AND STOVE CLIMBERS.

NOT so very long since a correspondent of the GARDENERS' MAGAZINE complained of the common and inferior conservatory climbers being too largely employed to the exclusion of the choicer kinds. This complaint was met by a second correspondent with the assertion that the gardeners had been wronged by the suggestion that the selection of climbing plants is not always what it should be. I do not wish to hurt the feelings of any one, but with the first of the two correspondents I must say that climbing plants suitable for the embellishment of the conservatory and stove are not so well understood as could be wished. We very often, for example, see the roof covered with the commonest of subjects, whilst the choicer kinds are grown on stages underneath with their roots confined to pots, and their growth trained to trellises so small in size that they have no chance whatever of showing their true character. The practice is so general of growing bougainvilleas, rhynchospermums, clerodendrons, and allamandas in pots that it might almost be described as invariable. To grow them otherwise than in a cramped condition, both as regards root and top, is in some cases impracticable. But in so many instances is the opportunity for clothing the pillars and roof with the above-mentioned and other equally good subjects not taken advantage of that it is impossible to avoid the conclusion that climbing plants are not in many quarters properly appreciated. With reference to the allamandas, it must assuredly be said that it is a very rare occurrence indeed to see them under conditions favourable to the production of the effect they are so well able to produce. The usual practice is to have them with their shoots trained to a trellis about three feet in height, and two feet in diameter, and if they bear a score or so of flowers they are described as splendid examples of cultural skill. Such specimens, even with double the number of flowers mentioned, afford no idea of the splendour of the allamanda where its roots are in a good border, and the shoots have space for their full development. It would indeed be safe to go further and say that a man might grow them all his life and not know an allamanda. The other day I saw at Newbattle Abbey, Dalkeith, the seat of the Marquis of Lothian, the allamanda grown as it should be. In the centre of the principal range of houses, in which there are fine crops of grapes, there is a large span-roof structure, so placed that it breaks the straight line formed by the other houses, and affords accommodation to stove plants of large growth. In the house, which is about 25 feet high, are numerous specimens of a most meritorious character with several large palms reaching nearly to the top. Planted in a border on one side is a specimen of Allamandi Hendersoni, which now covers a large proportion of the roof space, and is allowed to grow naturally, for it appears not to have any more training than is necessary for the support and distribution of the main branches. The young shoots are allowed to grow in the wildest profusion, and when I was at Newbattle they were bearing such an immense number of flowers that four or five hundred of the magnificent clusters might have been cut without detracting much from the splendour of the display. I was assured that from an early date in the summer until well into the autumn the flowers were produced in the greatest profusion, and this was not difficult to believe. The pruning is, I believe, limited to cutting the shoots of the previous year back to within one or two buds of the base, the growth during the summer being allowed to grow unchecked. There are two plants in the house, but one is as yet comparatively small, and the reference is made to the larger specimen. In a cool house in the same gardens the tacsonias and passion flowers, if not so startling as the allamanda, were not less satisfactory, and showed that Mr. Preist, the able gardener, is as skilful in the cultivation of climbing plants as he is in other phases of garden practice. The bougainvilleas and clerodendrons appear to greater advantage in pots than the allamandas, but they are by no means so effective as when planted out and their shoots allowed to ramble over a large space. In the magnificent conservatory at Sundridge Park Bougainvillea glabra and Clerodendron Balfouriana are trained to the pillars, and have now attained a height of over twenty feet, and are well furnished throughout. When I saw them in the early part of the current year they were most densely flowered, each having as much bloom as fifty pot specimens. In the same structure Mr. Lyon has the old Begonia fuchsioides trained to the pillars, some of the specimens being twenty-five feet high, a yard or so through, and producing in the course of the year many thousands of the coral-red flowers. At Gunton Park, Norwich, also climbers have justice done them, and in the conservatory is a specimen of Bougainvillea glabra, from which at the time I saw it might have been cut a good cart-load of flowers without by any means stripping it. Lapagerias are also grown unusually well by Mr. Allan, who has charge of Lord Suffield's fine gardens. G. G.

"THE BIRTH OF THE FLOWERS."—"R. F. C." asks what is the legend connected with the subject of this picture of mine at Burlington House. This is my answer to the query. I feign that the earth was a great cinder until Love alighted on it; that then water began to flow, clouds to float, and flowers to blow; and, as a detail for my picture, that Love brought with him from heaven a branch of the Tree of Life, and of that branch he fashioned his bow, the cuttings therefrom turning to flowers at his feet, "The Birth of the Flowers." My original title, "Cupid shaping his Bow, the Slivers turning to Flowers at his Feet," is possibly a better title, more explanatory. I suppose I may call the idea that the flowers were born of the shapings of Love's bow original on my part—as original as it is possible for any idea to be occurring to any one who is, in Tennyson's phrase, "the heir of all the ages."—GEO. McCulloch, in *Notes and Queries*.

THE HORNERS' COMPANY'S EXHIBITION.—The Horners' Company are to hold at the Mansion House, in the third week of next month, an exhibition of articles manufactured in horn. The exhibition will embrace ancient as well as modern manufactures. The Horners' Company have received offers of articles for exhibition from various States and cities of Germany, from Her Majesty, who will send some specimens from Windsor; and from the South Kensington and Bethnal Green Museums, as well as from Lord Garvagh, Lord Campbell, and several private owners. Prizes to the extent of about £60 will be given for the best specimens of manufactured industry in horn. No doubt the comparatively limited nature of this branch of trade in England is the result of the great reduction which has taken place in the price of glass, owing mainly to the removal of the duty on it; but the publication of the notice of this intended exhibition has brought to light the fact that the manufacture of horn is still carried on extensively both in this country and in Germany. Lanterns or lanterns have been superseded by lamps; but for the handles of knives, forks, umbrellas, &c., no material is more excellent; and it is suggested that one result of the exhibition may be to revive among the rising generations those "horn books," out of which our great grandfathers and great grandmothers learnt not only their alphabets, but the first elements of religion.

SURE-BEARING FRUITS.

APPLES.

ALFRISTON, K.—A highly-esteemed variety, in perfection from November to April; fruits are large and of the finest quality. A productive and constant variety, specially suited for the southern and western districts.

BESS POOL, K. D.—A good apple, useful for the table and the kitchen, in season from November to March; fruits of medium size, tender fleshed and richly flavoured; generally fruitful, and of special value for the southern and western districts.

BLENNHEIM ORANGE, K. D.—A most valuable variety, in season from the end of the autumn until the spring following; fruits large, handsome, and of excellent quality. Fruitful in all but very unfavourable seasons, and well suited for nearly all districts in England and for the south of Scotland.

BOSTON RUSSER, D.—An excellent variety, in season from Christmas to the end of March; fruits of medium size and the finest quality. Productive even in unfavourable seasons, and, taking all points into consideration, the most valuable of its class.

BRADDICK'S NONPAREIL, D.—A small dessert variety of excellent quality, ripe during December and the three following months, and productive in all but the most unfavourable years.

CELLINI, K. D.—A very excellent apple, valuable both for the kitchen and the dessert, and in season during the autumn months; fruits medium sized, roundish, handsome, and with a tender briskly-flavoured flesh. It invariably produces heavy crops, and is especially good on warm soils.

COCKLE PIPPIN, D.—A good variety, in season from December to April; fruits of medium size and richly flavoured. A free-bearing variety.

COCKPIT, K.—A useful variety, in season from September to December; the fruits are of medium size, and the quality is good. It is very popular in Yorkshire and other of the northern counties, in which good crops are invariably obtained.

COURT PENDU PLAT, D.—An excellent variety of good appearance; fruits of medium size and good quality; a good bearer, but hardly so productive as Fearn's Pippin, which it resembles in appearance and surpasses in quality.

COURT OF WICK, D.—An excellent dessert apple, available for the table from November to the end of March; fruits small and of splendid quality; free bearing and constant, and not particular as to locality.

COX'S ORANGE PIPPIN, D.—A handsome and valuable apple, in season from October to the beginning of March; fruits of medium size, tender fleshed and highly flavoured; productive and fairly constant.

COX'S POMONA, K.—A good October apple; fruits large, handsome, and remarkable for their splendid colour; generally productive and valuable for all but the northern counties.

DEVONSHIRE QUARRENDEN, D.—A highly-coloured apple of excellent quality, in perfection during August; the most useful variety of its season in the south and west, bearing abundantly and seldom missing.

DUCHESS OF OLDENBURGH, D.—An excellent apple, of medium size and good flavour, attaining maturity in September; generally very productive.

DUTCH MIGNONNE, K. D.—A most desirable apple, in proper condition for the table from December to April; fruits of medium size, handsome, and highly flavoured; it is one of the most productive of the dessert apples, seldom failing to produce a good crop.

ECHLINVILLE SEEDLING, K.—A most excellent apple, in use from October to December; fruits large, of good appearance, and excellent in quality. It appears to thrive in all parts of the United Kingdom, and to be specially valuable in the north and in Ireland. It is a heavy cropper, and produces good supplies in seasons so unfavourable as this.

FEARN'S PIPPIN, D. K.—A useful variety, both for the kitchen and dessert, in season from November to February; fruits of medium size, and although hard-fleshed of good quality. Very fruitful, seldom failing to bear a good crop.

HANWELL SOURING, K.—A hardy and productive variety, at its best during the winter season; the fruits are round, very heavy, and of excellent quality; generally fruitful, and of much value for the North.

HAWTHORNDEN, K.—A large and handsome variety, in season from September to the end of January. It is excellent in quality, seldom fails to bear heavy crops, and is especially good in the midland and the northern counties.

HEREFORDSHIRE PEARMAN, K. D.—A good variety, in use from October to March; fruits large and the quality excellent, both for the table and kitchen. A fine apple for the western counties, usually bearing good crops in unfavourable seasons.

IRISH PEACH, D.—A useful summer apple, handsome in appearance and of good quality. It is not particular as to soil or locality, but appears to be of special value in the west of England and in Ireland.

JOANNETING, D.—A useful dessert apple, ripening in July and August; of good quality, and especially useful in the eastern counties.

KEDDLETON PIPPIN, D.—A useful little apple, in season during the first three months of the year. Productive in all but very unfavourable seasons, when it usually produces fairly good crops.

KENTISH FILLBASKET, K.—A high-class variety, in season during November and the two following months; fruits large and of excellent quality; very productive, and of much value for the east, south, and west of England.

KERRY PIPPIN, D.—A useful apple, in season during September and October; fruits of medium size and richly flavoured. A heavy cropper, seldom missing, even in unfavourable years.

KESWICK CODLIN, K.—A good variety, available for use from August to October, but at its best from the middle of August to the end of September; fruits large, conical, and of good quality; valuable for the northern counties.

KING OF THE PIPPINS, D.—An invaluable variety, available for the table from October to March; fruits of medium size, very handsome, and of splendid quality. One of the most productive of varieties in all seasons, and not particular as to soil or locality, although it does best in the midland, south, and western counties.

LORD SUFFIELD, K.—A large conical fruit of excellent quality, in season during August and September. One of the most generally productive of all the kitchen apples, and equally adapted to all parts of the United Kingdom, and the most valuable of all the early apples of its class.

MANX'S CODLIN, K.—A useful variety in season from August to November; fruits of medium size, conical, and of good quality. Free bearing in all seasons, and not particular as to soil or situation.

MARGIL, D.—A useful dessert apple of small size and richly flavoured, available for the table from November to March.

NEW HAWTHORNDEN, K.—A very excellent apple, differing from the old type in the tree having a stronger constitution and the fruit from its greater

solidity keeping longer. It is one of the finest culinary apples for the north of England and for Scotland generally.

NORTHERN GREENING, K.—An excellent apple, in season from the end of October to April; fruits of medium size, very solid, and of splendid quality; a strong growing and heavy cropping variety, usually productive in bad seasons; one of the most valuable for the North.

PRINCE ALBERT, K.—A comparatively new and excellent variety, in use throughout the winter season; fruits large, handsome, and of good quality. A productive and constant variety.

RIBSTON PIPPIN, D.—One of the most highly flavoured of all the apples, and in season from October to May; fruits are rather large and of the finest quality; not very particular as to locality, but appears to be at home in the Herefordshire orchards.

SCARLET NONPAREIL, D.—An excellent variety, in use from December to March; fruits of medium size and richly flavoured. It is not very particular as to soil or situation; generally fruitful, and the most productive of its section.

STIRLING CASTLE, K.—An excellent apple attaining maturity in August; fruits large, and of the finest quality. A heavy and constant bearer, and of immense value for the northern counties of England and throughout Scotland.

STONE APPLE, K.—A remarkably fine culinary variety, in use during the winter; fruits large, handsome, and of fine quality; very productive, seldom failing to produce a good crop. Highly esteemed by the Kentish growers.

TOWER OF GLAMIS, K.—A valuable variety, in use from the end of October to the beginning of March; fruits large, conical, and of high-class quality. Very fruitful, seldom failing to produce a good crop in the most unfavourable years. It is particularly valuable in the northern counties and throughout Scotland, where it is highly esteemed by those acquainted with it.

WARNER'S KING, K.—A most desirable variety; fruits large and of excellent quality. Productive and fairly constant, and of much value in the midland counties.

WELLINGTON, K.—A most valuable variety, in use throughout the winter; fruits large, and handsome and of the finest quality for cooking. Usually very productive, and so poor a crop as is reported this season is a very rare occurrence.

WINTER PEARMAN, K. D.—A fine variety, in season from November to the end of March; fruits large, handsome, and fairly flavoured, generally productive and valuable for the southern, western, and midland counties.

WORCESTER PEARMAN, K. D.—A recently introduced variety of great merit; fruits of medium size, conical, and of a brilliant crimson colour and excellent flavour. It appears to do particularly well in Kent and Worcestershire, and to be rapidly acquiring popularity for market purposes.

YELLOW INGESTRIE, D.—A small apple in use during October, and remarkable for its productiveness, usually bearing good crops in seasons of scarcity.

YORKSHIRE GREENING, K.—A valuable apple in use from October to February; fruit, large, roundish, and of the first quality. Productive in the most unfavourable seasons, and particularly useful for planting in the north of England and in Scotland.

APRICOTS.

HEMSKERE, K.—An excellent variety ripening at the end of July.

MOOR PARK, K.—A fine variety, ripening at the end of August. A free and constant bearer, but liable to lose its branches from premature decay, particularly on hot dry soils in the south of England.

MUSCH MUSCH, K.—A capital variety, attaining maturity at the end of July.

ROYAL, K.—An excellent apricot, available for use early in August.

ROYAL ORANGE, K.—A medium-sized well-flavoured fruit, in season about the middle of August.

SHIPLEY'S, K.—A large and handsome variety, ripe about the end of July; second rate in quality, but productive and constant.

CHERRIES.

BIGARREAU, D.—A good cherry, ripe in July. Generally productive, and not particular as to locality.

BIGARREAU NAPOLEON, D.—An excellent August variety; the fruits large, handsome, and of excellent quality; very productive, and of much value in all districts.

BLACK TARTARIAN, D.—A fine variety, ripening at end of June or early in July, according to locality; fruits very handsome and of excellent quality. One of the most valuable cherries for the north of England and for Scotland.

FROGMORE EARLY BIGARREAU, D.—A remarkably good variety, ripe in June, and of excellent quality. It is a heavy bearing and fairly constant variety, and thrives in the north.

EARLY RIVERS, D.—A rather new and valuable variety, ripening in July. The fruit is large, quite black, very handsome, and of the finest quality. It has the merit of being very productive and not being particular as to locality.

GOVERNOR WOOD, D.—A fine light red cherry of large size, splendid quality, and handsome appearance. It is a very heavy and constant bearer, and succeeds in all parts of the country.

KENTISH, K.—A medium-sized cherry of much excellence for culinary purposes during July.

MAY DUKE, D.—One of the most valuable of cherries, ripening at the end of June or the beginning of July; the fruits are large, of good appearance, and excellent quality. Productive and fairly constant.

MORELLO, K.—An exceedingly valuable variety, ripening in August and September; the fruits are large, handsome, and of splendid quality for all culinary purposes. Very productive, seldom missing, and equally adapted for the north and south.

NECTARINES.

ELRUGE, K.—A valuable variety ripening in August and September, and well known for its handsome appearance, high quality, and productiveness.

HARDWICKE SEEDLING, K.—A mid-season variety of great excellence, but not wanted in a very small collection.

LORD NAPIER, K.—A very valuable nectarine, attaining maturity early in August; very large in size, of the most delicious flavour, and remarkably productive. It should have a place in the smallest garden in which these fruits are grown.

PITMASTON ORANGE, K.—A large and richly-coloured nectarine, attaining maturity at the end of August. It is of capital flavour, and a good and constant bearer.

PINEAPPLE, K.—An excellent variety, ripening in the early part of September; the fruits are large, handsome, and of good quality.

VICTORIA.—A large and excellent noctarine, attaining maturity towards the end of September. A productive variety, but only suitable for the southern and western districts.

PEACHES.

ALEXANDER.—A very fine variety, ripening at the end of July and the beginning of August; the fruits are large, richly coloured, and highly flavoured.

BELLE GARDE.—A large, handsome, richly flavoured, and productive variety, in season in August and September.

HALE'S EARLY.—An early variety of great excellence, ripening fully a week before the Early York, and productive.

EARLY GROSSE MIGNONNE.—A fine variety, not less valuable for its large size and handsome appearance than for its high-class quality and productiveness.

GROSSE MIGNONNE.—A large and very excellent variety, ripening early in September, and forming a fine succession to the Early Grosse Mignonne.

NOBLESSE.—A handsome, highly flavoured, and generally productive variety; not so constant as a few other varieties, and does best in warm situations.

EARLY LOUISE.—A useful peach of medium size and good quality, and ripening about the middle of July.

ROYAL GEORGE.—One of the most valuable peaches grown, attaining maturity in August and September, of excellent quality, and invariably productive.

WALBURTON ADMIRABLE.—A useful late variety, ripening in September and October. It is a good bearer, and of excellent quality for so late in the season, but requires a warm situation.

PEARS.

ALTHORP CRASSANE, D.—A useful pear, in season during October and the following months; fruits of medium size, and richly flavoured.

AUTUMN BERGAMOT, D.—A valuable variety, attaining maturity in October; fruits rather small, but delicious in flavour; very productive, and its hardy constitution renders it of much value for the northern districts.

BEURRE D'AMANLIS, D.—An excellent September pear; the fruits large and of excellent quality; a hardy and productive variety in no way particular as to locality, and therefore valuable for cold districts in which the tender varieties do not thrive.

BEURRE DE CAPIAUMONT, D.—A valuable variety, at its best in October; fruits above medium size and rich in flavour; hardy and productive, seldom missing, and well suited for northern districts.

BEURRE DIEL, D.—One of the most valuable pears of its season, which is during October and November; fruits are large, handsome, and of splendid quality. Although it appears to have generally failed this year, it is usually very productive. It does well as a pyramid or standard throughout the eastern, southern, and western counties, and, with the aid of a wall, is one of the finest pears in the north.

BEURRE HARDY, D.—A useful variety, producing fruits of large size and excellent quality, and available for the table during October.

BEURRE RANCE, D.—One of the most valuable of the late varieties, ripening from February to May; fruits above medium size and richly flavoured. A productive variety, although not so constant as some of the fruitful early kinds. In the south, east, and west it can be grown as a pyramidal or standard, but in the north it must be afforded the shelter of a wall.

CHAUMONTEL, D.—A meritorious variety, available for the table from November till March; fruits large and delicious in flavour, generally fruitful, and of special value in the western counties.

COMTE DE LAMY, D.—An excellent pear, attaining maturity in October; fruits of medium size of high-class quality; a very productive variety, succeeding well in the north.

DOYENNE DU COMICE, D.—A fine pear ripening in October and November; fruits large and richly flavoured, highly productive in most seasons, and of especial value in the west.

DUCHESSE D'ANGOULÊME, D.—A useful pear, ripening in October and November; fruits large, and on warm deep soils rich in flavour; on cold and on very shallow soils it is gritty in the flesh and unsatisfactory. It is very productive, and well suited for culture in the western counties.

EASTER BEURRE, D.—A valuable variety, attaining maturity from January to March; fruits large, and of excellent quality. Not so constant in bearing as many of the early varieties, and requires a wall, but it is so useful in sending to table during the first three months of the year that it can have the highest recommendation.

GANSEL'S BERGAMOT, D.—A useful old pear, ripening in October and November; fruits of medium size and excellent quality; generally productive and in the southern and western districts can be most successfully cultivated as a pyramid and standard.

GLOU MORCEAU, D.—A most valuable variety, attaining maturity during December and January; fruits large, handsome, and deliciously flavoured. Very fruitful, and well suited for cultivation throughout the country.

HACON'S INCOMPARABLE, D.—A desirable variety, available for the table from November to January; fruits of medium size and splendid quality. Very productive, and not particular as to district.

JARGONELLE, D.—The finest of the August pears, both as regards productiveness and quality, and not less valuable for the northern counties than for warmer districts.

JOSEPHINE DE MALINES, D.—A most valuable variety, in season from February to the end of April; fruits of medium size and delicious flavour; generally productive, and well adapted for culture in the North.

KNIGHT'S MONARCH, D.—An excellent pear, ripening in December and January; fruits of medium size and good quality. Productive, generally constant, and valuable for culture in the North.

LOUISE BONNE OF JERSEY, D.—One of the most valuable of October pears; the fruits are of medium size and excellent quality, and the tree is a heavy and constant bearer. It is suitable for any part of the United Kingdom, and of much value for the northern districts.

MARIE LOUISE, D.—An excellent variety, attaining maturity during October and November; fruits large, and very rich in flavour. A free bearing and constant variety, suitable for all but bleak localities.

NE PLUS MEURIS, D.—A valuable pear, in season from January till March; fruits small, but delicious in flavour. A fruitful variety, suitable for all but the most northern districts.

PASSE COLMAR, D.—A pear of much value, available for the table during November and December; fruits small, and of high quality. A productive and constant variety in all districts; but in the north it requires a wall.

PITMASTON DUCHESSE D'ANGOULÊME, D.—A very fine variety, in perfection during October; fruits very large and of the finest quality. Generally productive, and well suited for culture in the south and west in the open quarters and against a wall, and in the north against a wall.

WILLIAMS'S BON CHRETIEN, D.—One of the most valuable pears grown for use during August and the early part of September, according to locality; fruits large and of excellent quality. A very heavy bearer seldom missing a good crop; even in so unfavourable a year as this good crops are reported from all districts.

WINTER NELIS, D.—A useful variety ripening in November and December; fruits small, and of the most delicious flavour; not so productive or constant as some of the other kinds enumerated, but it is a fairly good bearer and well deserves a place in a select collection.

ZÉPHIRIN GRÉGOIRE.—An excellent variety, as yet not generally grown; the fruits are of medium size, of the finest quality, and ripe in November and December.

PLUMS.

BELGIAN PURPLE, K.—A valuable variety, attaining maturity in August. It is hardy, an abundant and constant bearer, and of good quality.

BELLE DE SEPTEMBRE, K.—A good plum, ripening from September to October. Productive, generally constant, and of excellent quality.

COE'S GOLDEN DROP, D.—A most valuable dessert plum, attaining maturity during September. It is not very particular as to locality, provided it can have the shelter of a wall. Good crops are generally produced. The fruits are large and handsome, and of the most delicious flavour; they in fact become perfect sweetmeats if allowed to remain on the trees or in the fruit room until they shrivel.

GOLIATH, K. D.—A useful variety of good appearance, ripening in September. Excellent for cooking and preserving, but too coarse and acid to be considered otherwise than third-rate for the dessert.

GREEN GAGE, K. D.—One of the most valuable of August plums. Invariably productive, and quite unsurpassed in quality, both for culinary purposes and for the dessert. Even in such a year of scarcity, of this good crops were obtained in all parts of the United Kingdom.

JEFFERSON, D.—A valuable yellow plum, in use during September; fruits are large, handsome, and of the most delicious flavour. It is very fruitful, and fairly constant.

KIRKE'S, D.—A valuable purple plum, attaining maturity in September; fruits large, handsome, and highly flavoured. A good cropper in all but the most unfavourable seasons, and not very particular as to locality.

MAGNUM BONUM, K.—The red and white varieties are two of the finest plums for cooking and preserving we have, and they are generally productive, although not so consistent as some others.

ORLEANS, K.—A well-known and deservedly popular plum, ripening in August; fruits rather small and highly flavoured. Very productive, and so constant as not often to miss a crop.

PRINCE ENGLEBERT, K.—A large, handsome, and heavy cropping variety, in season during September. It seldom misses a crop, and is of the highest quality for preserving and culinary purposes generally.

PRINCE OF WALES, K.—A most excellent variety, ripe in September. The fruit is abundantly produced, and of good quality, but the tree is liable to premature decay, and does not succeed in many districts in Kent.

RIVERS'S EARLY PROLIFIC, D.—One of the most valuable of early plums; the fruits are rather small, but of good quality, and the tree is a heavy and constant bearer, seldom failing to produce a good crop.

THE CZAR, K.—An excellent early plum of comparatively recent introduction, in season at the end of July and the beginning of August; fruits very large and of excellent quality. It is a heavy and constant bearer, and should be planted extensively.

VICTORIA, K.—The most valuable of all the September culinary plums, and where there is room for one tree only this variety should be selected. It is unsurpassed in productiveness, very seldom failing to produce a heavy crop.

WINESOUR, K.—A September plum useful in the northern counties, but not of much value in the south or west.

A VIGOROUS MUSHROOM.—The enormous power of cell growth was strikingly illustrated a short time since in a grain elevator at Buffalo, N.Y. The asphalt flooring was over a foot thick, in two layers. The upper layer was seven inches thick, laid hot, rolled down, and thoroughly cooled four years ago. Below was an old floor of tar and gravel, six inches thick. A curious bulge in the floor was first noticed, covering about a square foot. In six hours the floor was burst open, and a perfectly-formed mushroom, with a stem two inches through and a very wide cap, made its appearance. Elsewhere the floor is smooth and unbroken.

PLUME MOTHS.—I have not seen in any entomological work any attempt to explain the well-known characteristic of the wings of Plume-moths (*Pterophori*). They depart so thoroughly from the rest of the Lepidoptera, in having their wings cleft into so-called feathery "plumes" (although retaining the microscopic scales characteristic of the order), that we may be certain so marked a type has been developed down definite lines and for some specific reason. One species (*Agdestes Bennetii*) may be regarded as the first stage in the differentiation of the insect, and from this species we have successive modifications in the number of plumes, up to *Alucita polydactyle*, in which the number is no fewer than twenty. I have thought this peculiarity may be due to mimicry, the object mimicked being the down or pappi of thistles and other composite plants. The course of the plume-moth is displayed best, perhaps, by the Large White Plume-Moth, and entomologists are acquainted with its peculiar drifting mode of flight, exactly resembling that of a thistle plume borne along by the wind. The other day I followed what I took to be a drifting thistle-plume, for the sake of seeing to what species it belonged, and found that it was a species of this moth, so closely do the two objects resemble each other when in motion. If the object of the plume-moth is to mimic the pappi of winged seeds, we may imagine why these insects do not fold the wings when at rest, but seem to display them to the utmost instead. The fact that (according to Stainton) out of twenty species of plume-moths the larvae of which have their food-plants stated, no fewer than ten feed on composite plants, or plants having winged seeds, indicates that the resemblance of the winged insect to the pappi must also be a protection to the females in depositing their eggs on plants that produce down, as well as during flight. It would be interesting to compare different kinds of thistle-down with the plumes of the moths that appear to mimic them.—J. E. TAYLOR, in *Nature*.

Exhibitions and Meetings.

WARWICKSHIRE AGRICULTURAL AND HORTICULTURAL SHOWS, SEPTEMBER 19 AND 20.

ON the above dates the Warwickshire Agricultural Association held its annual exhibition of cattle, horses, sheep, pigs, bees, honey, cheese, butter, and agricultural implements on the racecourse, Warwick. To enhance the character and attractiveness of the gathering a carefully-prepared schedule of prizes for horticultural products was distributed far and wide, the bulk of the ninety-one classes being open to all comers. As the result the productions of the garden staged for prizes or otherwise were sufficient to fill eight good sized marquees. Extensive preparations had been made, the racecourse had been enclosed, and the inhabitants of the district had been hoping for a most successful meeting, and it seemed almost a pity that, after the efforts put forth to ensure two days of healthful and instructive pleasure, to find the vast undertaking more or less spoiled by a thirty-six hours' rain. The ancient and quiet town of Warwick possesses but few holidays, save the spring and autumn races. She has no whirl of machinery like Birmingham to distract her attention, nor giddy whirlpool of fashion like her volatile neighbour Leamington, her most exciting occasions being market or race days and the annual crop. Being inseparably connected with agricultural pursuits and interests, the inhabitants did their utmost to welcome in the heartiest manner those who should do honour to pay a visit to their old town; and in passing from the railway station to the show ground it might have been noticed that the poorest of the cottagers in Friars Street spent much labour in helping to swell the street decorations which were so profuse on every hand, and were so soon to hang limp and saturated. Tuesday morning opened with a heavy fog, which lifted toward mid-day, only to be succeeded by a drizzle which continued till Wednesday afternoon. The attendance was of course very much affected by the weather, yet despite all untoward circumstances the receipts were only £130 less than last year.

STOVE AND GREENHOUSE PLANTS.—Here, in the class for a collection of ten, Mr. James Cypher, Queen's Road Nursery, Cheltenham, held his own with a splendid group of large healthy specimens of *Croton majesticum*, *C. Johannis*, *Cycas revoluta*, *Thrinax elegans*, *Kentia Fosteriana*, *Anthurium Scherzerianum*, *Stephanotis floribunda*, *Erica verticillata coccinea*, *Clerodendron Balfouriana*, and *Erica Marnockiana*. The second prize was awarded to Mr. Albert Parkes, Bosworth Hall Gardens, Rugby, for capital examples of *Seaforthia elegans*, *Vallota purpurea* (carrying 120 blooms), *Allamanda Hendersoni*, *A. grandiflora*, *A. nobilis*, *Statice imbricata*, *Phoenix reclinata*, *Yucca aloifolia variegata*, and *Dracena indivisa*; Mrs. Nelson, Crackley, Kenilworth (gardener, Mr. John Hardy), was awarded the third prize for neat well-grown plants, including *Lapageria rosea*, *L. alba*, *Latania borbonica*, *Pandanus Veitchii*, *Bougainvillea glabra*, *Seaforthia elegans*, *Vinca oculata*, *Croton interruptum*, *Statice Holfordi*, and *Dicksonia antarctica*; seven collections were staged in this class. For six plants in flower the post of honour was accorded to Mr. Albert Parkes, who put up profusely bloomed specimens of *Allamanda Hendersoni* and *A. nobilis*, *Vallota purpurea*, *Clerodendron fallax*, *Bougainvillea glabra*, and *Statice Butcheri*; Mr. F. Perkins, 37, Regent Street, Leamington, second, with a very meritorious group, embracing *Allamanda Hendersoni*, *Ixora Williamsi*, *Statice Butcheri*, *Bougainvillea glabra*, *Dipladenia amabilis*, and *Cassia corymbosa*. Mrs. Nelson also staged a group which merited a prize, and embraced very neat specimens of *Statice Butcheri*, *Allamanda Chelsoni*, *Dipladenia amabilis*, and *D. boliviensis*, *Vinca alba*, and *Abutilon Boule de Neige*.

FINE FOLIAGE PLANTS were good throughout. In the class for six Mr. J. Cypher took the lead with immense examples of *Croton majesticum*, *Thrinax elegans*, *Dasylyrin acrotrichum*, *Cycas revoluta*, *Cordylina indivisa*, and *Croton Disraeli*. The second prize was awarded to Mr. H. Wilkins, gardener to G. H. Nelson, The Lawn, Warwick, for *Pandanus Veitchii*, *Cycas revoluta*, *Alocasia metallica*, *Corypha australis*, *Maranta zebrina*, and *Latania borbonica*; four groups were staged. Coleus were represented by about seven collections of six plants each. The premier award was made in favour of Mr. John Coysh, gardener to E. Wood, Esq., Newbold Revel, Rugby, with well-coloured examples of *Ethel Baxter*, *Butterfly*, Mrs. W. Sheraff, Pompadour, Mrs. George Simpson, and a seedling with leaves of a chocolate colour edged with golden-green; Messrs. E. and J. Perkins second, with *Amazement*, E. G. Henderson, James Barnshaw, *Harlequin*, Dr. Hursfield, and *Royal Purple*.

EXOTIC FERNS were largely shown, the prizes falling to Messrs. H. Wilkins and A. Parkes, for large, fresh specimens of well-known varieties. The prizes offered for

GROUPS OF PLANTS ARRANGED FOR EFFECT, as in a conservatory, brought out five competitors, who displayed much skill in their collections. Mr. F. Perkins, first; Mr. J. Coysh, second; and Messrs. E. and J. Perkins, Leamington Nursery, third.

FUCHSIAS AND ZONAL PELARGONIUMS were fair, the best group of double zonals coming from Mrs. Nelson, Kenilworth. The varieties were Mme. Thibaut, Mme. A. Battet, Louis Bouchard, Mme. Lemoine, Wonderful, and Guillion Mangelli.

BEGONIAS made a fine feature, Messrs. E. and J. Perkins scoring a first with brilliantly coloured plants of *Volcano*, crimson; Wonder, lemon; Admiral Seymour, flaming scarlet; *Carminata*, flesh; and *Weltoniensis*.

DOUBLE PETUNIAS were limited to a well grown group from E. J. Lewes-Boulbec, Esq., Leamington, who staged President Morren, Etendard, Mme. Morren, M. A. Lohia, H. Stanley, and Comtesse de Montrun.

BASKETS OF PLANTS were staged in large numbers, the bulk being arranged with considerable effect. The winners of the prizes were Mr. Charles Finch, gardener to W. R. Mann, Esq., Lillington Avenue, Leamington; Mr. John Coysh; and Mr. Charles Wilson, Saltisford, Warwick. Lord Leigh, Stoneleigh Abbey, contributed a fine basket, not for competition.

PLANTS FOR DINNER TABLE DECORATION were staged in profusion, no less than ten exhibitors contributing half a dozen examples each, comprising charming examples of *crotons*, *dracenas*, *aralias*, *arecas*, *cocos*, *adiantum*, *panax*, *panicums*, and *pandanads*. Messrs. Jones and Sons, Coton Hill Nursery, Shrewsbury, first, and Mr. J. Coysh, second.

ROSES.—In the classes for twenty-four and twelve varieties Mr. F. Perkins took the "cards" for large well-finished blooms of Charles Lefebvre, Mdle. E. Verdier, Duke of Edinburgh, John Hopper, La France, Dupuy Jamain, Alfred Colomb, Princess Beatrice, Beauty of Waltham, Elie Morel, Dr. Andry, Auguste Rigotard, Maurice Bernardin, Thomas Mills, Countess of Rosebery, Bouquet d'Or, Baron Gonnella, Captain Christy, Star of Waltham, Mme. Lambard, Sénateur Vaisse, Royal Standard, Mons. Fournier, Paul Jamain, Baroness

Rothschild, and Marie Baumann. Mr. John Mattock, New Headington, Oxford, pressed very close for first place in both classes; his selection included a glorious lot of fresh flowers of Mdle. Marie Rady, La France, Etienne Levot, Mme. Thérèse Levot, Jean Liabaud, Captain Christy, Ferdinand des Lessesps, Dupuy Jamain, Comtesse de Serenye, Alfred Colomb, Catherine Mermet, Maurice Bernardin, Pierre Notting, Niphotos, Dovienné Lamy, Marie Van Houtte, Comtesse d'Oxford, Pierre Carot, Souv. d'un Ami, Auguste Rigotard, Julius Finger, Mme. V. Verdier, Mme. Welch, and Mons. E. Y. Teas. Mr. Mattock was also awarded a "special first" for six varieties of teas, eight blooms of each. This box was well deserving the honour conferred on it, as the blooms were splendidly clean and the colours bright; the varieties were Anna Olivier, Mme. Lambard, Niphotos, Catherine Mermet, Souv. d'Elise Vardon, and Marie Van Houtte; in addition, he put up about 100 buds of tea-scented varieties in bunches. Next to the roses were the

DAHLIAS.—These formed a long bank of colour; the quality of the blooms was good, although in a few stands the flowers were irregular in size. The best twenty-four came from Mr. W. Burbury, Crewe Farm, Kenilworth, who had grand examples of Mrs. Stancombe, Rival, Henry Walton, James O'Brien, Mrs. Harris, Prince Bismarck, Henry Bond, Herbert Turner, George Barnes, J. C. Quennell, Mrs. Geo. Harris, Shirley Hibberd, Constancy, William Rawlings, Emily Edwards, Burgundy, Flora Wyatt, Ovid, Thomas White, Lady Gladys Herbert, Triumphant, and Mrs. Read; Mr. C. Kimberley Stoke Nursery, Coventry, second with bright but smaller blooms of Mrs. Harris, W. H. Williams, Duke of Connaught, Mrs. Stancombe, Rev. J. Godday, Emily Edwards, Flora Wyatt, Countess of Lonsdale, Modesty, Lady Wimborne, Cremorne, W. P. Laird, Adelaide, Hon. R. Wyndham, W. Rawlings, Revival, James Cocker, Ethel Britton, Rosy Morn, Prince of Denmark, Mrs. Dodds, Mr. Compton, and General Roberts. For twelve, Mr. W. Butterworth, carpet-weaver, Greenhill, Kidderminster, was first with Rev. J. Godday, Vice-President, Prince Bismarck, Mrs. Harris, Harry Walton, Duke of Connaught, Acme of Perfection, W. Rawlings, Michael Saunders, Hebe, Mrs. Geo. Harris, and Lady Golightly; Mr. W. Burbury second, with much the same varieties as in the previous class. For fancies, Mr. Burbury put up for first place Mrs. Saunders, Hercules, Beauty, Grand Sultan, Chorister, Hugh Austin, Monarch, Lady Alington, Laura Haslam, Mrs. N. Halls, and Florence Stark; Mr. Butterworth second, with Hugh Austin, Egyptian Prince, Grand Sultan, John Lamont, Charles Wyatt, Flora Wyatt, Oracle, George Barnes, Prospero, Mons. Chauviere, and Rev. J. B. Camm. Mr. Burbury also staged a nice collection of bedding and pomponne varieties, the best being Guiding Star, Northern Light, Little Mabel, Dame Blanche, Sunshine, Jewess, Little Herman, Little Willie, Voltaire, Triumph, Fair Ellen, Golden Canary, Nemesis, Seraph, Capt. Webb, Catherine Falkmann, Dr. Ranch, Perfection of Lilliputs, Miss Nivokon, Little Dear, and Little Bobby. Single Dahlias were well staged by Mr. John Mattock, who put up very effectively arranged bunches of this popular section in about sixteen colours; Mr. F. Perkins was second in this class.

ZONAL GERANIUMS in triplet trusses were very well done. Mr. W. Burbury first, and Mr. J. Mattock second. Mr. F. Perkins staged fifty trusses in triplets of new flaming-scarlet geranium Sir Garnet Wolseley.

BUTTON-HOLE BOUQUETS in sets of six were staged by ten competitors; the premier exhibit came from Messrs. Jones and Sons, Shrewsbury; Mr. Mattock, Headington, Oxon, second; a special prize being awarded to Mr. James Cypher. Hand Bouquets in pairs (bridegroom's and bride's) were a splendid display; Messrs. Perkins and Sons, Coventry, first; Mr. F. Perkins, second.

EPERGNE OR VASE OF FLOWERS for dinner-table was a large class, some twelve or fourteen exhibits being staged. The best two were from J. D. Barbour, Esq., Hilden, Milverton, Leamington; and Mr. James Cypher, Cheltenham. For three pieces the cards went to Messrs. Jones and Sons and E. and J. Perkins; four competed. One tent was devoted to tables dressed as for dinner for twelve persons; no less than seven sets were arranged on tables measuring sixteen feet by four feet. The tent was covered with tarpaulin, and duplex lamps were introduced ere the judges entered on their duties. The premier award (£5) was made in favour of Mr. F. Perkins, whose arrangement was somewhat overdone with pansies; for ourselves we preferred the second prize (£3) table of Mr. Cypher, whose centrepiece was very fine, and had his vases been transferred to Mr. Perkins's table nothing would have been more complete. The third prize went to Messrs. Jones and Sons, and the fourth to Mr. John Coysh; Mr. W. Cooke, High Street, Warwick, fifth.

FRUIT occupied a large space, and very noticeable were the collections. The premier dessert set came from Mr. John Masterton, gardener to Sir G. R. Phillips, Bart., Weston House, Shipton-on-Stour, who presented grand dishes of Black Hamburg, Madresfield Court, Alicante, Foster's Seedling, Muscat of Alexandria grapes; Late Admirable, Walbrton Admirable, and Barrington peaches; Pitmaston Orange nectarines, Transparent Gage and Pershore plums, Keen's Seedling strawberries, Moorpark apricots, Warrington gooseberries, Red Grape currants, Hero of Lockinge and Weston Hybrid melons, Williams's Bon Chrétien and Hessel pears, Brown Turkey figs, Kerry Pippin and Quarrenden apples, and Morello cherries; J. D. Barbour, Esq., second with Black Hamburg and Golden Hamburg grapes, two smooth Cayenne pines, Noblesse and Barrington peaches, Turkey figs, Williams's Bon Chrétien pears, Read's Scarlet-flesh melon, Quarrenden and Lord Suffield apples, and Jefferson plums; the third card going to Mr. Albert Parkes. In this division G. F. Muntz, Esq., Umberslade (gardener, Mr. Pritchard), sent, not for competition, some grand Queen pines and massive bunches of Muscat Hamburg, Muscat of Alexandria, and Black Hamburg grapes, altogether a superb exhibit. In the classes for white grapes Mr. John Masterton was placed first for very heavy Muscat of Alexandria; while in the corresponding class for blacks Mr. A. Parkes took the card. Peaches were large and in plenty, Admirable, Royal George, and Bellegarde being the winning dishes; nectarines were fewer, being limited to Pineapple and Pitmaston Orange kinds. Of plums many excellent dishes were staged embracing Pond's Seedling, Goliath, Jefferson, Magnum Bonum, and Transparent Gage. Pears were a large show, Bon Chrétien and Beurré d'Amanlis taking the cards. Apples were abundant, kitchen kinds predominating; the varieties largely exhibited were Warner's King, Keswick Codlin, Bedfordshire Foundling, Lord Suffield, Hollandsburgh, Stirling Castle, Cellini, and Tower of Glammis; while dessert included the popular Worcester Pearmain, Quarrenden, Lemon Pippin, Wyken Pippin, Ribston Pippin.

VEGETABLE PRODUCTS filled two large tents. These were in profusion and of good quality, especially noticeable being the cauliflowers, carrots, onions, and potatoes. Of the latter a large number of handsome dishes were staged in competition. In the gardeners' class for six dishes, eight tubers each, Mr. Albert Parkes, Bosworth Hall gardens, took the card with large, well-shaped, and bright examples of Beauty of Hebron, Grampian, Vicar of Laleham, Wormleighton Seedling, Henderson's Prolific, and Trophy; Mr. William

Shepherd, gardener to Rev. G. A. Wright, Overslade, second, with Vicar of Laleham, Magnum Bonum, International, Beauty of Hebron, Grampian, and King Noble; Mr. William Burbury, Crewe Farm, Kenilworth, receiving a high commendation for a very level lot, including Sutton's Fortyfold, Sutton's Prizetaker, Schoolmaster, White Elephant, International, and Queen of the Valley. The next best set contained Vicar of Laleham, Beauty of Hebron, Pride of Ontario, Grampian, Schoolmaster, and Penn's Bountiful. The other varieties staged in this class were Centennial, Webb's Surprise, King of the Flukes, Breco's Prolific, Bresee's Peerless, Manhattan, Hundredfold Fluke, Sandringham Kidney, and Snowflake. In the classes for single dishes, for kidneys—first, Mr. Manuel Elliott, gardener to Miss Percy, Guy's Cliffe, with International; the second card going to Albert Parkes for a fine dish of Snowflake; for rounds—first, Mr. Henry Hallett, gardener to J. Margetts, Esq., Warwick, with Schoolmaster; the second prize falling to a dish of Vicar of Laleham, staged by Mr. William Shepherd, Overslade; Mr. W. Burbury, Crewe Farm, highly commended with Queen of the Valley. Tomatoes were fine in the dishes, but the plants in competition for the prizes offered by Mrs. Lewos-Boulton, Westrock, Leamington, were not particularly attractive, as the fruits were irregular in size; the first prize was awarded to four plants grown by Mr. Charles Finch, gardener to W. R. Mann, Esq., Leamington, with Sutton's Large Red, Abundance, and Royal Cluster.

MISCELLANEOUS EXHIBITS included a fine display of Rousham Park Hero onions from Mr. H. Deverell, seedsman, Banbury; twelve bulbs weighed 15½ lbs., and had an average girth of 16½ inches; a collection of Coniferae from Mr. Willis, nurseryman, Leamington; stands of cut Begonias from Messrs. J. Laing and Co., Forest Hill, London; specimens of Adiantum Irwini from Messrs. Raper and Irwin; Mr. J. Smith, Stratford-on-Avon, making a large display with his imperishable plant labels.

The judging was entrusted to Messrs. J. Laing, Forest Hill; J. H. Goodacre, Elvaston Castle, Derby; and Mr. W. Miller, of Coombe Abbey Gardens, in the principal classes; the vegetables by Messrs. Bedard, gardener to Lord Leigh, and J. Mattock; the amateur and cottagers' classes falling to Messrs. Slade, gardener to the Marquis of Hertford, and Pritchard, gardener to G. F. Muntz, Esq., Umberslade; a trio of local ladies adjudging the dinner-table decorations. The arrangements were altogether good, and bespoke praise to the well-organized committee, whose efforts in staging had been largely supplemented by voluntary helpers. The honorary secretary is Mr. Lloyd Evans, of Warwick, formerly honorary secretary at Evesham.

Oxford.

WILLIAM GREENAWAY.

BRIGHTON AND SUSSEX HORTICULTURAL SOCIETY.

The thirtieth autumn show of this society was recently held in the Brighton Pavilion and Grounds, and it was certainly the finest exhibition of its season that has been held in Brighton for many years. This was due partly to the liberal prizes offered, and partly to the change in the plan of arranging the various exhibits. There was an endeavour to encourage groups of plants of various kinds, such as ferns, fuchsias, coleus, and begonias, and for the purpose of effect and filling up there is no doubt that the groups are most useful. You make sure of quantity, but whether you have quality at all times is another matter; but I am happy to record the fact that in the present instance there was quality and quantity combined. I very much doubt whether there have been any groups this season that would rival the plants set up on this occasion, the result being a perfect success in every way. The prizes offered for the groups were liberal in the extreme; for instance, the best group of ferns occupying a space of two hundred square feet had a silver cup awarded it of the value of ten guineas. There was a grand display of cut roses from Messrs. Paul and Sons, and of cut dahlias from Messrs. Keynes and Co., of Salisbury, which carried all before them. The collections of cut flowers were also superb, as were the phloxes and gladioli from Mr. Balchin. The general collections of stove and greenhouse plants formed a fine feature, as they usually do at Brighton. The zonal pelargoniums were quite up to the mark, and the fuchsias much better than usual; but on the other hand the coleus were indifferent.

PLANTS.—The principal exhibitors for the Railway Cup, value ten pounds, were Mr. Wm. Balchin, nurseryman, of Brighton; Mr. Warren, of Handcross Park (gardener, Mr. Rann); and Mr. E. Meachin, gardener to C. Armstrong, Esq., Woodsley, Withdean, the prizes being awarded as the names are here given. Mr. Balchin, who won the cup, set up four plants in bloom, fresh and nicely flowered; four huge fine-foliaged plants, and four magnificent ferns, well developed and of the richest green in colour. Mr. Warren was a good second with plants well grown and in the best condition. Mr. Meachin's collection was well done, but the plants lacked the size of the other collections, and on that account only were they outdistanced. The groups of plants I have already referred to. The first prize for ferns was well won by Mr. J. McBean, Cookshridge. This collection carried the Ashbury Cup with it, and well it deserved it, for the most consummate taste was exercised in the arrangement, and although the principal subjects used were adiantums the general effect was charming. The second prize went to Mr. Miles, of the West Brighton Nursery; the third to Mr. Wm. Balchin. There were two "extras" and they were awarded to Mr. E. Spary, of Brighton, and to Mr. Vincent, gardener to Mr. Hart, of Keymer. I may add that all the collections were arranged around the sides of the large tent on the grass, the foliage and other large plants being arranged in the central part of the tent, and as no staging was employed the effect in the large tent was very good. In the other collections of plants set up in groups Mr. Balchin was first in the miscellaneous group in or out of bloom; Mr. Miles a good second. For groups of fuchsias, Mr. Trangman, gardener to Alderman Davy, was first with the best grown and flowered lot of fuchsias I have seen in Brighton for some years; Mr. Meachin and Mr. Fluck following in the order of their names. For the group of begonias, which contained well done plants of both the ordinary and the tuberous-rooted kinds, Mr. Pannett, of Chertsey, was well to the front with some capital plants. Collections were sent in by the Rev. A. Thomas, of Rottingdean, and others. Double flowered zonal pelargoniums were staged in grand condition by Mr. Wm. Balchin, most of whose plants were quite four feet across and beautifully bloomed. Single and variegated polargoniums were well staged by Messrs. Townsend, Meachin, and Spottiswoode. In the amateur classes the names of Messrs. Trangman again appear for fuchsias, and Mr. Fluck for balsams; and in the general collections Messrs. Townsend, Meachin, Turner, Head, Vincent, Spottiswoode, Margetts, and Huggett's names stand out very prominently in connection with collections of plants that reflected great honour on them and their various exhibits.

CUT FLOWERS, as already mentioned, were very fine; in fact, they were never shown in finer condition than on the present occasion, for the collections from all the exhibitors were really magnificent. The competition, it will be readily understood, was very spirited. Mr. Balchin was first for twenty-four varieties of cut stove and greenhouse flowers, and it was the general opinion of those present that a finer lot had never before been staged in Brighton, and this is saying a great deal, for cut blooms of stove and greenhouse plants are at all times one of the principal features of the show. Mr. Gilbert, of Hastings, was a good second, and Mr. W. Archer a capital third; while Mr. Morse, of Epsom, was awarded an extra, which he richly deserved. Dahlias were remarkably well staged by Messrs. J. Keynes and Co., of Salisbury, who were first for forty-eight and twenty-four dissimilar blooms. Mr. Wm. Seale, of Vine Nursery, Sevenoaks, was second in each of the classes, and Messrs. Paul and Son third; but it was in cut roses that Messrs. Paul and Son, of Cheshunt, were to shine, for here in the class of forty-eight varieties, three trusses, they came out splendidly with blooms that were large in size and splendid in colouring. The Cheshunt firm was first also for twelve teas or noisettes. Messrs. Mitchell and Son, of Piltown, Uckfield, were second in the forty-eight with blooms, set up in very good condition, but wanting the size and finish presented by the first prize lot; Mr. Wm. Virgo a good third with some fine blooms. For twenty-four varieties, three trusses of each, Mr. Wm. Balchin was first with some capital blooms, and Mr. Seale a good third; in the other classes the names of Messrs. Slaughter, King, and Spinks were among the prizetakers. Asters were staged in large quantities, but they were rather below the standard in quality, owing to the unfavourable character of the season. Phloxes were magnificent, and gladioli from Mr. Balchin grand; the other cut blooms only moderate. Messrs. Keynes and Co. were awarded First Class Certificates for *Magnificent*, *Condor*, *Senator*, and *Hope* dahlias, but inasmuch as they have been described in the pages of the GARDENERS' MAGAZINE, I will content myself with adding that each of them will be a great acquisition to dahlia growers.

WREATHS AND BRIDAL BOUQUETS were models of excellence, so very tastefully formed and arranged were they. Bouquets were staged in great numbers, and were a source of delight to the fair visitors. The first prize for one bridal and one ball-room bouquet was won by Mr. H. H. Moore, of Chichester, Mr. Balchin being a close second; and for one ball-room bouquet only Mr. Bishop was first. Some tasteful examples also were sent in by Mr. Miles, Mr. Brown, and Mr. Rushby. The three best wreaths came from Messrs. Brown, Richmond; Mr. Balchin, and Mr. H. Moore, the prizes being awarded in the order of their names; an "extra" in this class was awarded to Mr. Miles. The arrangement in this class was tasteful in the highest degree, and left little to be desired. Table decorations were, as usual, very good, and lightness and general gracefulness was the rule; in fact, there was not a stuffy stand in the room. Mr. Seale first, Mr. W. Miles second, Mr. Chend third.

FRUIT was very well staged, but, taking it altogether, it was not up to the standard of former years. The collections from Mr. C. Goldsmith, gardener to Mr. Lambert, were the best; the grapes were very nicely coloured and fine, the apples very large and by far the best that I have met with before this season. Peaches and nectarines were good, especially those from Messrs. Biggs and Hyde. Pineapples were very poorly represented; the only one of note was staged by Mr. Bates.

THE MISCELLANEOUS CLASS was well filled. There was a grand lot of cut begonias from Messrs. Laing and Co., of Forest Hill; vines in pots from Mr. Jenner; dress sprays from Mr. Seale; mulberries from Mr. Shepherd; dahlias (single) from Mr. Balchin; some vegetables, including twenty-eight dishes of potatoes, from Messrs. Gillard and Ford.

The first day was very fine and the attendance very good. The second day was not so fine, for in the morning the neighbourhood was visited by a thunder-storm, which made the lawn and the grounds rather uncomfortable; but in the afternoon it cleared up, and visitors had an opportunity of inspecting the show. The best thanks of all concerned are due to the committee and Mr. Carpenter, the energetic secretary, who endeavours at all times to make all pleasant for both exhibitors and judges.

JOHN BURLEY, F.R.H.S., &c.

Hereford Road Nursery, Bayswater, W.

NORTHAMPTONSHIRE HORTICULTURAL SOCIETY, SEPTEMBER 21 AND 22.

The newly-formed Northamptonshire Horticultural Society held its first exhibition on the above-mentioned dates, and the results were such as to afford every encouragement for the promoters to persevere in the work in which they have been engaged. The exhibition was held on the Northampton race-course, near to the show of the Northamptonshire Agricultural Society, which also held its annual gathering on the dates given; and so severe was the competition for the majority of the prizes, and so liberally were the miscellaneous collections contributed, that some ten or twelve spacious tents were required for the accommodation of the large array of horticultural produce brought forward. Stove and greenhouse plants formed a grand feature, cut flowers were plentiful, and good fruit was rather limited in quantity but of splendid quality, and of vegetables there was an immense and highly meritorious display. The arrangements, it may be observed, were of the most satisfactory character, and would have done credit to a society that has been in existence a quarter of a century, and the various members of the executive cannot well be too highly complimented on the admirable manner in which their respective duties were carried out. The society was fortunate in having favourable weather, and the attendance of visitors was very large.

STOVE AND GREENHOUSE PLANTS in bloom, and remarkable for the beauty of their foliage, were contributed in large numbers and in a condition that left but little to be desired. In the great open class for twelve stove and greenhouse plants the competition was very keen, and the premier award was made in favour of Mr. J. Cypher, Cheltenham, whose collection consisted of specimens of the highest merit. Mr. J. Day, gardener to A. Seymour, Esq., Norton Hall, was second with an excellent group, and Mr. Parker, Victoria Nursery, Rugby, was third. In the open class for a group of plants arranged for effect, the first place was occupied by Mr. Parker with an arrangement showing much taste; Messrs. Ball and Co., Bedford Road Nurseries, Northampton, second. The gardeners' class for ten stove and greenhouse plants was well filled, and Mr. J. Day, who occupied the post of honour, had splendid specimens of *Eucharis amazonica*, *Vinca rosea*, *Clorodendron Balfouriana*, and other well-known subjects. Mr. Holland and Mr. Farr, Fawcely, second and third respectively, with collections that did them

great credit. The collections of ornamental-leaved plants were good throughout, and in the open class Mr. J. Cypher, Mr. W. Farr, and Mr. Holland were the prizetakers in the order of their names; and in the corresponding class for gardeners Mr. George Hillburn, Mr. Thomas, gardener to Lord Overstone, and Mr. G. Fairbrother were first, second, and third respectively. Mr. Holland was first for fifty miscellaneous plants, and also for plants suitable for the decoration of the dinner-table. Mr. Farr and Mr. Fairbrother also exhibited well in the last-mentioned of the two classes. Caladiums were admirably represented by collections from Mr. J. Day and Mr. T. Garfirth, and the free-growing and attractive colours were staged in capital condition by Mr. J. Day, Mr. Thomas, and the Rev. A. C. Hamilton, Chadstone Rectory.

FERNS were staged in sufficient numbers to form a distinct and pleasing feature. The finest collections in the open class were contributed by Mr. J. Parker and Mr. W. Farr, and in the class set apart for gardeners the most successful exhibitors were Mr. G. Hillburn, Mr. Holland, and Mr. J. Day.

SOFT-WOODED PLANTS IN BLOOM were on the whole well represented. For fuchsias Mr. W. Gardiner, gardener to Sir H. Wake, Courteen Hall, was first with capital specimens, and Mr. G. Hillburn and Mr. W. Holland were second and third respectively. Double zonal pelargoniums were well shown by Mr. J. Abrahams, Mr. G. Fairbrother, and Mr. T. Garfirth, and single zonals by Mr. Cumberpatch, Mr. Garfirth, and Mr. Abrahams, who were the prizetakers in the respective classes. Cockscombs were admirably shown by Mr. T. Garfirth.

CUT FLOWERS, including roses, dahlias, asters, and miscellaneous subjects, were much above the average, and contributed their full share to the attractions of the exhibition. The first prizes for twenty-four and twelve roses were taken by Mr. F. Perkins, Leamington, with good stands of blooms, and in the first of the two classes Mr. T. Burrows, Kingsthorpe, was second, and in the other the second place was occupied by Mr. J. Parker. There was a close contest in the open class for twenty-four dahlias, and in the result the prizes were awarded to Mr. W. Thornycroft, Mr. T. Burrows, and Messrs. Ball and Co., in the order of their names; Mr. W. Thornycroft and Mr. T. Burrows were also the two most successful of the exhibitors of asters which, as at other places this season, were considerably below the average. In the several classes for cut flowers in which the competition was limited to gardeners the chief prizes were awarded to Mr. J. Day, Mr. G. Oram, Mr. F. Beard, Mr. Thomas, Mr. W. Gardiner and Mr. J. Abrahams.

TABLE DECORATIONS AND BOUQUETS were unusually good. For a decorated dinner table nine feet by five feet Mr. J. Parker was first with a very light and exceedingly elegant arrangement, and Mr. Cypher a close second with a table rich in colour and somewhat overdone; Messrs. W. Ball and Co. third. Bouquets were very tastefully arranged, and in the open class Mr. F. Perkins was first, Mr. J. Cypher second, and Mr. Burrows third; and in the corresponding class for gardeners the awards were made in favour of Mr. E. Cole, gardener to Earl Spencer, Althorp Park, Northampton, Mr. J. Day, and Mr. G. Fairbrother.

FRUIT was hardly so plentiful as might have been expected, but the quality was good throughout. The first prize for a collection was awarded to Mr. J. Day for an excellent assortment. The prizetakers in the grape classes were Mr. E. Cole, Mr. Thomas, Mr. J. Day, and Mr. Garfirth. Good melons came from Mr. E. Simmons and Mr. G. Fairbrother; peaches from Mr. Thomas and Mr. W. Chapman; pears from the exhibitor last mentioned and Mr. Thomas; and apples from Mr. G. Fairbrother, Mr. Thomas, and Mr. George Brearley.

VEGETABLES were shown in immense quantities, and in a condition that did honour to the exhibitors. For a collection of twelve kinds Mr. J. Day and the Rev. A. C. Hamilton were first and second, and in the class for eight kinds Mr. S. Allen and Mr. G. Oram secured the two principal awards. The classes for single dishes of round and kidney potatoes, cauliflowers, onions, and celery, were all well filled, and the leading prizes were taken by the exhibitors who were the most successful in the divisions for plants, cut flowers, and fruits.

The judges were Mr. W. Cole, Feltham; Mr. T. Baines, Southgate; Mr. Page, Naseby; Mr. Mattheson, Addington Manor; Mr. Wells, Moulton Grange; and Mr. Smith, Dingley Hall.

POTATOES AT THE NORTHAMPTON EXHIBITION.

The competition for the prizes offered for potatoes at the recent exhibition of the Northampton Horticultural Society was very spirited, and the numerous collections and dishes formed a very important feature in the several tents devoted to vegetables.

In the "open" class for three dishes, coloured kidney, Mr. J. Day was placed first for Trophy, Brownell's Superior, and Early Rose; Mr. G. Oram, gardener to Mr. Whitworth, Dallington Hall, second, for Bountiful, Trophy, and White Elephant; white kidney: Mr. J. Day, first, for Woodstock Kidney, International, and Snowdrop; Mr. Oram, second, with Magnum Bonum, Wormleighton Seedling, and International; coloured round: Mr. J. Day, with Radstock Beauty, Blanchard, and Vicar of Laleham; Mr. Oram second, for Vicar of Laleham, Brinkworth's Beauty, and a seedling; white round: Mr. J. Day first, with Pride of Ontario, Pride of America, and Porter's Excelsior; second, Mr. S. Allen, gardener to H. S. Pritchard, Esq., Abington Abbey, with Bresee's Peerless, Porter's Excelsior, and Schoolmaster. In the division for twelve dishes (six round and six kidney), the competition comprised five exhibits; the "card" went to a grand collection staged by Mr. E. Rowe, Baillif Street, Northampton, for clean samples of Scotch Blue, Fluke, Holborn Favourite, International, Magnum Bonum, Woodstock Kidney, Ashleaf, Covent Garden Perfection, Bedford Prolific, Radstock Beauty, and Vicar of Laleham; Mr. John Seaton, Houghton, a fair second, with King of the Earlies, Porter's Excelsior, Fluke, St. Patrick, American Purple, Woodstock Kidney, Pride of America, Centennial, Schoolmaster, Bresee's Prolific, and Triumph; Mr. Edwin Lewin, Baillif Street, Northampton, third, with Triumph, Bresee's Prolific, Early Rose, Magnum Bonum, Beauty of Hebron, Woodstock Kidney, Schoolmaster, Porter's Excelsior, International, Queen of the Valley, Satchwell's Seedling, and Trophy. In the cottagers' class for six dishes, distinct, no less than nineteen competitors entered; the premier lot came from James Hickman, Kingsthorpe, who had some of the handsomest dishes in the show of Bresee's Prolific, International, Radstock Beauty, Woodstock Kidney, Model, and Schoolmaster; the second card going to William Rigby Church, Brampton, who had clean examples of Lye's Favourite, Magnum Bonum, Beauty of Hebron, Snowdrop, Gramplan, and Schoolmaster; George Harrison, Duston, was adjudged third, with Fluke, Radstock Beauty, Triumph, Bresee's Prolific, International, and Beauty of Hebron; this table presented an imposing spectacle. In single dishes, the awards were as follows: Kidney, B. Dunkley, Great Brington, William Rigby, and W. Pearson, Great Houghton, all with Woodstock Kidney. Round, W. Rigby, and Hopewell, County Asylum,

Berry Wood, with Schoolmaster; Thomas Tilley, Daventry, third, with Gramplan.

The department for seedling potatoes was under the immediate patronage of Lady Knightley. The object is to encourage the growth of new varieties of seedling potatoes, and to have them introduced to the notice of connoisseurs in potato culture. On this occasion the new varieties were arranged in a tent in the Agricultural Show Ground, and the numbers and qualities staged fully justified the attempt. Samples of each variety submitted were cooked, and although after a few hours they do not present the most attractive appearance, still some idea is formed of the general character of the variety, both as to shape and to quality. In the coloured kidney class Mr. R. Fenn, Sulhamstead, Berke, was awarded a first for Snowflake, a cross between the American Snowflake and Willard's Seedling; certainly in appearance it will become popular. The second card went to Mr. W. Kerr, Dargavil, Dumfries, N.B., for Sir Garnet, a purple kidney with flakes of white, shape similar to American Purple; third prize, Mr. J. Hughes, Bydon Hall Gardens, Byfield, for a long rose-coloured Bountiful, parentage unknown. In white kidney Mr. J. Hughes was placed first for a seedling from Paterson's Victoria, rather pointed at ends and inclined to be flat; the second card went to Messrs. F. and C. Myatt, Offenham, Evesham, for a very handsome kidney raised from their Prolific, skin tawny; the third card fell to Mr. E. Cole, Althorp Park, Northampton, for Cole's Favourite, a very white fleshed kind; fourth, to Mr. C. Ross, Welford Park, Newbury, Berks, for Welford Park Seedling. For white round Mr. R. Fenn again took the post of honour with a selected sport from Rector of Woodstock. In the coloured round class R. Roe, High Street, Northampton, gained a second for a dish somewhat after the character of Lye's Favourite; being so small, no opinion could be formed of their real quality or productiveness. The awards in this division were made by Mr. Miles, gardener to Lord Carrington, Wycombe Abbey, and Mr. Smith, gardener to Lord Rosebery, Mentmore.

Oxford.

WILLIAM GREENAWAY.

PETWORTH INSTITUTE VEGETABLE, FRUIT, AND FLOWER SHOW, WEDNESDAY, SEPTEMBER 13.

Fine weather favoured the seventeenth annual exhibition held in Petworth Park, by kind permission of Lord Leconfield, and the novelty of an exhibition of needlework with other products of industry no doubt added to the number of visitors. As many as one thousand three hundred entered the enclosure during the afternoon. The exhibits were for the most part prettily arranged in a large tent from Jno. Edgington and Son's, but in consequence of the large number of entries the wild flowers, honey, bread, and blackberries were placed in another marquee. Though essentially a cottager's show, the splendid collections of fruit and plants from Lord Leconfield's gardens, the magnificent grapes from Major-General Godman (Mr. Mason, gardener), the beautiful roses and single dahlias from Mr. Jenner, Station Nurseries, Horsham, and the fine collection of plants from Mr. Moore, F.R.H.S., Chichester, lent a charm to the general appearance of the tent, and well repaid a visit by those for whom the homelier productions of potatoes and onions have little if any interest. It is often said that the cottager, for whose special benefit these shows are established, is generally conspicuous by his absence from the competitions. Here, however, the fact that one hundred and fifty at least of the competitors were bona fide cottagers proves that the institution is appreciated by them. Indeed, a great work has been done by means of this annual exhibition. The best exhibits in the first would not find a place in the present show. Many new kinds of fruit and vegetables have been introduced by its means, and many cottagers who cared little or nothing for gardening have become expert hands. In the present exhibition the cottagers' vegetables were both abundant and splendid, exceeding in both respects those of the amateurs. Fruit, too, was surprisingly good, considering the season. Many magnificent apples were there in spite of the general scarcity; and pears, plums, currants, and grapes were all represented. Plants in flower, dahlias, asters, roses, annuals, nosegays (including upwards of fifty of wild flowers), were there, and several miniature flower gardens; one by the Hon. G. Wyndham, eldest son of Lord Leconfield, attracted considerable attention. The judges were Mr. Wilson (gardener to the Duke of Norfolk), Mr. Mason (gardener to Major-General Godman, Burton Park), Mr. Ronald (nurseryman, Chichester), and Mr. Johnson (West Lavant). The whole of the arrangements were most successfully carried out, every detail working as smoothly as possible. The Countess Winterton kindly distributed the prizes at five o'clock, the president, the Rev. C. Holland, making a short introductory speech and proposing a vote of thanks at the conclusion. It should be mentioned that Messrs. Sutton and Sons and Messrs. Carter gave prizes for collection of vegetables. The town band did its best to enliven the proceedings before and after the distribution of prizes. No doubt Mr. Jacob, Mr. Kinchett, Mr. W. Pulling, Mr. N. Chandler, Mr. Jno. Hall, Mr. J. S. Stevens, Mr. J. W. Stedman, and others are as proud of their exploits as Sir Garnet Wolseley is of the capture of Tel-el-Kebir on the same day.

PAXTON'S FLOWER GARDEN.—The part for October contains coloured portraits of *Oncidium variegatum* and *Jonesia asoca*. The last named, known familiarly as the Asoca, is a fine tropical tree of the leguminous order.

THE FUNGUS FORAY of the Woolhope Club will take place on Thursday next, October 5. The exploring ground will be Credenhill Camp. The dinner will take place as usual on the same date, at the Green Dragon Hotel, at 4.30 p.m.

LAND FOR EMIGRANTS.—M. Henrotin, the Belgian Consul at Chicago, in a recent report gives some interesting information, which he thinks may be of some service to emigrants from Belgium and other countries arriving in the United States. He says that of the 220,000,000 acres of land in Ohio, Indiana, Illinois, Michigan, and Wisconsin, about 90,000,000 are under cultivation, and 70,000,000 consists of forests and sandy plains, the other 60,000,000 being still available for colonization. In the States of Kansas, Nebraska, and Minnesota there are 160,000,000 acres, of which only 12,000,000 are under cultivation, while 78,000,000 might be cultivated at a large profit and a very small preliminary outlay. Out of the 200,000,000 acres of land in Texas the greater part has hitherto been used solely for grazing, but there are at least 60,000,000 acres which might with advantage be planted in corn and cotton. The Indian territory comprises about 50,000,000 acres, three-fifths being land of excellent quality, and well adapted for growing corn. In the territories of Montana, Wyoming, and Dakota there are about 120,000,000 acres of very good land, nearly the whole of which is at present uncultivated, and which could be obtained upon very easy terms.

THE FRUIT CROPS AT CHISWICK.

THE fruit crop in the Royal Horticultural Society's gardens at Chiswick has been remarked upon by visitors as presenting a very interesting exception to the general scarcity of hardy fruits throughout the country. We have ourselves referred to it incidentally on several occasions. In travelling through the country our general experience, in common with all other observers, is, that there are very few exceptions to be found to the dreary picture of trees without fruit. However, there are exceptions, and some good English-grown fruit may be seen in the markets, and of course it realizes a good



Cordon Pear, Colmar d'Été.



Pyramid Pear, Louise Bonne.

price. But whether we see barren trees or fruitful trees, the lesson is pretty nearly the same; but one part of it is sufficiently important to demand our special attention. It cannot be doubted now that the gale of April 29 made all the difference between a good and a bad out-door fruit crop. This has been said many times, but now we have one particular garden before us the fact may be referred to not only for historical, but for practical purposes. In places the gale did not reach the crops are good or middling, as might be the case in a fruitful year, for in the best years there are barren spots, and in bad years there are "oases" where fruit may be found. One of these is the famous garden at Chiswick, where many sorts of hardy fruits are grown solely for comparisons of sorts and methods of culture—in other words, for scientific and not for commercial purposes. It is proper to ask how the happy exception is to be explained, for in the orchards that lie all around the Chiswick garden, and in some cases brush against its walls, the trees are as destitute of fruit as in more open spots where the gale ravaged without a check. The reason of the exception undoubtedly is of a twofold nature. In the first place the garden as a whole is well sheltered, and the force of the destroying wind was thereby modified to the advantage of the crop, but this sheltered garden suffered in a very considerable degree, as may be proved by a very simple observation. This brings us to the second stage of the argument. The plantations consist almost wholly of dwarf trees, and these, being near the ground, escaped the fiercest fury of the blast. While the storm raged they were in a position similar to that of the little tufted flowery herbs upon an Alpine height that escape destruction because they hug the soil and present but few of their features to the damaging power of the elements. The poets have praised the snowdrop for its humility, which saves it from destruction—the tempest that brings the giant elm tree to the ground does not hurt the snowdrop which bends its head to let the enemy pass over it. The little trees have triumphed in many places, and not the least important is it to note that in several of the market gardens good crops of fruit have been gathered from dwarf bushes, while the standards overhead could not show a fruit.

Remark is made above on a simple observation that proves the special virtue of the smaller trees in the event of a hurricane. And the observation consists in this, that in the garden at Chiswick the larger trees are all destitute of fruit in their upper branches, and in most cases the crop is curiously clustered near the stem and at low forks where the rigidity of the structure was but slightly affected by the wind. Thus not only do we see in this particular case the advantage of shelter in general, and of the dwarf form in particular, but the advantage also of rigidity, whether as a natural feature of a tree, or as imparted to it by espalier rods, stakes, ties, and other means of training and supporting. It is not to be understood that we are recommending the universal adoption of bush trees and espaliers and palisades: we are reporting on facts, and desire that the facts should tell their story fully, and we think the absence of fruit from the upper part of the trees at Chiswick a matter of considerable interest and importance.

Everywhere in the garden fruit may be seen. There have been heavier crops, but the crop of this year is remarkably abundant, considering the general case all around. The apples and pears have a peculiar interest. They are all on dwarfing stocks; the apples on several kinds of so-called "Paradise" stock, some of which are comparatively worthless, while others are admirably adapted to the production of healthy trees that soon become, and long continue, peculiarly fruitful. The best of the Paradise stocks proves to be a very different thing from the stocks that certain nurserymen have employed, to the injury of their customers and their own reputation. While the best stocks have been secured, a rational system of treatment in other respects has been adopted. There is no pinching practised, and very little pruning. The figures selected from such as may be called typical trees show that the sorts are allowed to grow as nearly natural in form as possible, justifying the doctrine that the natural form of a tree is the best form. Occasionally one stout stake is supplied to sustain the stem, and a few ties give support to the heavily-laden branches.

The pears are almost without exception on the quince stock. A large proportion of them are sturdy pyramids that are roughly pruned back in winter to keep them within bounds, but are neither pinched nor pruned in summer except in a few particular cases where severe restriction is necessary, as in the cases of trees trained to single cordons and required to form poles or in conformity with what the French style *en quenouille*, which gives the form of a distaff. There are some closely pruned cordons on a wire fence showing a capital crop of fruit, and there are some very low goblet or bowl shaped trees near the rockery, on which the crops are very heavy considering the very small area the trees cover.

It is impossible to make room for minute particulars of the varieties that have given the best results this season, but their names will be useful, and these we shall classify in accordance with the forms of the trees. In every case of a particularly good crop of a particularly good variety we have appended an asterisk. It will be seen that there is not much in the tradition of the market growers that the worst sorts produce the heaviest crops. Indeed, we have many times directed attention to the exceeding plentifulness of some of the very finest sorts, not only of apples and pears, but of peaches, nectarines, and grapes. No one can say that Royal George peach is a poor thing because it bears abundantly. It would be absurd to declare the fruitful Black Hamburgh worthless as a table fruit. Amongst the pears in the garden two of the most fruitful this year are Beurré Diel and Marie Louise, and amongst the apples there are good crops of Cox's Orange, the Old Nonpareil, Duchess of Oldenburgh, and Braddick's Nonpareil.

PYRAMID PEARS.—Beurré Gris or Brown Beurré,* Beurré Hardy,* Beurré d'Arenberg,* Beurré de Capianmont,* Beurré Sterckmans,* Beurré d'Amanlis,* Beurré d'Amanlis Panachee, Louise Bonne of Jersey,* Louise



Bush Apple, Stirling Castle.

Bonne of Jersey Panachee, Beurré Beaumont, Beurré Diel,* Beurré de Meaux, Beurré de Bollwiller, Beurré Nantais, Beurré des Charnaises or Fondante de Charnes, Beurré Bachelier,* Beurré Clairgeau, Belle Julie,* Doux Sœurs,* Colmar d'Été, Triomphe de Louvain, Charlotte de Brouwer, Passe Colmar,* Bowood, Columbia, Marie Louise,* Hacon's Incomparable,* Amiral Cécille, Pitmaston Duchess,* Aglie Gregoire, Bezi Tardif, Calabasso Passe Bosc, Duchess Helene d'Orleans,* Duchess de Brabant,* Vicar of Winkfield, Poire le Berriay, Easter Beurré,* Dne de Morny, Heloite Dundas, Tyson.

ESPALIER PEARS.—Passe Colmar,* Beurré Bosc,* Glou Moreau,* Knight's Monarch,* Louise Bonne of Jersey Panachee,* Beurré d'Amanlis Panachee.

BUSH PEARS.—Vincuse,* Leon Gregoire, Bezi de Louvain, Jalousie de Fontenay.*

BUSH APPLES.

The trees reported on in this section constitute a distinct plantation in eight lines 3 ft. apart in a line 90 ft. by 24 ft.

Varieties of Apples on Small Trees.	Trees.	No. of Apples.	Varieties of Apples on Small Trees.	Trees.	No. of Apples.
Small's Admirable.....	29	547	Van Mons Reinette	5	23
Cellini*.....	22	350	Reinette du Caux	1	7
Lord Suffield*.....	24	182	Beauman's Redwinter		
Braddick's Nonpareil* ..	36	379	Reinette	10	56
Stirling Castle.....	20	184	Stone's Apple or Lodding- ton Seedling	5	9
New Hawthornden.....	7	71	Old Nonpareil	5	82
Yellow Ingestre.....	17	308	Cox's Orange Pippin*	11	108
Red Apple from Sweden	2	16			
Duchess of Oldenburgh*	25	165			
				219	2,587

THE GEOLOGY OF THE BRITISH ISLANDS.

THE map of the distribution of rocks in the British Islands will be useful to many of our readers in connexion with the planting and cropping of their farms and gardens, and may serve to explain many rural phenomena that are more closely associated with soils than with climates. It represents all the



Pyramid Pear, Louise Bonne.



Cordon Pear, Colmar d'Été.

more characteristic of the several formations that crop out and form, or immediately underlie, the superficial soil on which we have to depend for the production of useful vegetation. As a representative tract for a study of geology Great Britain may be regarded as unique. Within the limited area of these islands we have examples of all the rocks of which the crust of the earth consists, from the most ancient of the plutonic rocks to the latest of the tertiary. This is a point of the greatest interest in connexion with the subject. It is usual for the inquiring Britisher to begin his inquiries by bewailing his fate in having been born on so small a strip of ground that he fears, if he should walk unsteady, he may topple over and fall into the sea. Let him reserve his bewailings until he has exhausted all the scenes and products of these wonderful isles, and then he may cry aloud that from Land's End to John O'Groats all is barren, and for both soul and body there is neither food nor drink. We will say nothing of the exceeding richness and variety of British scenery, save that it corresponds always with the formations that prevail, and that consequently the study of British geology gives a key to the causes that underlie the scenery, the products, the industries, and the relative prosperity of every part of these happy isles.

The principal formations indicated should be taken in their proper order, beginning with the oldest and passing upwards to the most recent—from the primitive plutonic rocks to the latest alluvial washings of gravel, clay, and loam.

The GRANITE, comprehending Syenite and Trap, is the oldest of the series, and so far as we know is the true basis of the earth's crust. We have an example of this at Dartmoor, shown on the map as a triangular patch with stippled marks, near Exeter. Other and smaller tracts appear like dots near Plymouth and the Land's End, and again northward running across obliquely in patches from the Firth of Lorn to Peterhead, forming the line of the Grampians midway between Perth and Inverness. Again between Inverness and Wick is another great mass of granite, extending northwards from Dunrobin Castle. On the Irish coast three great tracts of granite are shown; one extends from Dublin southwards to near Waterford, forming the Wicklow range. There are other two between Belfast and Dundalk. Farther west, not shown on the map, the granite occurs again, near Castlebar and Galway.

Trap rocks may be regarded as veins of granite protruded from below and thrust out over later formations. They are strictly granitic, but do not represent the granite in bulk as granite mountains do. In the map the examples of trap are shown by wavy lines. There is a strip extending from the Firth of Clyde to the Firth of Tay in an oblique direction immediately south of Perth. The isles of Mull and Skye are Trap. There is a patch of Trap at Kelsae, forming the eastern portion of the Cheviots, and several smallish tracts of Trap occur in Snowdonia and along the course of the Dovey. In Ireland there is a great outflow of Trap, shown in the same wavy lines, north of Belfast, the termination of which on the coast forms the celebrated Giants' Causeway.

The exceeding sterility of these ancient rocks fully explains the mournful grandeur of their scenery. To render them productive of useful vegetation is perhaps everywhere possible, but is everywhere difficult. Probably the most complete success hitherto attained in this way is on the lands surrounding the prison at Prince's Town on Dartmoor, where compulsory labour and a scientific application of sewage have made the stubborn rock to smile with verdure. In many instances these rocks make ample amends for their rejection of vegetation by the metals and building materials they supply in apparently exhaustless quantities.

THE LONGMYND OR BOTTOM ROCKS are marked on the map in oblique lines. There are three conspicuous patches on the coast of North Wales, one near Harlech and Barmouth, another at Rhyl, and a third at Beaumaris, the island of Holyhead being of the same formation. In the lake district the Longmynd is seen at Whitehaven and thence eastward to Ambleside, comprising Cockermouth and Keswick, and running in to join the Silurian at Bootle. It is in these rocks we discover the first traces of life on the globe.

THE SILURIAN comprises a vast series of very ancient rocks, of which four very conspicuous examples occur. They are marked with dark oblique lines. The most notable is the great tract of Silurian in Wales, comprising Cardigan, Carmarthen, Montgomery, Merioneth, Denbigh, and Carnarvon. Another great tract of Silurian is seen in the south of Scotland, extending from Berwick to Port Patrick, and occurring again in the Isle of Man, and again in a great angular patch in the Lake District, comprising Ulverston, Kendal, Conistone, and Hawkeshead, a land of miniature mountains.

These ancient rocks are less sterile than the granite which they immediately overlie, but they present us with a great diversity of scenery from the frowning grandeur of Plinlimmon to the exquisite richness of Llangollen and the romantic freshness of Bettws and Llanrwst. In the northern outcrop of Silurian the towns of Peebles, Dumfries, Lauder, and Port Patrick form important centres both as regards commerce and scenery.

THE DEVONIAN and OLD RED SANDSTONE are indicated by horizontal lines. The leading designation is a key to the occurrence of these rocks in the county of Devon, where it will be seen that they extend from Torquay by way of



Bush Apple, Lord Suffield.

Plymouth westward, and comprise the whole of Cornwall, save where granite and trap occur at the Land's End. Again we have Devonian on the borderland or Marches of Wales, comprising Milford on the west coast, Monmouth, Brecon, Hereford, Stourport, and Bridgenorth, the city of Worcester lying a little beyond on the New Red, but touching the Old Red in the western suburbs. In the far north there are strips of Devonian at Jedburgh, Moray, Wick, Perth, Dundee, Dunbar, and Lanark. The Old Red occurs again in a strip that extends from Sunderland to Bedale, and thence by way of Ripon and Worksop to Nottingham, where it mingles with the New Red. When much decayed and forming a true soil, these ancient rocks are fertile and present interesting features of configuration.

THE CARBONIFEROUS OR MOUNTAIN LIMESTONE, comprising the Millstone

Grit and the coal measures, are shown in horizontal lines. There are tracts of beautiful country, but comprising many barren and dreary spots, in these important formations. The most characteristic of these is the immense manufacturing region of northern England, extending from Berwick to Derby, touching Lancaster on the westward and Leeds on the east, and comprehending Preston, Manchester, Sheffield, Newcastle, and Durham. The districts particularly notable for the production of coal are marked by horizontal waved lines, of which patches occur at Edinburgh, Newcastle, Leeds, and Manchester. Passing southward, we have another tract of Carboniferous particularly rich in coal in South Wales, extending from Cardiff to Swansea. Of this the town of Neath may be regarded as the centre. Again, farther south, we find the carboniferous limestone, but less rich in coal, extending through North Devon and part of Somerset, and including Launceston, Okehampton, Bideford, Barnstaple, Dulverton, and Bampton.

THE MAGNESIAN LIMESTONE occurs in thin strips and bands mixed with Old and New Red and Millstone Grit.

THE NEW RED SANDSTONE, comprising salt marls and clay, forms a great belt, partly enclosing the vast coalfield of Northern England. It is shown in the map in waved horizontal lines. From Newcastle it trends southwards, embracing York, Nottingham, Birmingham, and Worcester, then turning north its range is marked by Shifnal, Chester, and Liverpool, whence a narrow strip runs up to Lancaster. Another example occurs in a triangular patch at Carlisle, the cathedral of which, like that at Chester, is constructed of the beautiful but perishable red sandstone of the locality. This formation abounds in salt, is variously fertile, and its fossils are wholly marine.

THE OOLITIC OR JURASSIC ROCKS comprise Portland stone, Kimmeridge clay, fuller's earth, lias, and Oxford clay. We find the Lias in a strip marked with perpendicular lines extending from opposite Hull, past Newark, Grantham, Rugby,

features to the scenery of eastern England. In the map it is distinguished by perpendicular lines. The northernmost tracts are between Bridlington and Hull, and again between Barton and Alford. These tracts constitute the Wolds of Yorkshire and Lincolnshire. But the great mass of the chalk extends from the extreme north coast of Norfolk, say Hunstanton, in a south-west direction to Dorchester, sending out branches eastward from about Salisbury, one of these branches running to the coast at Ramsgate, and the other by way of Winchester to the coast at Eastbourne, and including Brighton. These two easterly strips constitute the North and South Downs, the beauty of which compensates for their comparative barrenness. The greensand, in like manner, is divided and accompanies the chalk. One belt runs from Hunstanton to Cambridge, and thence to Didcot and thence again to Weymouth Bay. Another strip encircles the Wealden, and an outlier occurs in the southern half of the Isle of Wight. The towns of Ashford, Maidstone, Sevenoaks, Dorking, Alton, Bamber, and Lewes are in this encircling band.

THE LONDON CLAY is a very distinct formation, but of no very great extent. The centre of it is the great metropolis, its eastern boundary is Harwich or Ipswich, its western boundary Newbury or Hungerford. It is shown on the map by oblique lines. Reading touches it, as do also St. Albans, Hatfield, Dunmow, and Sudbury.

THE CRAG AND DRIFT, constituting the most recent formations, are indicated by oblique waved lines. There is a tract of Crag on the east coast, extending from Cromer to Harwich, and Harleston represents the centre of it, the city of Norwich being on this formation. The marsh lands of the Drift period extend along the coast from Driffield in Yorkshire to Lynn in Norfolk, and again on the coast of Essex from Colchester to Tilbury.

Thus we began with the oldest rocks in the west, and conclude with the youngest on the east. This order as to time agrees with the visible configuration of the land and the several characteristics of levels and scenery.

The best geological map of an inexpensive kind that we are acquainted with is that forming No. 20 of the *Student's Atlas of Physical Geography*, published by Collins, but for elaborate and minutely accurate particulars the maps of Messrs. Keith Johnstone should be referred to. As we cannot distinguish the several formations by colours, we may as well have revenge against fate by saying that such maps are, as a rule, coloured in a most objectionable manner. The proper way is to employ shades of one colour for the constituents of one group, and thereby indicate their relationships. By this plan the colours serve as chronological and chemical, and even mechanical and fossiliferous keys to the more prominent facts. The system of colouring that prevails is to distinguish subsidiary formations by colours quite different to the large typical groups to which they belong, and this is a grave error.

PANSIES.

PANSIES are favourites everywhere and with everybody, and deservedly so. They are easily grown, and the countless varieties which they assume are a source of never-ending pleasure to the grower who goes in for raising seedlings. This is the time for propagating the good varieties in stock, which is easily done by putting cuttings in a cold frame, where they will stand the winter quite well if sufficient attention is given to airing, which is without doubt the great secret of keeping pansies, as well as many other sorts of plants, safely over a winter. I have said this is a good time to propagate the good varieties, and my reason for saying so is that only the good sorts should be propagated. Far rather have six cuttings of a good sort than sixty of an inferior one. The former will give you some satisfaction and afford a much better chance for further improvement by way of new varieties from seed. What are good? What are the best varieties? I hear many a one asking. It is a difficult question to answer, because there are really nowadays so very many good pansies that a long list, say of fifty or sixty varieties, would just make the most of people as wise as ever. At the great pansy exhibitions in Scotland prizes are given for the best flowers in their respective classes, which is a good plan. It is very seldom that an inferior flower gains the coveted position. The greatest favourites at the present moment among fanciers are perhaps Catherine Agnes, Mrs. Jamieson, Sir P. K. Murray, William Cuthbertson, Mrs. E. H. Wood, — Bliss, Perfection, and Robert Goodwin.

Show pansies (self yellow and white grounds) are rapidly being pushed into the background to make room for their larger and more attractive brethren the Fancies.

Our forefathers were well satisfied with the quiet shades of purple, yellow, white, and brown, provided that the flower was well formed and distinctly marked; but what a difference now!

I wonder what a grower of fifty years ago would say were he suddenly placed before a good stand of twenty-four Fancies nowadays. Blooms nearly three inches across, blotched and splashed in all directions, and of every conceivable colour, from pure white up through all the different shades of yellow to orange; then crimson of every hue, not to mention bronzes, purples, &c. "Manners and customs with a people change," so do flowers. What next?

WM. C.

THE NEW LAW ON ANCIENT MONUMENTS.—One of the last Acts passed in the recent session (45 and 46 Vic., c. 73) was for the protection of ancient monuments. The law is now operative, and may shortly be enforced. Power is given to constitute the Commissioners of Public Works the guardians, and any owner of an ancient monument may by deed place the same under their guardianship. The Commissioners are empowered, with the consent of the Treasury, to purchase ancient monuments, and inspectors of ancient monuments may be appointed. Penalties by fine or imprisonment are to be imposed for injury done to ancient monuments in a summary manner in the United Kingdom. A description of the owners of ancient monuments is given, and a schedule of existing monuments to which the Act is to apply, as also to other monuments of which the Public Works Commissioners may become guardians. There are nearly seventy specified in the United Kingdom now to be protected, including in England "Arthur's Round Table," Penrith, "Stonehenge," and "Kit's Coty House," in Kent, as also "Old Sarum." They may be now maintained and protected at the public expense.



Bush Apple, Ecklinville.

Evesham, Cheltenham, and Bath, and terminating near Cheddar. The Inferior Oolites run by the side of the Lias, all the way down in the same course, but always to the east of the true Lias, and are included in our band of perpendicular lines. The principal towns comprised in it are Stamford, Northampton, Banbury, Gloucester, Bath, Sherborne, and Yeovil. Another portion of this group forms a further band eastwards of the last, and touches Lincoln, Sleaford, Huntingdon, Bedford, Oxford, Chippenham, and runs out near Evershot, in Dorsetshire. The Portland stone and Kimmeridge clay occur in a zigzag line on the extreme east of all the foregoing from Hunstanton to Portland, and there is an isolated patch extending from Scarborough to New Malton and extending thence southward to the Humber. These are all fruitful rocks that on the surface crumble into kindly mould. Their sequence in an easterly direction, the oldest being on the west of the line and the newest on the east, is a point of some importance geologically. They give us but little that is remarkable in the way of scenery, and they do not often or in any great degree rise above the sea level.

THE WEALDEN ranks next in order of time, and it may claim to be coeval with the Gault. It is a peculiar formation, comprising in its boundary lines Hastings, Henfield, Petworth, Haslemere, Horley, Red Hill, and Staplehurst, with Tunbridge for its centre. It has been changed from forest to field within the historic period. It comprises much barren sand, as in the vast tract of Ashdown Forest; and generally speaking, the Wealden soils are but of middling quality, although the timber that still remains upon them gives richness and variety to the scenery.

THE CHALK AND GREENSAND constitute what is known as the cretaceous system. It is of immense importance to agriculture, and gives some special



GEOLOGICAL MAP OF THE BRITISH ISLANDS.

AUDIT OF INTERNATIONAL POTATO EXHIBITION, 1882.

FROM a carefully prepared audit it appears that 1,482 dishes were staged in the competitive classes at the International Potato Exhibition held at the Crystal Palace on September 20 and 21, and that 159 varieties were represented. This year the Vicar of Laleham, which occupied the second place at the exhibition of 1881, heads the list with 77 dishes; and Schoolmaster, which occupied the highest position in point of numbers, has fallen to the third place. Of the last-mentioned 68 dishes were staged, as compared with 103 last year, a decrease of 40 dishes. The other varieties represented by over 50 dishes are Beauty of Hebron, 51; International Kidney, 69; Magnum Bonum, 67; and Woodstock Kidney, 52.

Adirondack, R.R.	31	Laudable, W.R.	1
Advance, W.K.	4	Lord Mayor, W.R.	1
Advancer, W.R.	1	Lord Beaconsfield, W.K.	1
Alpha, W.R.	2	Lye's Favourite, P.R.	5
Alderman De Keyser, R.K.	1	Lye's Purple King, P.R.	1
Amazon Queen, W.K.	2	McKinlay's Pride, W.K.	2
American Purple, P.K.	19	Magnum Bonum, W.K.	67
Ashleaf, W.K.	1	Main Crop Kidney, W.K.	1
Beauty of Abingdon, W.K.	1	Mammoth Pearl, W.R.	13
Beauty of Hebron, R.K.	51	Manhattan, P.R.	30
Beauty of Kent, R.R.	39	Matchless, R.R.	17
Beauty of the West, R.R.	1	Model, W.R.	9
Bedfont Prolific, W.R.	14	Mona's Pride, W.K.	4
Belgian Round, W.R.	1	Mr. Bresee, R.K.	22
Blanchard, M.R.	36	Myatt's Prolific Ashleaf, W.K.	12
Blue Prince, P.K.	2	Oxfordshire Kidney, W.K.	1
Bountiful, R.K.	9	Peachblow, R.R.	2
Breadfruit, W.R.	5	Peerless Rose, R.K.	1
Bresee's Climax, W.R.	5	Perfection Kidney, W.K.	1
Bresee's Peerless, W.R.	4	Porter's Excelsior, W.R.	35
Bresee's Prolific, W.R.	15	Pride of America, W.K.	26
Brownell's Beauty, R.R.	6	Pride of the Market, W.K.	1
Brownell's Superior, R.K.	9	Pride of Ontario, W.K.	20
Brownell's Success, W.K.	1	Prince Arthur, W.K.	2
Carter's Eight Weeks, W.R.	4	Princess of Wales, R.K.	2
Caunce's Perfection, P.R.	1	Purple Kidney, P.K.	3
Caunce's Prolific, R.R.	1	Purple King, P.K.	3
Centennial, R.R.	4	Purple Ashleaf, P.K.	5
Cleopatra, W.R.	1	Queen of the South, W.R.	3
Climax King, R.K.	1	Queen of the Valley, W.K.	38
Cosmopolitan, W.K.	5	Radstock Beauty, P.R.	32
Covent Garden Perfection, W.K.	17	Reading Abbey, W.R.	8
Dargavie Beauty, R.K.	1	Reading Hero, W.R.	35
Dargavie Prolific, R.R.	1	Reading Russet, R.R.	39
Defiance, P.K.	4	Recorder, W.K.	1
Early Bird, W.K.	1	Red Ashleaf, R.K.	4
Early Border, W.R.	9	Red Emperor, R.R.	12
Early Coldstream, W.R.	1	Red Fluke, R.K.	6
Early Gem, W.R.	1	Red Holland, R.R.	1
Early Giant King, W.K.	12	Red Rough, R.R.	1
Early Goodrich, W.R.	4	Redskin Flourball, R.R.	13
Early Jargonelle, W.K.	1	Rival, W.K.	1
Early Market, W.R.	2	Rivers's Royal Ashleaf, W.K.	3
Early Ohio, R.K.	1	Rouge Jaker, R.K.	1
Early Oxford, W.R.	1	St. Patrick, W.K.	4
Early Purple, P.K.	1	Salmon Kidney, R.K.	8
Early Rose, R.K.	21	Sanday's Seedling, W.K.	1
Early Vermont, R.K.	11	Scamels's Glory, P.R.	3
Edgecote Seedling, W.K.	9	Schoolmaster, W.R.	68
Elliott's Wonder, W.K.	2	Scotch Blue, P.R.	4
Farren's Kidney, W.K.	1	Scotch Champion, W.R.	3
Feltham White, W.R.	1	Scottish Queen, W.R.	2
Fenn's Cricket Ball, R.R.	2	Seedlings Unnamed	6
Fenn's Standard, W.R.	2	Silverskin, W.K.	3
Fiftie's Annie, R.R.	5	Sir Garnet, R.K.	1
Fox's Seedling, R.W.	2	Sir Walter Raleigh, W.R.	1
Fortyfold, P.R.	1	Snowflake, W.K.	15
Garibaldi, R.K.	1	Suttons' Fillbasket, W.R.	4
Golden Eagle, R.R.	1	Suttons' Fiftyfold, W.R.	9
Gloucestershire Kidney, W.K.	1	Suttons' First and Best, W.R.	12
Gordon's Victoria Regent, W.R.	1	Suttons' Prizetaker, R.K.	14
Grampan, R.R.	48	Superintendent, W.R.	1
Hanworth Superior, W.R.	1	The Queen, W.R.	1
Heather Bell, P.R.	3	The Scholar, W.K.	1
Holborn Favourite, R.R.	5	Triumph, R.R.	32
Hooper's Round White, W.R.	1	Trophy, R.K.	36
Idaho, R.W.	3	Veitch's Improved Ashleaf, W.K.	1
Improved Peachblow, R.R.	2	Vicar of Laleham, P.R.	77
Ingleston Fluke, W.K.	1	Victoria alba, W.R.	1
International Kidney, W.K.	69	Washington, R.K.	1
Jackson's Improved Kidney, W.K.	4	Webb's Surprise, W.K.	6
James Abbiss, W.R.	1	White Blanchard, W.R.	1
King of the Earlies, R.R.	1	White Elephant, W.K.	17
King of the Flukes, W.K.	4	White Emperor, W.R.	7
King Noble, W.R.	4	Wiltshire Giant, R.K.	1
King of Potatoes, W.K.	7	Wiltshire Snowflake, W.K.	7
Lady Webster, W.R.	1	Wonderful, R.K.	12
Lapstone, W.K.	5	Wormleighton Seedling, W.K.	5
Late Beauty of Hebron, R.K.	5	Woodstock Kidney, W.K.	52
Late Rose, R.K.	6	Yorkshire Hero, W.K.	3

WAR might with advantage be declared against scarlet fever, measles, and small-pox, and an attempt made to prevent further havoc amongst children and adults. Let every one co-operate, and in doing so use WRIGHT'S COAL TAR SOAP as a preventive measure. It can be bought everywhere. See the words "Sapo Carbonis Detergens" (as doctors proscribe) impressed on each tablet and wrapper, without which none is genuine. —[ADVT.]

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty Prepared solely by H. LAMPLOUGH, 113, Holborn, London. —[ADVT.]

SURE-BEARING FRUITS

ARRANGED ACCORDING TO THE LOCALITIES FOR WHICH THEY ARE BEST ADAPTED.

FOR the purposes of these selections, England, Scotland, and Wales may be mapped out into three leading divisions. The first division to comprise the south-east, western, and midland counties, south of a line drawn from Chester to Boston and passing through Crewe, Derby, Nottingham, and Grantham; the second division to include the whole of England between the line above-mentioned and one between Carlisle and Newcastle-on-Tyne; and the third to include the whole of Scotland in which fruit growing in the open can be carried on with a fair amount of success.

FIRST, OR SOUTHERN DIVISION OF ENGLAND.

Apples, Dessert.—Bess Pool, Blenheim Orange, Boston Russet, Braddick's Nonpareil, Cockle Pippin, Court Pendu Plat, Court of Wick, Cox's Orange Pippin, Devonshire Quarrenden, Duchess of Oldenburgh, Dutch Mignonne, Fearn's Pippin, Herefordshire Pearmain, Irish Peach, Joanneting, Keddlestone Pippin, Kerry Pippin, King of the Pippins, Ribston Pippin, Scarlet Nonpareil, Winter Pearmain, and Yellow Ingestrie.

Apples, Kitchen.—Alfriston, Bess Pool, Blenheim Orange, Cellini, Cox's Pomona, Echlinville Seedling, Fearn's Pippin, Hanwell Souring, Hawthornden, Herefordshire Pearmain, Kentish Fillbasket, Keswick Codlin, Lord Suffield, Mank's Codlin, New Hawthornden, Northern Greening, Prince Albert, Stirling Castle, Stone Apple, Tower of Glamis, Warner's King, Wellington, Winter Pearmain, Worcester Pearmain, and Yorkshire Greening.

Apricots.—Hemskerk, Moor Park, Musch Musch, Royal, Royal Orange, and Shipley's. These are also the best for the north of England and for Scotland, the Moor Park being particularly valuable for northern latitudes.

Cherries, Dessert.—Bigarreau Napoleon, Black Tartarian, Frogmore Early Bigarreau, Early Rivers's, Governor Wood, and May Duke.

Cherries, Kitchen.—Kentish and Morello.

Nectarines.—Elruge, Hardwicke Seedling, Lord Napier, Pitmaston Orange, Pineapple, and Victoria. These six are also the best for the more favoured localities in the northern district, and they are well adapted for indoor culture.

Peaches.—Alexander, Bellegarde, Hale's Early, Early Grosse Mignonne, Grosse Mignonne, Noblesse, Early Louise, Royal George and Walburton Admirable. The foregoing are also the finest varieties for localities in the northern divisions in which peaches can be grown against the open wall, and they are of a high degree of excellence for culture under glass.

Pears for Standards or Pyramids.—Althorp Crassane, Autumn Bergamot, Beurré d'Amanlis, Beurré de Capiaumont, Beurré Hardy, Chaumontel, Comte de Lamy, Doyenne du Comice, Hacon's Incomparable, Jargonelle, Josephine de Malins, Louise Bonne of Jersey, Marie Louise, Passe Colmar, Williams's Bon Chrétien.

Pears that Require a Wall.—Beurré Diel, Beurré Rance, Duchesse d'Angoulême, Easter Beurré, Gansel's Bergamot, Glou Morceau, Knight's Monarch, Ne Plus Meuris, Pitmaston Duchesse d'Angoulême, Winter Nelis, and Zéphirin Grégoire.

Plums, Dessert.—Coe's Golden Drop, Goliath, Greengage, Jefferson, Kirke's, Rivers's, and Early Prolific.

Plums, Kitchen.—Belgian Purple, Belle de Septembre, Goliath, Greengage, Magnum Bonum (red and white), Orleans, Prince Englebert, Prince of Wales, and The Czar.

SECOND, OR NORTHERN DISTRICT OF ENGLAND.

Apples, Dessert.—Bess Pool, Blenheim Orange, Braddick's Nonpareil, Cockle Pippin, Court of Wick, Court Pendu Plat, Devonshire Quarrenden, Irish Peach, Kerry Pippin, King of the Pippins, Margil, Ribston Pippin, Scarlet Nonpareil, and Winter Pearmain.

Apples, Kitchen.—Alfriston, Bess Pool, Blenheim Orange, Cellini, Echlinville Seedling, Hanwell Souring, Hawthornden, Keswick Codlin, Lord Suffield, New Hawthornden, Northern Greening, Stirling Castle, Tower of Glamis, Warner's King, Wellington, Winter Pearmain, and Yorkshire Greening.

Cherries, Dessert.—Bigarreau, Black Tartarian, Frogmore, Early Bigarreau, Governor Wood, and May Duke.

Cherries, Kitchen.—Kentish and Morello, the last-mentioned being decidedly the best for northern localities.

* * The foregoing are also the most suitable for the Scottish districts in which cherries can be grown with success.

Pears for Standards, Pyramids, and Espaliers.—Autumn Bergamot, Beurré d'Amanlis, Beurré de Capiaumont, Beurré Hardy, Comte de Lamy, Jargonelle, Louise Bonne of Jersey, and Williams's Bon Chrétien.

Pears that Require a Wall.—Althorp Crassane, Beurré Diel, Beurré Rance, Duchesse d'Angoulême, Gansel's Bergamot, Doyenne du Comice, Knight's Monarch, Marie Louise, Passe Colmar, and Winter Nelis. In much exposed and unfavourable situations the varieties mentioned as suitable for growing in the open quarters will be much improved by being grown against walls.

Plums, Dessert.—Coe's Golden Drop,* Greengage, Jefferson,* Kirke's,* and Rivers's Early Prolific. Those marked thus * should be planted against a wall.

Plums, Kitchen.—Belgian Purple, Greengage, Magnum Bonum (rod and white), Orleans, Prince of Wales, Victoria, and Winesour.

THIRD, OR SCOTTISH DISTRICT.

Apples, Dessert.—Bess Pool, Braddick's Nonpareil, Court of Wick, Devonshire Quarrenden, Irish Peach, Kerry Pippin, Margil, Ribston Pippin, and Scarlet Nonpareil.

Apples, Kitchen.—Bess Pool, Cellini, Echlinville Seedling, Hawthornden, Keswick Codlin, Lord Suffield, Mank's Codlin, New Hawthornden, Northern Greening, Stirling Castle, Tower of Glamis, Winter Pearmain, and Yorkshire Greening.

Pears.—Autumn Bergamot, Beurré d'Amanlis, Beurré Diel, Beurré de Capiaumont, Beurré Hardy, Beurré Rance, Comte de Lamy, Jargonelle, Knight's Monarch, Louise Bonne of Jersey, Mario Louise, Passe Colmar, Williams's Bon Chrétien, and Winter Nelis.

Plums, Dessert.—Greengage, Jefferson, Kirke's and Rivers's Early Prolific, all of which should be planted against a wall where practicable.

Plums, Kitchen.—Belgian Purple, Greengage, Magnum Bonum (red and white), Orleans, Victoria, and Winesour.

SELECT ROSES FOR EXHIBITION AND GARDEN CULTURE.

ONE HUNDRED HYBRID PERPETUALS FOR EXHIBITION.

Crimson-scarlet, blackish-crimson, and purple-shad-d.—Abel Carrière, Charles Darwin, Charles Lefebvre, Devenne Lamy, Duke of Edinburgh, Duke of Teck, Duke of Wellington, Horace Vernet, Jean Liaband, Harrison Weir, Louis Van Houtte, Mons. Beaucenne, Pierre Notting, Prince Camille de Rohan, Souv. de Victor Vordier, Sultan of Zanzibar, Reynolds Hole, Xavier Olibo, and Rosioristo Jacobs.

Red-scarlet, red, rose-crimson, and deep carmine.—Alfred Colomb, Alfred K. Williams, Annie Wood, Auguste Rigotard, Beauty of Waltham, Camille Bernardin, Cheshunt Hybrid, Comtesse d'Oxford, Dr. Andry, Duchess of Bedford, Duchesse de Caylus, E. Y. Teas, Fisher Holmes, General Jacqueminot, Henri Ledechaux, John Stuart Mill, Jules Margottin, Le Havre, Lord Macaulay, Mme. Charles Crapelet, Mme. Victor Verdier, Maréchal Vaillant, Mario Baumann, Mario Rady, Maurice Bernardin, Mrs. Charles Wood, Mrs. Jowitt, Mrs. Laxton, Prince Arthur, Sénateur Vaise, Star of Waltham, and Thomas Mills.

Deep rose carmine and cerise.—Annie Laxton, Antoine Ducher, Countess of Rosebery, Dupuy Jamain, Emilie Hausburg, Etienne Levot, Francois Michelon, George Baker, Guillaume Guillemot, Hippolyte Jamain, John Hopper, Lady Sheffield, Mme. Clémence Joigneux, Mme. Prosper Laugier, Marchioness of Exeter, Marie Verdier, Marquise de Castellane, Masterpiece, Mrs. Baker, Oxonian, Paul Neyron, and Victor Verdier.

Deep pink and pale rose.—Abel Grand, Catherine Soupert, Centifolia rosea, Comtesse de Serenye, Duchesse de Morny, Edouard Morren, Elie Morel, Eugénie Verdier, Magna Charta, Marie Cointet, Pride of Waltham, Thérèse Levot, and William Warden.

Light pink and flesh colour.—Baroness Rothschild, Captain Christy, Egeria, La France, Mme. Bellenden Ker, Mme. Gabriel Luizet, Mme. Hippolyte Jamain, Miss Hassard, and Mons. Noman.

White.—Boule de Neige, Mme. Lacharme, and White Baroness.

TWENTY-FIVE TEAS AND NOISETTES FOR EXHIBITION.

Rose, flesh-colour and blush.—Adam, Anna Olivier, Catherine Mermet, Devoniensis, Mme. Angele Jacquier, Mme. Bravy, Rubens, Souv. de Paul Neyron, Souv. d'un Ami, Souv. d'Elise Vardon.

Yellow and yellow-shaded.—Adrienne Christophle, Amazone, Bouquet d'Or, Jean Ducher, La Boule d'Or, Mme. Hippolyte Jamain, Mme. Lambard, Mme. Margottin, Mme. Trifle, Maréchal Niel, Marie Van Houtte, Perle des Jardins.

White and White tinted.—Innocente Pirola, Mme. Willermoz, and Niphotos.

SEVENTY FOR GARDEN DECORATIONS AND TOWNS.

HYBRID PERPETUALS.—Abel Grand, Alfred Colomb, Alfred K. Williams, Anna Alexieff, Anna de Diesbach, Annie Wood, Antoine Ducher, Auguste Mie, Baroness Rothschild, Barronne Prevost, Beauty of Waltham, Boule de Neige, Camille Bernardin, Captain Christy, Charles Lefebvre, Comtesse de Chabriland, Countess of Rosebery, Crimson Bedder, Dr. Andry, Dupuy Jamain, Duke of Edinburgh, Duchess of Bedford, Duchess of Connaught (Noble), Elizabeth Vigneron, Fisher Holmes, Gabriel Tournier, Général Jacqueminot, Glory of Cheshunt, Glory of Waltham, John Hopper, Jules Margottin, La France, Duchesse de Cambacérès, Leon Renault, Lord Clyde, La Reine, Marguerite de St. Amand, Mme. Victor Verdier, Mlle. Eugénie Verdier, Marie Baumann, Marquise de Castellane, Mons. E. Y. Teas, Mrs. Harry Turner, Paul Neron, Queen of Bedders, Red Dragon, Sénateur Vaise, Triomphe de France, Victor Verdier.

HYBRID BOURBONS.—Baron Gonella, Comtesse de Barbantanne, Rev. H. H. Dombrain, Souvenir de la Malmaison.

HYBRID CHINA.—Blairi No. 2, Charles Lawson, Coupe d'Hébé, Mme. Plantier.

MOSS.—Alice Leroy, Gloire de Mousseuses, Mme. William Panl.

TEA-SCENTED, NOISETTES AND HYBRIDS.—Belle Lyonnaise, Cheshunt Hybrid, Coquette des Blanchés, Devoniensis, Gloire de Dijon, Homère, Mme. Berard, Marie Van Houtte, Souvenir d'un Ami, William Allen Richardson.

* The majority of the varieties forming this selection bloom very freely until quite late in the autumn.

THIRTY-SIX FOR POT CULTURE.

HYBRID PERPETUALS.—Abel Carrière, Annie Wood, Baroness Rothschild, Beauty of Waltham, Countess of Rosebery, Dr. Andry, Duke of Edinburgh, Duke of Teck, Duchess of Bedford, Edouard Morren, François Michelon, Hippolyte Jamain, La France, John Hopper, Mme. Lacharme, Mme. Victor Verdier, Marquise de Castellane, Miss Hassard, Princess Beatrice, Star of Waltham, Victor Verdier.

TEA-SCENTED AND HYBRID TEAS.—Anna Olivier, Belle Lyonnaise, Cheshunt Hybrid, Mme. Alexandre Bernaix, Mme. Willermoz, Marie Van Houtte, Mme. Berard, President, Mme. Lambard, Souvenir d'un Ami, Souvenir d'Elise Vardon.

HYBRID CHINA.—Charles Lawson, Paul Perras.

NOISETTES.—Céline Forestier, Mme. Caroline Kuster, Triomphe de Rennes.

FIFTY FOR PILLARS, TRELLISES, AND WALLS.

(C. Climber. P. Pillar.)

HYBRID PERPETUALS.—Anna Alexieff, P.; Annie Wood, P.; Climbing Bessie Johnson; Climbing Charles Lefebvre, P.; Climbing Edouard Morren, P.; Climbing Jules Margottin, C.; Climbing Victor Verdier, C.; Glory of Waltham, P.C.; Mme. de Cambacérès, P.; Mme. Clémence Joigneux, P.; Maréchal Vaillant, C.; Princess Louise Victoria, C.; Red Rover, C.; Red Dragon, C.; William Jesse, P.C.

BOURBONS AND CHINAS.—Blairi No. 2, C.; Charles Lawson, P.; Coupe d'Hébé, P.; Paul Verdier, P.; Paul Perras, P.; Vivid, C.

TEA-SCENTED AND HYBRID TEAS.—Belle Lyonnaise, C.; Cheshunt Hybrid, C.; Climbing Devoniensis, C.; Gloire de Dijon, C.; Gloire de Bordeaux, P.; Mme. Berard, C.; Mme. Falcot, C.; Reine Marie Henriette, P.

EVERGREEN.—Félicité Perpétue, C.; Flora, C.; Princess Marie, C.

MOSS.—Baron de Wassenaer, C.; Lanei, C.; Reine Blanche, C.

NOISETTES.—Bouquet d'Or, Céline Forestier, C.; Jane Hardy, C.; Lamarque; Maréchal Niel, C.; Triomphe de Rennes.

AYRSHIRE.—Bennett's Seedling, C.; Dundee Rambler, C.; Rampante, C.; Ruga, C.

BOURSAULT.—Amadis, C.; Gracilis, C.

BANKSIAN.—Alba, C., white; Lutea, C., yellow.

The House, Garden, and Apiary.

A SUMMER NIGHT IN THE BEEHIVE.

THE little bee returns with evening's gloom,
To join her comrades in the braided hive,
Where, housed beside their mighty honeycomb,
They dream their polity shall long survive.
Still falls the summer night—the browsing horse
Fills the low portal with a grassy sound
From the near paddock, while the water course
Sends them sweet murmurs from the meadow ground:
None but such peaceful noises break the hush,
Save pussy, growling, in the thyme and sage,
Over the thievish mouse in happy rage;
At last the flowers against the threshold brash
In morning airs—fair shines the uprisen sun;
Another day of honey has begun.

CHARLES (TENNYSON) TURNER.

THE HOUSE.

THE present moment is favourable for starting hyacinths, tulips, and other bulbs for indoor decorations, and it appears desirable to remind those who are partial to hyacinths in glasses that it is not necessary to grow them in water from the first. Hyacinths, as stated in these pages on several occasions, can be shaken out of the soil and put in the glass when in full bloom without material injury; and as the finest spikes are produced by pot plants the preferable course is to grow the bulbs in pots until the spikes are nearly developed, and then transfer to glasses. Tulips, the Van Thols more especially, should be grown in boxes until they are in bloom, and be then arranged in pots or in fancy receptacles as may be desired. By this course the whole of the flowers in each pot or basket can be had in precisely the same stage of development.

THE GARDEN.

AMERICAN PLANTS may be moved now better than at any other period of the year. Whoever plants these must be sure in the first instance that the soil is suitable. Many of the natural loams about London suit them admirably; and, on the other hand, there are many otherwise good loams in which they will not grow at all. It is only to be determined by experience on the spot; and where there is any doubt, the only safe course is to cart in peat from the nearest source of supply in the district. Pontic rhododendrons and their varieties are the least particular about soil of any of the race.

CABBAGE to be hoed between, to destroy the weeds which have abounded since the autumn rains commenced. Plant out the main spring crop, and earth up the collards. Those last sown to be pricked out to strengthen on four-foot beds.

CAULIFLOWERS to be planted out under frames and hand-lights, and some potted as previously directed. If there are many plants still left in the seed-bed prick them out on a warm slope, or make up a raised bed for them, so that they can have the protection of mats or hoops during sharp weather.

CHRYSANTHEMUMS to be attended to, so that they may have a fair chance of making a good bloom. Give them clear liquid manure, and stake them securely, as their blossoms, being heavy, often weigh down the stems, or cause frail sticks to snap with a gale of wind. Do not house any, so long as they are safe from frosts, except any that require forwarding to get them in bloom by a certain date. Artificial heat will do wonders to bring them out quickly; but it should never be resorted to if it can be avoided, for it has a very prejudicial effect on the colours of the flowers.

CUCUMBERS to fruit during winter should be grown strong before being allowed to flower. Do not stop them severely, but take a few strong runners along the trellis, with full exposure to the light and with a liberal moist heat, to ensure a luxuriant growth for the present. If any signs of a mildew, apply sulphur without loss of time.

FUCHSIAS going out of bloom that are to be grown another season should be pnt out of doors to harden them, and left unpnned till they have tasted a very slight frost; then cut them in slightly, and house in any moderately dry place, either light or dark, till they begin to break in the spring.

KITCHEN GARDEN.—Make a general clearance of the ground wherever there are vacant spaces, and ridge up all plots not to be planted during winter. Prepare a waste corner for heaping up manures and composts, where they can be turned over during frosts; and if convenient empty the muck-pit, and cover the rotted stuff with a layer of soil to throw off rain; the whole to be turned two or three times before using it in spring. In preparing for next year's crops, trench over first the ground intended for root crops next season, and choose for potatoes, carrots, parsnips, and beet, plots that have been well manured this year.

RHUBARB to be forced early may now be taken up and laid on one side until it is time to put it in the boxes, or whatever other position it is to occupy when forced.

THE APIARY.

IN all but a few districts the gathering of honey has been over for some time past, and the wise apiarian has harvested the whole of the produce to be taken up this season. But there are bee-keepers, by no means few in number, who delay the taking of honey until quite late in the season, under the impression that the bees continue to add to their stores so long as the weather remains open enough for them to leave the hives. But this is a mistake which must again and again be pointed out. Excepting in districts in which the bees have had access to moors, very little honey has been gathered during the past six weeks or so, and in most cases where the honey has not been taken the hives have lost considerably in weight. There should certainly be no longer a delay in harvesting the honey, whether the bees have been on the moors or not, for it cannot now be left without considerable loss. In the case of the Woodbury and other-bar frames it will be a simple matter to take a part or the whole of the combs as may be thought desirable, but in dealing with the old-fashioned skeps the exercise of both care and judgment is necessary. Probably the best course is to drive the bees from the hives from which the honey is to be taken into empty hives, and there unite them with stocks occupying hives furnished with combs in good condition. Then feed liberally for a short time to provide a liberal supply of food for the winter season.

Notes of Observation.

SINGLE DAHLIAS.

THESE I find are in great favour with my friends. I really did not think so much about them myself, but my gardener, who is always on the look out for anything that will please me, prepared a grand treat for my lady friends the other day, by sending me in a basket full of freshly-cut flowers of the single dahlias. They appeared to attract so much notice that I took the trouble to go and see them growing in a by-corner of the garden, where my clever gardener had quietly cultivated them without my knowing it. On inquiring the names of the different colours, I found Paragon, which is certainly an exquisitely-coloured flower, a white variety under the name of Alha, and the Cactus Dahlia, a bright scarlet flower, which, as you know, is neither double nor single, but it is valuable amongst others for its quaint form and bright colour. I felt bound to thank my gardener for the entertainment he had given my friends, and although I feel that the cultivation of single dahlias is a backward movement, I have made it understood that so long as the fashion lasts my garden is to include them amongst other things.

LAURA L.—.

AMPELOPSIS VEITCHI.

From observations extending over a rather wide range, both as to time and place, I am fully persuaded that Ampelopsis Veitchi, which was introduced from Japan some ten or twelve years since, has had its merits much overrated. We have been told over and over again that it is much superior to the Virginian creeper, and its closeness of growth has been urged as a strong point in its favour. The two species are so distinct in character that it is hardly fair to compare them with each other, but when a comparison is made it is impossible to avoid the conclusion that the older introduction has the best of it. The Japanese species is of very slow growth when first planted, and unless exceptionally strong examples are put out four or five years elapse before any considerable space is covered. More especially is its progress slow on cold heavy soils. When the allotted space has been covered we miss altogether the elegant aspect presented by the Virginian creeper. We have, in fact, a growth as formal as that of an ivy without its distinctive character and colouring. Not only is the growth formal, but until the autumn the foliage is of a decidedly ineffective shade of green. For comparatively low walls A. Veitchi is not without value, but for dwellings it is so far inferior to A. hederacea that generally speaking the latter should be employed. Managed with a fair amount of judgment, the last-mentioned is the finest of all the deciduous climbers for covering large spaces out of doors, but it seldom presents the elegant appearance it might do through not receiving a little timely attention. It is too much the practice to allow the growth to hang about in great masses over windows, obstructing the light, instead of the whole wall-space being covered and the new growth hanging lightly down. To ensure the best possible results with both the climbers referred to in this note, is to so regulate the growth that the whole of the wall is covered, and then to allow the young growth to hang down in a natural manner. At the end of each autumn the whole of the growth of the previous summer should be pruned close back to the old wood attached to the wall, and during the summer the shoots drooping over windows should be thinned sufficiently to prevent any material obstruction to the light.

LOOKER-ON.

MADAME FRANCOIS PETTET ROSE.

Herewith I send you a bunch of flowers of this rose, which was introduced two years since. In the catalogue it is classed with the hybrid perpetuals, and so far as its flowering is concerned it deserves the position in which it has been placed. But in growth and every other characteristic it so closely resembles the noisettes that, in my opinion, it should be classed with them. My plant is growing in an unheated house, and has already attained to a height of ten or twelve feet, and there is every prospect of its making a capital climber. Although the flowers are produced freely, they do not open well under glass, and I fancy it possesses a peculiar kind of fragrance that is not very pleasing. I should be glad to know if any one has grown it successfully in the open, as at present I am inclined to look upon it as only a second-rate variety. But as white roses are always acceptable I do not wish to be in a hurry to discard it.

J. C. C.

[A pretty bunch of smallish roses of neat form, slightly greenish in the bud, but when expanded creamy-tinted white. A pleasing garden variety.—ED.]

WALKER'S PERPETUAL BEARER PEA.

In July, 1880, we made a note of this pea (not then in commerce), and since then many opportunities have occurred in which we have seen it carrying off first prizes at Oxfordshire and other shows. If we remember rightly, we described it as a finely-selected *Veitch's Perfection*, which variety it much resembles, but is larger and more continuous in its period of flowering and fruiting. At Thame Show on September 14 Mr. Walker presented a splendid dish side by side with branches laden with fully-developed pods and densely flowered. On the exhibition table it is rarely beaten; and although it is not so green in the pod as could be wished, its large marble-sized peas cook a rich dark green colour. For the August and September shows I could not recommend a finer pea for the exhibition table.

W. GREENAWAY.

Oxford.

CHRYSANTHEMUMS AT EDINBURGH.

A capital opportunity was afforded by the recent exhibition at Edinburgh to demonstrate the value of the early flowering pomponc chrysanthemums for decorative purposes in September, and it is a pity it was not taken advantage of. Prizes were offered by the executive for collections of four, and there was a fairly good competition for them. The specimens were of moderate size and nicely flowered, and although they lacked the finish of the specimen pompones usually staged at the November exhibition, they would have presented a very attractive appearance had they been placed where they could have been seen. The Waverley Market has not many dark corners, but one was found for the poor chrysanthemums, and to make matters worse they were placed on a stage so high that very few of the visitors could do more than see the pots and the underside of the leaves. The committee probably did the best they could under the circumstances, but it is nevertheless much to be regretted that the chrysanthemums should have been pushed into the background, for had they been assigned a position in the body of the market where the flowers, instead of the pots, could have been seen, they would have formed a very attractive group. The selection of varieties, it may be observed, was not all that could be desired, a point to which the attention of the exhibitors in question may be advantageously directed.

GEORGE GORDON.

FUCHSIA MISS LIZZIE VIDLER.

In the autumn of 1879 I had the pleasure of submitting this beautiful variety to you for your opinion, at which time you spoke of it as a most valuable acquisition, and remarkable alike for its splendid quality and distinct colour. The plants were to have been distributed the following spring, but from unavoidable circumstances it was not sent out until the spring 1881, and as a proof that it still maintains the character you accorded to it I send you blooms for further inspection. You will observe that the flowers are of good size, compact, and robust. I may state that they are taken from plants grown in five-inch pots, much too small were it not for the use of artificial or concentrated manures being employed. The results, to my mind, are of a highly satisfactory character, for the plants without such aid would have been positively starved, but instead of that they are in the most healthy growing condition. The manure applied to ensure these results is that known as Clay's Fertilizer or plant food, which appears to me very appropriately named, as after the application the plants seem to be invigorated with new life, although confined in pots of small size. I enclose a branch of fuchsia "Ethel Fry," that you may judge of its habit, &c., &c.

GEORGE FRY.

Further Green, Lewisham.

[These are two of the finest fuchsias of the double class in size, substance, and colour, effective, and in some respects surprising. The crimson globular buds of Ethel Fry are a special attraction.—ED.]

DAHLIAS IN THE FLOWER GARDEN.

It would, I should imagine, be a very easy matter to extol the merits of the single-flowered dahlias sufficiently without depreciating the show flowers and the pompones. Yet it is not often that the single varieties are alluded to without a comparison being instituted between them and those bearing double flowers, to the disadvantage of the latter. The other day it was gravely stated in print—not in the GARDENERS' MAGAZINE, let it be understood—that the show flowers were far inferior in effectiveness when in the garden to the single kinds, and anything more at variance with the facts of the case could not well be written. I am very favourably inclined to the single dahlias, for they have their use, and I have done something to bring them into public notice, but I must protest against statements such as that referred to. I would go farther, and say that, so far from their being the most effective, they are the least so, and in this statement I shall be supported by those who are really well acquainted with the several classes. The single flowers, however freely produced, have, when upon the plants, a decidedly weak appearance, and a specimen with twenty or thirty blooms is far less effective than an example of a show flower bearing from six to twelve flowers each. I have for some time past been impressed with the comparative want of effectiveness, and I had a convincing proof of the correctness of my opinion upon this point when walking through the Pinkhill Nurseries of Messrs. Downie and Laird on the second day of the Edinburgh show. At these nurseries dahlias are grown extensively and with much success, and all the classes have large quarters assigned them. There are quarters of the show and fancy flowers, of the pompones, and of the singles, and as they are not any great distance apart no better opportunity could well have been had for making a fair comparison. It did not require any very close inspection or careful balancing of points to determine which of the quarters were the most effective, for immediately they were reached it was at once seen that the show flowers had the best of it, and that the pompones stood next. This was the general opinion of the party, which included one or two who have a decided partiality for the singles, and the opinion, it may be added, was formed irrespective of the great superiority of the double flowers from the florist's point of view. Amongst others I jotted down for their effectiveness were Fanny, Mrs. Saunders, Joseph Green, Burgundy, Maid of Athens, Magician, and Gaiety, all of which occupy a place in the front rank for exhibition purposes. There are others of not quite so high a quality that are even more effective, but I mention these to show that varieties bearing flowers fit to grace a stand of twelve on the exhibition stage are effective in the garden. Many of those who institute comparisons between the several classes of dahlias do so without having much practical knowledge of them. They see in a nursery or private garden a quarter of show dahlias in which the plants have been severely disbudded and have the majority of the few flowers screened from the sun and rain by one or more of the contrivances adopted by the growers, and they at once jump to the conclusion that the appearance presented is the usual one. The value of the single dahlias for decorative purposes in a cut state has been strangely overrated, for they last but a few hours in water; the flowers will not in fact stand more than a day, as witness the condition of the majority of the blooms on the second day of the Crystal Palace Exhibition. Early in the day a considerable number of the flowers had shed their florets, and by the time the exhibition closed there were not many blooms in a perfect state. The pompones, of which we have during the last two or three years received many fine varieties from Germany, still hold their own for supplying cut flowers for indoor decorations, and it would be well if those who have to meet a large demand for cut flowers during August and September were to give more attention to them.

A DAHLIA FANCIER.

PROPERTY IN BEES.

A singular case affecting bee-keepers came before the Lindsey magistrates the other day. James Monk was charged with stealing two hives containing bees and honey, from Elizabeth Wheatcroft. The parties are neighbours residing at Sturton-by-Stowe, Lincolnshire, and both keep bees. About two years ago the prosecutrix's bees died, and in June last year a hive of bees belonging to the accused swarmed, and were eventually secured in a hive belonging to the prosecutrix during her absence from home. On several occasions during the ensuing year the accused told prosecutrix they were his bees, and on one occasion she offered to give him 10s. for them if he could prove they were his. In June this year the bees again swarmed, and Mrs. Wheatcroft was successful in hiving them. On the 5th inst. Monk went into prosecutrix's garden, and, telling her he was going to take the bees, removed them to his own premises, together with her hives and the honey which had accumulated during the year. Monk's solicitor pleaded that when bees swarmed and became wild, according to law they became the property of the first captor; but it was provided that, if the bees were kept in sight, pursued, and recaptured, the ownership would not be forfeited. The bench dismissed the case, considering there had been no felonious intention, but added that it might be a case for another court.

LITERATURE EXPORTED.—Last month the value of the printed books exported was £100,312, against £98,604 in the corresponding month of the previous year.

Markets.

COVENT GARDEN.

FRUIT.	
Apples.....per sieve	3s. 0d. to 5s. 0d.
Cob Nuts.....per lb.	0s. 6d. to 0s. 8d.
Grapes.....per lb.	0s. 6d. to 0s. 8d.
Lemons.....per 100	6s. 0d. to 8s. 0d.
Peaches.....per doz.	2s. 0d. to 2s. 6d.
Pears.....per 100	1s. 0d. to 1s. 6d.
Pine-apples, Eng.....per lb.	3s. 0d. to 4s. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.
Beans, French.....per lb.	0s. 6d. to 0s. 8d.
Beet.....per doz.	1s. 0d. to 1s. 6d.
Cabbages.....per doz.	1s. 0d. to 1s. 6d.
Carrots.....per bunch	0s. 4d. to 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.
Cucumbers.....each	0s. 8d. to 1s. 0d.
Endive.....per doz.	1s. 0d. to 2s. 6d.
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Lapagerias, per doz. blms.	1s. 0d. to 5s. 0d.
Liliums.....per doz. blooms	2s. 6d. to 5s. 0d.
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Mignonette.....	2s. 0d. to 4s. 0d.
Sunflowers, per doz. blms.	1s. 0d. to 2s. 0d.
Pelargoniums, Zonal, per	
doz. trusses.....	0s. 4d. to 0s. 6d.
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Mutton, middling.....	5s. 4d. to 5s. 6d.
Mutton, inferior.....	4s. 4d. to 4s. 10d.
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Veal, prime.....	5s. 0d. to 5s. 4d.
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Pork, prime.....	5s. 0d. to 5s. 4d.
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Prime Clover.....per load	100s. to 140s.
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Consols.....	100 to 100½
Reduced 3 per cent.....	99½ to 99

THE COLOURS OF FLOWERS.

By GRANT ALLEN.

From the Cornhill Magazine.

(Continued from page 462.)

ONE may say that the most profoundly modified of all existing flowers are the families of the composites, the labiates, the snapdragons, and the orchids. Now these are exactly the families in which blue and purple flowers are commonest; while in all of them, except the composites, white flowers are rare, and unmixed yellow flowers almost unknown. But perhaps the best way to test the principle will be to look at one or two families in detail, remembering of course that we can only expect approximate results, owing to the natural complexity of the conditions. Not to overburden the subject with unfamiliar names I shall seldom go beyond the limits of our own native English flora.

The roses form a most instructive family to begin with. As a whole they are not very highly developed, since all of them have simple open symmetrical flowers, generally with five distinct petals. But of all the rose tribe, as I have endeavoured to show elsewhere, the potentilla group, including our common English cinquefoils and silver-weed, seem to make up the most central, simple, and primitive members. They are chiefly low creeping weeds, and their flowers are of the earliest pattern, without any specialisation of form or any peculiar adaptation to insect visitors. Now among the potentilla group nearly all the blossoms are yellow, as are also those of the other early allied forms, such as agrimony and herb-bennet. Almost the only white potentillas in England are the barren strawberry and the true strawberry, which have diverged more than any other species from the norma of the race. Water-avens, however, a close relative of herb-bennet, has a dusky purplish tinge; and Sir John Lubbock notes that it secretes honey, and is far oftener visited by insects than its kinsman. The bramble tribe, including the blackberry, raspberry, and dewberry, have much larger flowers than the potentillas, and are very greatly frequented by winged visitors. Their petals are pure white, often with a pinky tinge, especially on big well-grown blossoms. But there is one low, little-developed member of the blackberry group, the stone-bramble, with narrow inconspicuous petals of a greenish-yellow, merging into dirty white; and this humble form seems to preserve for us the transitional stage from the yellow potentilla to the true white brambles. One step higher, the cherries, apples, and pears have very large and expanded petals, white toward the centre, but blushing at the edges into rosy pink or bright red. Finally, the true roses, whose flowers are the most developed of all, have usually extremely broad pink petals (like those of our own dog-rose), which in some still bigger exotic species become crimson or damask of the deepest dye. They are more sought after by insects than any others of their family.

At the same time, the roses as a whole, being a relatively simple family, with regular symmetrical flowers of the separate type, have never risen to the stage of producing blue petals. That is why our florists cannot turn out a blue rose. It is easy enough to make roses or any other blossoms vary within

their own natural limits, revert to any earlier form or colour through which they have previously passed; but it is difficult or impossible to make them take a step which they have never yet naturally taken. Hence florists generally find the most developed flowers are also the most variable and plastic in colour; and hence, too, we can get red, pink, white, straw-coloured, or yellow roses, but not blue ones. This, I believe, is the historical truth underlying De Candolle's division of flowers into a xanthic and a cyanic series.

Still more interesting, because covering a wider range of colour, are the buttercup family, whose petals vary from yellow to every shade of crimson, purple and blue. Here, the simplest and least differentiated members of the group are the common meadow buttercups, which, as everybody knows, have five open petals of a brilliant golden hue. Nowhere else is the exact accordance in colour between stamens and petals more noticeable than in these flowers. There are two kinds of buttercup in England, however, which show us the transition from yellow to white actually taking place under our very eyes. These are the water-crowfoot and its close ally the ivy-leaved crowfoot, whose petals are still faintly yellow towards the centre, but fade away into primrose and white as they approach the edge. The clematis and anemone, which are more highly developed, have white sepals (for the petals here are suppressed), even in our English species; and exotic kinds, varying from pink to purple, are cultivated in our flower gardens. Columbine are very specialised forms of the buttercup type, both sepals and petals being brightly coloured, while the former organs are produced above into long bow-shaped spurs, each of which secretes a drop of honey; and various columbines accordingly range from red to purple and dark blue. Even the columbine, however, though so highly specialised, is not bilaterally but circularly symmetrical. This last and highest mode of adaptation to insect visits is found in larkspur, and still more developed in the curious monkshood. Now larkspur is usually blue, though white or red blossoms sometimes occur by reversion; while monkshood is one of the deepest blue flowers we possess. Sir John Lubbock has shown that a particular bumble-bee (*Bombus hortorum*) is the only North European insect capable of fertilising the larkspur.

The violets are a whole family of bilateral flowers, highly adapted to fertilisation by insects, and as a rule they are blue. Here, too, however, white varieties easily arise by reversion; while one member of the group, the common pansy, is perhaps the most variable flower in all nature.

Pinks do not display so wide a range in either direction. They begin as high up as white, and never get any higher than red or carnation. The small, undeveloped field species, such as the chickweeds, stitchworts, and corn-spurries, have open flowers of very primitive character, and almost all of them are white. They are fertilised by miscellaneous small flies. But the champions and true pinks have a tubular calyx, and the petals are raised on long claws, while most of them also display special adaptations for a better class of insect fertilisation in the way of fringes or crowns on the petals. These higher kinds are generally pink or red. Our own beautiful purple English corn-cockle is a highly developed champion, so specialised that only butterflies can reach its honey with their long tongues, as the nectaries are situated at the bottom of the tube. Two other species of champion, however, show us interestingly the way in which variations of colour may occur in a retrograde direction even among highly evolved forms. One of them, the day lychnis, has red, scentless flowers, opening in the morning, and it is chiefly fertilised by diurnal butterflies. But its descendant, the night lychnis, has taken to fertilisation by means of moths; and as moths can only see white flowers, it has become white, and has acquired a faint perfume as an extra attraction. Still, the change has not yet become fully organised in the species, for one may often find a night lychnis at the present time which is only pale pink, instead of being pure white.

The only other family of flowers with separate petals which I shall consider here is that of the pea-blossoms. These are all bilateral in shape, as everybody knows; but the lower and smaller species, such as the medick, lotus, and lady's fingers, are usually yellow. So also are broom and gorse. Among the more specialised clovers, some of which are fertilised by bees alone, white, red, and purple predominate. Even with the smaller and earlier types, the most developed species, like lucerne, are likewise purple. But in the largest and most advanced types, the peas, beans, vetches, and scarlet runners, we get much brighter and deeper colours, often with more or less tinge of blue. In the sweet-peas and many others, the standard frequently differs in hue from the keel or the wings—a still further advance in heterogeneity of colouration. Lupines, sainfoin, everlasting pea, and wistaria are highly-evolved members of the same family, in which purple, lilac, mauve, or blue tints become distinctly pronounced.

When we pass on, however, to the flowers in which (as in this hare-bell) the petals have all coalesced into a tubular or campanulate corolla, we get even more striking results. Here, where the very shape at once betokens high modification, yellow is a comparatively rare colour (especially as a ground-tone, though it often comes out in spots or patches), while purple and blue, so rare elsewhere, become almost the rule. For example, in the great family of the heaths, which is highly adapted to insect fertilisation, more particularly by bees, purple and blue are the prevailing tints, so much so that, as we all have noticed a hundred times over, they often colour whole tracts of hillside together. So far as I know, there are no really yellow heaths at all. The bell-shaped blossoms mark at once the position of the heaths with reference to insects; and the order, according to Mr. Bentham, supplies us with more ornamental plants than any other in the whole world.

It is the same with the families allied to my harebell here. They are, in fact, for the most part larger and handsomer blossoms of the same type as the heaths; and the greater number of them, like the harebell itself and the Canterbury bell, are deep blue. Rampion and sheep's bit, also blue, are clustered heads of similar blossoms. The little blue lobelia of our borders, which is bilateral as well as tubular, belongs to a closely related tribe. Not far from them are the lilac scabious, the blue devil's bit, and the mauve teasel. Amongst all these very highly-evolved groups blue distinctly forms the prevalent colour.

The composites, to which belong the daisies and dandelions, also give us some extremely striking evidence. Each flower-head here consists of a number of small florets, crowded together so as to resemble a single blossom. So far as our present purpose is concerned, they fall naturally into three groups. The first is that of the dandelions and hawkweeds, with open florets, fertilised, as a rule, by very small insects; and these are generally yellow, with only a very few divergent species. The second is that of the thistle-heads, visited by an immense number of insects, including the bees; and these are almost all purple, while some highly-evolved species, like the corn-flower or bluebottle and the true artichoke, are bright blue. The third

is that of the daisies and asters, with tubular central florets and long, flattened outer rays; and these demand a closer examination here.

The central florets of the daisy tribe, as a rule, are bright golden; a fact which shows pretty certainly that they are descended from a common ancestor who was also yellow. Moreover, these yellow florets are bell-shaped, and each contain a pistil and five stamens, like any other perfect flower. But the outer florets are generally stérile; and instead of being bell-shaped they are split down one side and unrolled, so as to form a long ray; while their corolla is at the same time much larger than that of the central blossoms. In short, they are sterilised members of the compound flower-head, specially set apart for the work of display; and thus they stand to the entire flower-head in the same relation as petals do to the simple original flower. The analogy between the two is complete. Just as the petal is a specialised and sterilised stamen told off to do duty as an allurer of insects for the benefit of the whole flower, so the ray-floret is a specialised and sterilised blossom told off to do the self-same duty for the benefit of the group of tiny flowers which make up the composite flower-head.

(To be continued.)

Obituary.

ON the 24th instant, at Stoke Newington, Mr. George Taylor, in the sixty-ninth year of his age. The deceased was one of the best known and most respected of the many worthy gardeners of Stoke Newington and Stamford Hill. He not only gave his mind to his business in an earnest manner, and with the usual result of satisfying his employers, but he gave much of his leisure to the benefit of his friends and neighbours. In his early days he assisted in the work of the local horticultural societies, was a prominent member of the oldest of the chrysanthemum societies, and indeed one of its founders, and he wrote the first book on the cultivation of that flower. He was an occasional contributor to this paper, an article of his on the growth of camellias in open beds, which appeared in the issue for March 28, 1868, having attracted much attention. It was then much doubted if camellias could be grown as hardy plants in the neighbourhood of London, but it is now admitted that in a run of years characterized by winters of only average severity, Mr. Taylor's statement is perfectly true, that "camellias may be grown in beds as rhododendrons are, and with just the same kind of treatment." Our old friend was an agreeable, communicative, and sometimes merry man, and one of the most welcome guests at the dinners of the Chrysanthemum Society.

TRADE CATALOGUES.

E. JACQUEAU, 2, RUE ST. MARTIN, PARIS.—*Catalogue of Tuberous and Bulbous Flowers.*

KEYNES AND CO., SALISBURY.—*Descriptive Catalogue of Roses and Grape Vines—Descriptive Catalogue of Dahlias, Verbenas, and Bedding Plants.*

WM. PAUL AND SON, WALTHAM CROSS, HERTS.—*Catalogue of Roses—Special Catalogue of Fruit Trees, Grape Vines, Climbing Plants, &c.*

CHRISTOF STEINFÖCK, ALTLENGBACH, OESTERREICH.—*Special List of Herbaceous Plants at Wholesale Rates.*

Replies to Queries.

Material for Rockwork.—W. C. E.—There is no material more suitable for the construction of an out-door rockery on which to grow ferns than burnt bricks or "burrs," which may be obtained at a very cheap rate at any of the brickfields in your district.

Whitchholme.—The subject is ever before us; we figure new plants, give lists of good old and new species, and report on them as seen in exhibitions and gardens. It is evident you have not long been a reader of this paper. If you continue a reader you will obtain all you want.

R. J. Strood.—Trees may be removed from a nursery ground unless there are express stipulations to the contrary. As regards compensation if you leave them, you have no claim. But it may be worth the owner's while to pay something to keep the trees where they are, and from your statement we should doubt if they are worth moving.

Snails in Orchid House.—J. C.—The myriads of small snails that are making havoc in your orchid house may surely be reduced to nothing by determined action. Little heaps of fresh brewers' grains, fresh lettuce leaves, cabbage leaves smeared with rank butter, and damp wooden planks may be used *ad lib.* as traps, and the policy must be to catch and kill.

Hardy Free-Blooming Roses.—Derbyshire.—The following hybrid perpetuals are hardy and free-flowering: ALMA Alexieff, Baronne Prevost, Beauty of Waltham, Comtesse de Chabriland, Coquette des Blanchés, Duchesse de Cambacérès, Duke of Edinburgh, Dr. Andry, General Jacqueminot, Glory of Waltham, John Hopper, La Reine, Lord Clyde, Madame Alfred de Rougemont, Paul Neyron, Princess Louise, Red Dragon, and Victor Verdier.

Planting a Shady Border.—Gravesend.—Under the circumstances the best course would be to discontinue the cultivation of flowering plants in the border and devote it to shrubs that will thrive in the shade. Some of the most suitable for the position are *Arbutus unedo*, *aucubas* in variety, *Berberis aquifolium*, *Euonymus japonicus*, ivies and hollies green and variegated, Privets, *Rhododendrum ponticum*, red-flowered Currant, Spanish Broom, Snowberry, yews in variety, *laurestinus* and *vincas* green and variegated. For the formation of a marginal band to the border *Vinea elegantissima* will be found unsurpassed.

Names of Plants.—F. W.—You have sent too many, and several specimens consist of leaves only, and we cannot afford time to look at them. We give you the names of such as admit of being quickly disposed of: 4, A variegated citrus, which cannot be named from one leaf; 5, *Acalypha tricolor*; 6 is like *Sparmaunia Africana*, but we must see a flower to determine; 9, *Spiræa Reevesiana*; 12, *Onychium japonicum*; 14, *Asplenium lucidum*; 15, *Selaginella ciliata*; 17, *Cystopteris fragilis*. J. F., Paisley.—The shrivelled flower sent in a box that became smashed in the post office has too much colour for a proper picotee. But it may be a picotee for all that. It is not unusual for the colour of the edge to run, as apparently has happened in this case. W. Hewitt.—1, *Abutilon rufigerve*; 2, *A. integerrimum*; 3, *Camellia maliflora*; 4, *C. sasanqua*. W. R. B.—1, *Gasteria angulata*; 2, *Mussaenda frondosa*.

HORNIMAN'S PURE TEA IS THE BEST.

SOLD ONLY IN PACKETS, BY 4,000 AGENTS.

"HE WHO KNOWS WHAT IT IS TO LABOUR, KNOWS WHAT IT IS TO ENJOY."

THE story runs that in the year 510 an Indian prince—one Darma, third son of King Kosjinsva—famed throughout the East for his religious zeal, landed in China on a missionary enterprise. He devoted all his time and thought to the diffusion of a knowledge of God. In order to set an example of piety to others, he imposed on himself various privations and mortifications, forsook sleep, and, living mostly in the open air, devoted himself to prayer, preaching, and contemplation. However, after several years passed in this excessively austere manner, he involuntarily fell asleep. Upon awaking, so distressed was he at having violated his oath, that to prevent a repetition of such back-sliding and never again permit "tired eyelids" to "rest on tired eyes," he cut off those offending portions of his body, and flung them on the ground. Returning next day to the same spot, he discovered that his eyelids had undergone a strange metamorphosis, having been changed into a shrub, the like of which had never before been seen upon the earth. Having eaten some of the leaves, he found his spirits singularly exhilarated thereby; while his former vigour was restored. Hence he recommended the newly-discovered boon to his disciples and followers, so that after a time the use of Tea rapidly spread. A portrait of Darma is given by Kneipfer, the first authoritative writer on China. At the foot of the portrait is the representation of a reed, supposed to be indicative of the religious enthusiast having crossed rivers and seas in the pursuit of his mission. It is by no means difficult, out of this wonderful legend, to extract a moral, namely, that an earnest individual, who had acquired the useful habit of keeping his eyes open, discovered one of Nature's secrets, which had entirely escaped the observation of all others.

"It is a singular fact that a Chinese never drinks cold water. Un-coloured Tea (Mr. Fortune writes) is his beverage from morning till night—the essence of the herb drawn out in pure water, and swallowed without milk and sugar. If he travels, he stops in his chair to take his cup. If he pays a visit he is offered Tea; if he receives a visitor he proffers it. Before dinner he takes his Tea as the French take oysters—as a zest. After dinner he sips his tea as a Scotchman takes his whisky—as a digester. This is done not only without injury, but with positive advantage to his bodily health and comfort.

"Yet we Englishmen swallow Tea made from coloured leaves, go to bed, turn and toss, break awake, get up, complain of unstrung nerves and weak digestion, and visit the doctor, who shakes his head and says 'Tea!' What he means, if he has given attention to the subject, is 'Metallic Colouring Powder.' 'Foreigners,' say the Chinese, 'like to have their Tea uniform and pretty,' so they colour the leaves for the advantage of the English Merchants. The Chinese would not drink dyed Tea, such as we daily use; but the more colouring powder he can communicate to the leaves, the higher becomes its value in the eyes of the merchant, who can then get more money for it from the English Tea Dealers. The dyeing process accordingly goes on in China to an extent actually alarming. The Chinese may readily regard us with surprise, and the coats of our stomachs may well rebel against such an objectionable intrusion."

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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths before Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1832			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	UFG.		
8	S	18th Sunday after Trinity.	6 14	12 27	5 22	2 20	3 36	11 30	11 57	8 23	8 55	52.6	Aster lavis, H.	1852
9	M	Eddystone Lighthouse commenced, 1759.	6 16	12 41	5 20	3 24	3 57	—	0 22	0 22	9 47	52.5	Aster Novo-Anglia, H.	281
10	Tu	Oxford Michaelmas Term begins.	6 17	12 59	5 18	4 28	4 17	0 42	1 2	10 7	10 27	52.3	Bouvardia jasminiflora, G.	282
11	W	Old Michaelmas Day.	6 19	13 14	5 15	5 33	4 37	1 18	1 35	10 43	11 0	52.1	Helianthus multiflorus fl. pl., H.	283
12	Th	● New Moon, 6h. 1m. morn. Columbus discovered America, 1492.	6 20	13 29	5 11	6 37	4 59	1 52	2 5	11 17	11 31	51.7	Nerine sarniensis, H.	284
13	F	Canova died, 1822.	6 22	13 43	5 11	7 42	5 26	2 20	2 31	11 45	Midn.	51.4	Tacsonia exoniensis, G.	285
14	S	Fire Insurance due.	6 24	13 57	5 8	8 47	5 57	2 52	3 5	—	0 17	51.3	Veronica Andersoni, G.	286

The Gardeners' Magazine.

SATURDAY, OCTOBER 7, 1832.

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EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

ALL ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES, 143 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, OCTOBER 10, ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; General Meeting, 3 p.m.

Auction Sales for the Ensuing Week.

MONDAY, OCTOBER 9, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

TUESDAY, OCTOBER 10, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Established Orchids.

TUESDAY, OCTOBER 10 AND TWO FOLLOWING DAYS, AT 12 NOON.—Messrs. Protheroe and Morris, at the Woking Nursery; Outdoor Nursery Stock.

TUESDAY, OCTOBER 10, AT 11 A.M.—Mr. T. Neale, at the Beeston Nursery; Outdoor Nursery Stock.

TUESDAY, OCTOBER 10, AT 3 P.M.—Mr. J. S. Gomme, at Norman Farm, Fulham Fields; Seakale and Rhubarb Roots.

WEDNESDAY, OCTOBER 11, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

THURSDAY, OCTOBER 12, AT 12.30 P.M.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Orchids.

FRIDAY, OCTOBER 13, AT 12 NOON.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse Yard, E.C.; Greenhouse Plants.

SATURDAY, OCTOBER 30, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

THE PLANTING SEASON is near at hand, and the wise planters know by this time pretty nearly what they intend to do; and it will be well indeed for them if they are enabled to carry out their plans. They will have to secure their trees in the first instance, and at that first stage of the story may meet with disappointment. And when the trees reach them, many will be found to have been so much damaged in the process of lifting as to require a few years to recover, while perhaps some of them may not recover, but prefer death to a sickly existence. And when the preliminary perils are passed there is the great peril of the weather to be encountered; for planting can be properly performed only in what is called "open weather," when the ground is not particularly moist and the sky is not particularly black, and there are no rain-storms or snow-storms hovering about. Planting, like other industrial operations, may be well done or ill done, but, unlike many other industrial operations, the consequences of bad work are not immediately revealed. It will require one whole season at least to settle the general case whether the business was directed with prudence, and many seasons thereafter to determine whether the very best kinds of trees were selected for the soil, the climate, and the special needs of their possessor. Such considerations point one moral with certainty, and it is that only those who take time by the forelock can really ensure or reasonably expect a balance of probabilities and circumstances in their favour. It needs no more to be said, except to those who are quite in the position of novices, that it is not needful and not desirable to wait until the trees have completely shed their leaves before subjecting them to the process of transplantation. To lift them when in free growth would be a direct mischief, and some time after growth has ceased must be allowed

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them for the hardening of the young wood. But the more we learn of the functions of leaves, the more surely are we persuaded that, although absolutely essential to the life of a tree, their usefulness does not continue until they actually drop, but ceases some considerable time in advance of that event. We have recorded experiments in planting during the month of September in average seasons, the results being altogether satisfactory. Extreme cases teach us the limits of the possible. We do not recommend people to plant deciduous trees in September, but we can safely say that from the middle of October onwards planting may be carried on with advantage, and, as a rule, the earlier it is begun the more completely will it be finished, because of the frequent occurrence of open weather in the earlier days of autumn. Large operations are often interrupted by bad weather, and the spring may dawn and still find them unfinished. It is well therefore to begin early, and to feel that we are as yet far away from the edge of a precipice.

The orchards and fruit gardens have presented a lamentably barren appearance in the past summer. We have had a run of bad seasons, pleasantly chequered with a few exceptionally good ones, the year 1881 being fairly productive of good fruits. In all the more celebrated of the fruit-producing districts planting has been carried on with a spirit that might occasion surprise if the visible discouragements were alone regarded. But in the minds of observant and experienced fruit cultivators there were to be found encouragements engendered of knowledge. Thirty to forty years ago fruit orchards in the counties of Kent, Hereford, and Worcester were to a great extent destroyed, because they had ceased to pay, and the land was put under rotation tillage. In the past fifteen years the reverse operation has been in progress: new plantations have been formed, and the producers of trees—in other words, our friends the nurserymen—have been profitably occupied in supplying material for the formation of these new orchards. The fact is the more worthy of attention because the years in which the orchards have been renewed and extended have not been years of extraordinary plenty.

It seems that the increased and increasing energy observable in the commercial fruit garden is the result in great part of the reduction to scientific principles of the business of fruit production. The agricultural and horticultural papers have contributed in a very considerable degree to the spread of useful knowledge on the subject of hardy fruit culture, and it has become evident to all observers that the men who read and reflect, and attend exhibitions and assist in the labours of inquiring committees, have a better run of luck with their fruit crops than the men who shut themselves up, and hear little and see less. The horticultural papers have given very much attention, and in a very systematic way, to the subject of fruit culture, gathering information from all quarters, and carefully tabulating the observations and suggestions of practical men. They have, indeed, accomplished an end which apparently is not attainable in any other way: they have gathered the wisdom of many counsellors and given it freely to the world. That we have endeavoured to do our part in this work is, we hope, apparent to our readers.

As one more endeavour in this direction, we made a careful digest of reports and records at our command, and gave the results in our issue for September 30. It will be seen that out of about two thousand varieties of fruits available we have selected about one-seventeenth of the whole, our list comprising 116 "sure-bearing fruits." That these are not "sure" in the fullest sense of the word the orchards at this time testify, but they are such as, in a long run of years, have given the most complete satisfaction in many widely-separated districts, on various soils, and under different systems of management. For certain particular cases these lists may be of but little use, but for planters in general, if constant and abundant supplies of fruit are matters of importance, these lists are full of importance, and may with advantage be consulted from time to time. At this time last year we reported on a remarkable crop of Stirling Castle apple in the grounds of Mr. Dancer at Chiswick, and we now call to mind a remark made by our friend when a certain few were admiring the crop. He said, "If I had known in time I would have had a hundred trees of these for every one you see here. We cover our land and live in hope, and time reveals to us our mistakes when it is too late to repair them." And such mistakes have been made, and still are made, everywhere, not only in market

gardens, but in the smaller enclosures that are planted for the express purpose of improving the family table.

When 116 varieties of fruits have been named there will remain as many more that may properly dispute with them for the honour of a place in the lists. And these will easily be found. Our duty in such a case is to accept advice from all quarters, and cast up accounts impartially. But every prudent planter will give first attention to the favourites of his own locality. It may happen that these favourites have really been superseded by better sorts, and therefore to give them place is a retrogressive proceeding. But for all that their claim to attention is pre-eminent, until facts beyond dispute have destroyed their pre-eminence. It may be said that every fruit and every variety has a special fitness for some particular locality, where, more than all the rest, it is "at home." It is for the planter to discover these, and a review of the immediate locality will be of more effect than any reference to books. The local favourites must have attention, whatever may be the decision taken thereupon.

THE NATIVE GUANO COMPANY'S ROOT SHOW will take place at Aylesbury on Thursday, the 19th inst.

AT THE DAIRY SHOW held during last week in the Agricultural Hall, English cheeses of high character were conspicuous, and amongst them superior samples of British Camembert and British Gorgonzola. Mr. Webb's make of the latter was valued at 112s. per cwt.

HORTICULTURAL EXHIBITIONS IN 1883.—A great exhibition will be held in Berlin in the month of April. The Imperial Horticultural Society of Russia will hold an exhibition in St. Petersburg from the 5th to the 17th of May, or, to give the dates in old style, from the 16th to the 28th. The great show in Ghent is fixed to take place from the 15th to the 22nd of April.

A LECTURE ON PLANT LABELS will be given by Mr. Shirley Hibberd at the meeting of the Royal Horticultural Society, South Kensington, on Tuesday next, October 10, at three o'clock. Mr. Hibberd's object will be to indicate the points of practical importance in the recent competitive exhibition of plant labels, the whole of these being now in the possession of the R.H.S.

THE FRUITERERS' COMPANY on Wednesday last presented to the Lord Mayor and Lady Mayoress at the Mansion House a choice collection of fruit, including grapes, pines, melons, pears, apples, peaches, plums, apricots, and raspberries. This was in accordance with an annual custom that has long ceased to be of any public interest.

VAN GEERT'S "ICONOGRAPHY OF INDIAN AZALEAS" for September contains portraits of *Bignoniæflora*, a huge double flower of a peculiar shade of purple-red; *Königin Cleopatra*, a curious striped single, very fantastically coloured; and *Heinrich Heine*, a semi-double of a rich violet-crimson colour. The literature and the pictures agree in high quality and appropriateness.

ABUTILONS have been amongst the best of autumnal flowers in the present season, and they appear likely to continue gay until frost brings them to a stop. Mr. Cannell has sent us a heap of blooms to show how they are behaving at Swanley. In the near neighbourhood of London they are at this time full of flower, and as fresh as if made for the climate.

MR. MOORE, NURSEYMAN, of Market Place, Warwick, complains that in our report of the recent exhibition at Warwick we omitted to state that he obtained a certificate for Moore's Warwick Turnip, an improved green top-variety suitable for either farm or garden. Our reporters endeavour to report fully and fairly, but they are as fallible as the rest of the world.

MESSRS. WEBB AND SONS, OF WORDSLEY, STOURBRIDGE, have published a catalogue of seed corn, comprising pedigree wheats and other cereals. One of the specialties is a beardless barley, which may be harvested and malted with less labour than any ordinary bearded barley. We refer to the catalogue here because it is, in its way, a novelty, and possesses considerable interest.

A GATHERING OF PEAS ON THE SECOND OF OCTOBER may be expected in many places in such a season as the present, but would not be looked for in any place near London. However, our neighbour, Mr. T. N., of Lordship Park, Stoke Newington, exactly $3\frac{1}{2}$ miles from the Post Office as the crow flies, gathered on the 2nd a grand dish of British Queen peas that were sown late in June and afterwards mulched with Chubb and Round's prepared cocoa-nut fibre. Moreover, the plant is still fresh, and another gathering is confidently expected should the weather prove fairly favourable.

WASPS AND HORNETS.—Mr. F. Nevill Read writing from Ravello, in the *Times* of Tuesday last, says:—"I have for some years been waging war with very indifferent success against wasps and hornets, which do so much damage in the vineyards. I have had sixteen nests of hornets destroyed this summer, but the numbers do not seem to diminish, for the larger nests are generally in trees where it is impossible to attack them with sulphur or gunpowder. On reading the interesting letter of Mr. Squire in the *Times* of September 20, I at once tried cyanide of potassium, first on a wasp's nest in a place where it had been impossible to destroy it, and then on a hornet's nest in the fork of a tree. The cyanide is as efficacious against hornets as against wasps, and in twenty-four hours both were lying dead in heaps. I shall try to make known this valuable discovery to the owners of vineyards in this province."

"THERE IS NOTHING IN THE GARDEN."

"WHAT a peculiar heading!" the reader will say; "this is so unlike the practical matter-of-fact headings we are used to in the GARDENERS' MAGAZINE." It will also perhaps be added that what follows cannot be worth reading. Whether it will be worth reading or not, good reader, that I will leave you to judge. I have been pondering over the many queer things I have heard say about the garden, and this one has struck me as one of common occurrence, and very generally used just as the days begin to lengthen towards the end of January, when all who are fond of a garden are on the look out for the first signs of the approach of spring. After I have made my remarks it will be for you to say whether you will have flowers or "nothing in your garden." But bear in mind, gentle reader, that there are many gardens in which there is "nothing in them," in the sense here intended, because so many do not think about spring flowers until spring weather comes, and because they have not thought about them beforehand they do not have them. Therefore they have good reason to say, "There is nothing in the garden." Preparation must be made for the early flowers if we would have them, and how to proceed is the main object of this paper.

To obtain flowers in January, you must now plant the Winter Aconite, which has yellow flowers very similar to a common buttercup. It belongs to the bulbous plants, and as it only grows about four inches high it may be planted anywhere. You may make lines of it in the borders, or plant it in clumps or as edgings in beds. You may, indeed, plant it in scrolls or in any artistic fashion and you like, on grass; it will be sure to find its way through, and produce its welcome flowers after the first few mild days in January. In clumps along the mixed border it gives the garden a very cheerful appearance when there are no other flowers. If you are fond of a brilliant scarlet flower, plant *Anemone fulgens*. It will not flower during a hard frost, but if we have a mild month it will surprise you by its brilliancy. Do you want a white flower? Then plant *Arabis alba*. This is low growing and common, but it is the first of the white flowers, and by no means wanting in attractiveness. It may be planted in a bed or in clumps in the mixed borders. If you like scented flowers, you may have the winter heliotrope, *Tussilago fragrans*, which is perfectly hardy, and flowers in January, if the weather is at all mild. The only objection to it is its very unruly growth.

Now I will tell you some of the flowers you may have in the month of February. One of the first plants to bloom in this month is *Erica* herbacea, a hardy heath, and which, when once planted, will last a lifetime with ordinary care. It is simply necessary to take the plants up and divide them once in seven years. It will grow in any kind of soil, except in cold stiff clay. *Sisyrinchium grandiflorum* and *S. grandiflorum album* bloom very early in February; so also do *Iris reticulata* and *Primula nivalis*. *Cheiranthus Marshalli* also flowers early in warm positions. *Aubrietia deltoidea* is a charming subject both for massing and single groups, and a most suitable plant for rock work. *Anemones* in variety will be in bloom towards the end of the month, and they embrace a large number of colours; they should be planted freely. The single yellow and the single dark Wallflowers will be in many warm gardens be in flower. The single Russian Violets may also be included in this month. I do not pretend to have exhausted the list of hardy plants that will bloom in February, but I have named sufficient to show that there will be no scarcity of flowers if proper preparations are made, and the weather is not unusually severe.

There ought to be plenty of flowers in every garden in the month of March. Crocuses should be in full flower. The yellow variety is always the earliest, and that and the white and the purple are the most distinct. There are intermediate colours quite as beautiful. Hepaticas will also be at their best in mild districts. If you have not a stock of them, let me recommend you to obtain the single pink and the single blue varieties. The lovely little blue *Scilla sibirica* will be also peeping through the soil. *Aubrietia Campbellæ* is a neater habited plant than *A. deltoidea*, and darker in colour, and is therefore very desirable. Garden daisies, both red and white, must not be forgotten. *Myosotis dissitiflora* is so useful that it cannot be dispensed with where spring flowers are grown: if a white variety is wanted, the white form, *M. sylvatica*, is the best. The *Narcissus* is such a grand flower, and blooms so freely, that it should be planted largely.

Helleborus niger is at its best this month, and there are several other *Helleborus* which bloom at the same time that are suitable for the mixed border. The quaintly-marked *Fritillarias* must be planted, if only for the sake of the variety they afford. Towards the end of the month Hyacinths will be showing flower, and there are several varieties of the Iberis that should be now in bloom. I need not stay to name any more, for as the month wears on there should be flowers everywhere; but as I have only mentioned plants that are suitable for beds or borders, I will just name two or three early-flowering shrubs that should be in every garden. The first is the *Daphne mezereum*, which is perfectly hardy and easy to grow. Then there is the single-flowered Almond, which makes a capital standard tree, and the double-flowering Peaches, which are pretty objects when grown in pyramidal form. The snowy *Mesipulus* is another tree admirably adapted for the shrubbery. The flowering Currant everybody knows is very cheering in the opening days of spring, and do not forget there are more than one variety of this.

I have already told you that the time to plant the subjects I have named is now. If you do not accept the advice given it will be your fault, and not mine, if you have nothing in the garden when the joyous spring time comes.

T. M. P.

British Association.

THE PRESENT PHASE OF THE ANTIQUITY OF MAN.

By PROFESSOR W. BOYD DAWKINS.

IN taking the chair in the section of Anthropology, the Professor said: The swift development of our young and rapidly-growing science, which embraces within its scope all that is known, not merely about man, but about his environment, in present and past times, renders the first and more ambitious course peculiarly difficult to one, like myself, labouring under the pressure of many avocations. I am therefore driven to adopt the second and the easier, by choosing a subject with which I am familiar, and which appears to me to be appropriate in this place of meeting. I propose to place before you the present phase of the inquiry into the antiquity of man, and to point out what we know of the conditions of life—though our knowledge of them is imperfect and fragmentary—under which man has appeared in the Old and in the New Worlds. The rudely-chipped implements left by the primeval hunters in the beds of gravel of Hampshire and Wiltshire, and along the shores of Southampton Water and elsewhere, are eloquent of the presence of man in this district at a time when there was no Southampton Water, and the elephant and the reindeer wandered over the site of this busy mart for ships; when the Isle of Wight was not an island, and the River-drift hunter could walk across from Portsmouth to Cowes, with no obstacle except that offered by the rivers and morasses. I propose to enter upon the labours of Prestwich, Evans, Stevens and Blackmore, Codrington, Read, Brown, and other investigators in this country, and to combine the results of their inquiries with those in other countries, and with some observations of my own, which I was able to make in 1880, during my visit to the United States. The most striking feature in the study of the Tertiary period is the gradual and orderly succession of higher types of mammalia, so well defined and so orderly, that I have used it as a basis for the classification of the Tertiary period. We find the placental mammals becoming more and more specialized as we approach the frontier of history. The living orders appear in the Eocene, the living genera in the Miocene, a few living species in the Pliocene, and the rest in the Pleistocene. The characteristics of this evolution of living forms may be summed up as follows:—VI. Historic—in which the events are recorded in history. Events included in history. Founded on discoveries, documents, refuse-heaps, caves, tombs. V. Prehistoric—in which domestic animals and cultivated fruits appear. Man abundant; domestic animals, cultivated fruits, spinning, weaving, pottery making, mining, commerce; the neolithic, bronze, and iron stages of culture. Camps, habitations, tombs, refuse-heaps, surface accumulation, caves, alluvia, peat bogs, submarine forests, raised beaches. IV. Pleistocene—in which living species of placental mammals are more abundant than the extinct. Man appears; *anthropidae*; the palæolithic hunter; living species abundant. Refuse-heaps, contents of caves, river deposits, submarine forests, boulder clay, moraines, marine sands, and shingle. III. Pliocene—in which living species of placental mammals appear. Living species appear; apes, *simiade*, in Southern Europe. Fresh-water and marine strata; volcanic *débris* (Auvergne). II. Miocene—in which the alliance between living and placental mammals is more close than before. Living genera appear; apes, *simiade*, in Europe and North America. Fresh-water and marine strata; volcanic *débris* (Auvergne); lignites. I. Eocene—in which the placental mammals now on earth were represented by allied forms belonging to existing orders and families. Living orders and families appear, lemurs (*lemuridae*) in Europe and North America. Fresh-water and marine strata; lignites. The orders, families, genera, and species in the above summary, when traced forward in time, fall into the shape of a genealogical tree, with its trunk hidden in the secondary period, and its branchlets (the living species) passing upwards from the Pliocene, a tree of life, with living mammalia for its fruit and foliage. Were the extinct species taken into account, it would be seen that they fill up the intervals separating one living form from another, and that they too grow more and more like the living forms as they approach nearer to the present day. It must be remembered that in the above definitions the fossil marsupials are purposely ignored, because they began their specialization in the secondary period, and had arrived in the Eocene at the stage which is marked by the presence of a living genus—the opossum (*Didelphys*). It will be seen that our inquiry into the antiquity of man is limited to the last four of the divisions. The most specialized of all animals cannot be looked for until the higher mammalia by which he is now surrounded were alive. We cannot imagine him in the Eocene age, at a time when animal life was not sufficiently differentiated to present us with any living genera of placental mammals. Nor is there any probability of his having appeared on the earth in the Miocene, because of the absence of higher placental mammals belonging to living species. It is most unlikely that man should have belonged to a fauna in which no other living species of mammal was present. He belongs to a more advanced stage of evolution than the mid-Miocene of Thanet. Up to this time the evolution of the animal kingdom had advanced no further than the *Simiade* in the direction of man, and the apes then haunting the forests of Italy, France, and Germany represent the highest type of those on the earth. We may also look at the question from another point of view. If man were upon the earth in the Miocene age, it is incredible that he should not have become something else in the long lapse of ages, and during the changes in the conditions of life by which all the Miocene land mammalia have been so profoundly affected, that they have been either exterminated or have assumed new forms. It is impossible to believe that man should have been an exception to the law of change, to which all the higher mammalia have been subjected since the Miocene age. Nor in the succeeding Pliocene age can we expect to find man upon the earth, because of the very few living species of placental mammals then alive. The evidence brought forward by Professor Capellini, in favour of Pliocene man in Italy, seems both to me and to Dr. Evans unsatisfactory, and that advanced by Professor Whitney in support of the existence of Pliocene man in North America cannot, in my opinion, be maintained. It is not until we arrive at the succeeding stage, or the Pleistocene, when living species of mammalia begin to abound, that we meet with indisputable traces of the presence of man on the earth. As a preliminary to our inquiry we must first of all define what is meant by the Pleistocene Period. It is the equivalent of the Quaternary of the French, and the Postpliocene of the older works of Lyell, and it includes all the phenomena known in latitudes outside the Arctic Circle, where ice no longer is to be found, under the name of glacial and inter-glacial. It is characterized in Europe, as I have pointed out in my work on "Early Man in Britain," by the arrival of living species, which may be conveniently divided into five groups, according to their present habitats. The first consists of those now found in the temperate zones of Europe, Asia, and North America. It includes the following animals:—Mole, musk shrew, common shrew, mouse, beaver, hare, pika,

pouched marmot, water vole, red field vole, short-tailed field vole, continental field vole, lynx, wild cat, wolf, fox, marten, ermine, stoat, otter, brown bear, grisly bear, badger, horse, bison, urus, saiga antelope, stag, roe, fallow-deer, wild boar. The second consists of animals of arctic habit:—Russian vole, Norwegian lemming, Arctic lemming, varying hare, musk sheep, reindeer, Arctic fox, glutton. The third is composed of those which enjoy the cold climate of mountains:—The snowy vole, Alpine marmot, chamois, and ibex. These animals invaded Europe from Asia, and as the cold increased the temperate group found their way into Southern Europe and Northern Africa, while the Arctic division pushed as far south as the Alps and Pyrenees. The fourth group of invading forms is represented by animals now only found in warm countries:—Porcupine, lion, panther, African lynx, Caffre cat, spotted hyena, striped hyena, and African elephant. This group of animals is found as far to the north as Yorkshire and as far to the west as Ireland. Among the southern animals, too, must be reckoned the hippopotamus, which lived as far north as Britain in the Pliocene age, and in the Pliocene occurs in caves and river deposits, in intimate association with some arctic species, such as the reindeer. The fifth group is composed of extinct species, hitherto unknown in Europe in the Pleistocene age, such as the straight-tusked elephant, mammoth, the pigmy elephants, woolly and small-nosed rhinoceroses, the Irish elk, pigmy hippopotamus, and the cave bear. The question as to which of these groups the River-drift man belongs must be deferred till we can take a survey of the evidence elsewhere. The early Pleistocene division is characterized by the presence of the temperate and southern species in Britain; the middle stage by the presence of the arctic, but not in full force; and the late Pleistocene by the abundance of Arctic animals, not only in Britain but on the Continent as far as the Alps and Pyrenees, and the lower valley of the Danube. The first view which we get of the Pleistocene mammalia in this country is offered by the accumulations associated with the buried forest of East Anglia. It extends for more than forty miles along the shores of Norfolk and Suffolk from Cromer to Kessingland, passing into the cliff on the one hand, and beneath the sea on the other. The forest was mainly composed of sombre Scotch firs and dark clustering yews, relieved in the summer by the lighter tinted foliage of the spruce and the oak, and in the winter by the silvery gleam of the birches, that clustered thickly with the alders in the marshes and stood out from a dense undergrowth of sloes and hazels. Among the animals living in this forest of the North Sea were species which haunted the valleys of the upper Seine at the time, such as the southern elephant, the Etruscan rhinoceros, the deer of Carnates, extinct horses, and the large extinct beaver. There were in addition the shaggy-maned mammoth, the straight-tusked elephant, and the big-nosed rhinoceros. The stag, the roe, the Irish elk, were in the glades, Sedgwick's deer, with its many-pointed antlers, the verticorn deer, and the gigantic urus. The undergrowth formed a covert for the wild boar, and for beasts of prey, many in species and formidable in numbers. The cave bear, the hugest of its kind, the sable-toothed lion, the wolf, the fox, and the wolverine. Among the smaller animals were to be noted the musk shrew, the common shrew, and a vole. In the trees were squirrels. Under foot the moles raised their hillocks of earth, and from between the lofty fronds of the Osmond royal beavers were to be seen building their lodges, and the hippopotamus as he emerged from the water and disappeared in the forest. Out of the thirty species identified no less than seventeen are living in some part of the world, and we have there obviously the stag in the evolution of mammalian life when the living species were becoming more abundant than the extinct. We may note, too, the absence of arctic animals in this fauna, more particularly of the reindeer. The presence of these animals in Norfolk and Suffolk implies that at this time Britain was united to the Continent, and the presence of fossil species found in France indicates a southern extension of land in the direction of the Straits of Dover. The forest covered a large portion of the area of the North Sea, and in all probability the Atlantic sea-board was then at the 100-fathom line of the west coast of Ireland. No traces of man have as yet been discovered in these deposits, although the large percentage of living species of higher mammalia indicates that the geological clock had struck the hour when he may be looked for. The living species in the forest bed are to be looked upon as an advanced guard of a great migration of Asiatic and African species, finding their way into North-western Europe, over the plains of Russia, and over barriers of land connecting Northern Africa with Spain by way of Gibraltar, and with Italy by way of Malta and Sicily. In the course of time other living species followed, and the extinct species became more rare. In the deposits, for instance, of the ancient Thames, at Ilford and Grays Thurrock, in Essex, and at Erith and Crayford, in Kent, out of twenty-six species, six only belong to extinct forms—the new comers comprising the lion, wild cat, spotted hyena, and otter, the bison, and the musk sheep. A flint flake discovered by the Rev. Osmond Fisher, at Crayford, a second discovered by Messrs. Cheadle and Woodward at Erith, prove that man was present in the valley of the Thames at this time; while the more recent discoveries of Mr. Flaxman Spurrell indicate the very spots where the palæolithic hunter made his implements and proved that he used implements of the River-drift type, so widely distributed over the surface of the earth. The arctic animals at this time were present, but not in full force, in Southern Britain, and the innumerable reindeer which characterize the later deposits of the Pleistocene age had not, so far as we know, taken possession of the valley of the Thames. To what stage in the Pleistocene period are we to refer these traces of the River-drift hunter? The only answer which I am able to give is that the associated animals are intermediate between the Forest-bed group and that which characterizes the late Pleistocene division in the region extending from the Alps and the Pyrenees as far north as Yorkshire. Nor am I able to form an opinion about their relation to the submergence of Middle or Northern Britain under the waves of the glacial sea. They are quite as likely to be pre- as post-glacial. The rudely-chipped implements of the river-drift hunter lie scattered through the late Pleistocene river deposits in Southern and Eastern England in enormous abundance, and as a rule in association with the remains of animals of arctic and of warm habit as well as some or other of the extinct species of reindeer and hippopotamus along with mammoth and woolly rhinoceros. What is their relation to the submergence of the land and the lowness of the temperature which combined together have resulted in the local phenomena known as glacial and inter-glacial? The geographical change in Northern Europe at the close of the Forest-bed age was very great. The forest of the North Sea sank beneath the waves and Britain was depressed to a depth of no less than 2,300 feet in the Welsh mountains, and was reduced to an archipelago of islands, composed of what are now the higher lands. The area of the English Channel also was depressed, and the "silver streak" was wider than it is now, as is proved by the raised beach at Brighton, at Bracklesham, and elsewhere, which marks the sea line of the largest island of the Archipelago, the

Southern Island, as it may be termed, the northern shores of which extended along a line passing from Bristol to London. The northern shore of the Continent at this time extended eastwards from Abbeville north of the Erzgebirge, through Saxony and Poland, into the middle of Russia, Scandinavia being an island from which the glaciers descended into the sea. This geographical change was accompanied by a corresponding change in climate. Glaciers descended from the higher mountains to the sea level, and icebergs, melting as they passed southwards, deposited their burdens of clay, sand, and erratics, which occupy such a wide area in the portions then submerged of Britain and the Continent. This depression was followed by a re-elevation, by which the British Isles, a part of the Continent, and all the large tract of country within the 100-fathom line again became the feeding-grounds of the late Pleistocene mammalia. An appeal to the animals associated with the river-drift implements will not help us to fix the exact relation of man to these changes, because they were in Britain before, as well as after, the submergence, and were living throughout in those parts of Europe which were not submerged. It can only be done in areas where the submergence is clearly defined. At Salisbury, for instance, the River-drift hunter may have lived either before, during, or after the southern counties became an island. When however, he hunted the woolly and leptorhine rhinoceros, the mammoth, and the horse in the neighbourhood of Brighton, he looked down upon a broad expanse of sea, in the spring flecked with small ice-bergs such as those which dropped their burdens in Bracklesham Bay. At Abbeville, too, he hunted the mammoth, reindeer, and horse down to the mouth of the Somme on the shore of the glacial sea. The evidence is equally clear that the River-drift hunter followed the chase in Britain after it had emerged from beneath the waters of the glacial sea, from the fact that the river deposits in which his implements occur either rest upon the glacial clays, or are composed of fragments derived from them, as in the oft-quoted cases of Hoxne and Bedford. Further, it is very probable that he may have wandered close up to the edges of the glaciers then covering the higher hills of Wales and the Pennine chain. The severity of the climate in winter at this time in Britain is proved, not merely by the presence of the arctic animals, but by the numerous ice-borne blocks in the river gravels dropped in the spring after the break-up of the frosts. The River-drift man is proved by the implements which he left behind, to have wandered over the whole of France, and to have hunted the same animals in the valley of the Loire and the Garonne, as in the valley of the Thames. In the Iberian peninsula he was a contemporary of the African elephant, the mammoth, and the straight-tusked elephant, and he occupied the neighbourhood both of Madrid and Lisbon. He also ranged over Italy, leaving traces of his presence in the Abruzzo, and in Greece he was a contemporary of the extinct pigmy hippopotamus (*H. Pentlandi*). South of the Mediterranean his implements have been met with in Oran, and near Kolea in Algeria and in Egypt in several localities. At Luxor they have been discovered by General Pitt-Rivers in the breccia, out of which are hewn the tombs of the kings. In Palestine they have been obtained by the Abbé Richard between Mount Tabor and the sea of Tiberias, and by Mr. Stopes between Jerusalem and Bethlehem. Throughout this wide area the implements, for the most part of flint or of quartzite, are of the same rude types, and there is no difference to be noted between the *haches* found in the caves of Creswell in Derbyshire, and those of Thebes, or between those of the valley of the Somme and those of Palestine. Nor is our survey yet ended, the researches of Foote, King, Medlicott, Hackett, and Ball, establish the fact that the River-drift hunter ranged over the Indian Peninsula from Madras as far north as the valley of the Nerbudda. Here we find him forming part of a fauna in which there are species now living in India, such as the Indian rhinoceros and the arnee, and extinct types of oxen and elephants. There were two extinct hippopotami in the rivers, and living gavials, turtles, and tortoises. It is plain, therefore, that at this time the fauna of India stood in the same relation to the present fauna as the European fauna of the late Pleistocene does to that now living in Europe. In both there was a familiar association of extinct and living forms, from both the genus *Hippopotamus* has disappeared in the lapse of time, and in both man forms the central figure. We are led from the region of tropical India to the banks of the Delaware, in New Jersey, by the recent discoveries of Dr. C. C. Abbott, in the neighbourhood of Trenton. After a study of his collections in the Peabody Museum in Cambridge, Massachusetts, I have had the opportunity of examining all the specimens found up to that time, and of visiting the locality in company with Dr. Abbott and Professors Haynes and Lewis. The implements are of the same type as those of the river gravels of Europe, and occur under exactly the same conditions as those of France and Britain. They are found in a plateau of river gravel forming a terrace overlooking the river, and composed of materials washed down from the old terminal moraine which strikes across the State of New Jersey to the westward. The large blocks of stone and the general character of the gravel point out that during the time of its accumulation there were ice-rafts floating down the Delaware in the spring, as in the Thames, the Seine, and the Somme. According to professor Lewis it was formed during the time when the glacier of the Delaware was retreating, ("late glacial"), or at a later period ("post-glacial"). The physical evidence is clear that it belongs to the same age as deposits with similar remains in Britain. The animal remains also point to the same conclusion. A tusk of mastodon is in Dr. Cooke's collection at Brunswick, New Jersey, obtained from the gravel, and Dr. Abbott records the tooth of a reindeer and the bones of a bison from Trenton. Here, too, living and extinct species are found side by side. Thus in our survey of the group of animals surrounding man when he first appeared in Europe, India, and North America, we see that in all three regions, so widely removed from each other, the animal life was in the same stage of evolution, and "the old order" was yielding "place unto the new." The River-drift man is proved by his surroundings to belong to the Pleistocene age in all three. The evidence of Palæolithic man in South Africa seems to me unsatisfactory, because as yet the age of the deposits in which the implements are found has not been decided. It remains now for us to sum up the results of this inquiry, in which we have been led very far afield. The identity of the implements of the River-drift hunter proves that he was in the same rude state of civilization if it can be called civilization, in the old and new worlds, when the hands of the geological clock point to the same hour. It is not a little strange that his mode of life should have been the same in the forests to the north and south of the Mediterranean, in Palestine, in the tropical forests of India, and on the western shores of the Atlantic. The hunter of the reindeer in the valley of the Delaware was to all intents and purposes the same sort of savage as the hunter of the reindeer on the banks of the Wiley or of the Solent. It does not, however, follow that this identity of implements implies that the same race of men were spread over this vast tract. It points rather to a primeval condition of savagery from which mankind has emerged in the long ages which separate it from our own time. It may further be inferred, from

his widespread range, that the River-drift man (assuming that mankind sprang from one centre) must have inhabited the earth for a long time, and that his dispersal took place before the glacial submergence and the lowering of the temperature in Northern Europe, Asia, and America. It is not reasonable to suppose that the Straits of Behring would have offered a free passage, either to the River-drift man from Asia to America, or to American animals from America to Europe, or *vice versa*, while there was a vast barrier of ice or of sea, or of both, in the high northern latitudes. I therefore feel inclined to view the River-drift man as having invaded Europe in pre-glacial time along with the other living species which then appeared. The evidence, as I have already pointed out, is conclusive that he was also glacial and post-glacial. In all probability the birthplace of man was in a warm if not a tropical region of Asia, in "a garden of Eden;" and from this the River-drift man found his way into those regions where his implements occur. In India he was a member of a tropical fauna, and his distribution in Europe and along the shores of the Mediterranean prove him to have belonged either to the temperate or the southern fauna in those regions. It will naturally be asked, to what race can the River-drift man be referred? The question, in my opinion, cannot be answered in the present stage of the inquiry, because the few fragments of human bones discovered along with the implements are too imperfect to afford any clue. Nor can we measure the interval in terms of years which separates the River-drift man from the present day, either by assuming that the glacial period was due to astronomical causes, and then proceeding to calculate the time necessary for them to produce their result or by an appeal to the erosion of valleys or the retrocession of waterfalls. The interval must, however, have been very great to allow of the changes in geography and climate, and the distribution of animals which has taken place—the succession of races, and the development of civilization before history began. Standing before the rock-hewn tombs of the kings at Luxor, we may realize the impossibility of fixing the time when the River-drift hunter lived in the site of ancient Thebes, or of measuring the lapse of time between his days and the splendour of the civilization of Egypt. In this inquiry, which is all too long, I fear, for my audience, and all too short, I know, for my subject, I have purposely omitted all reference to the successor of the River-drift man in Europe—the Cave man, who was in a higher stage of the hunter civilization. In the course of my remarks you will have seen that the story told by the rudely chipped implements found at our very door in this place, forms a part of the wider story of the first appearance of man, and of his distribution on the earth—a story which is to my mind not unfitting as an introduction to the work of the Anthropological Section at this meeting of the British Association.

THE GROWTH OF AMERICAN TREES.—Some notes have been published on the native trees of the Lower Wabash, and White River valleys, the result of long and careful observations, made by Mr. Robert Ridgway and other naturalists, upon the forest growth of Southern Indiana and Illinois. The region described is of special interest, for the forest is hardly surpassed by any other in the number of species of which it is composed, and the magnificent development attained by many individual trees. Nowhere, in fact, in the whole of Eastern America have as many large specimens of as many species been recorded as Mr. Ridgway found in the lower Wabash Valley. Nearly all the largest and most valuable broad-leaved trees are there found associated together, and in a single square mile of woods seventy-five species of trees, nearly all of the first class, were tabulated, being nearly as many as grow on the whole European Continent. By actual measurement thirty-four species were found to occasionally exceed 100 feet in height, while seventeen others, although not measured, were apparently at least 100 feet high. The tallest specimen measured, a tulip tree, was 190 feet in height, and individuals of ten other species exceeded 150 feet. Mr. Ridgway states that the numerous small prairies, which were common in the Wabash basin at the time of its first settlement, have been transformed into woodland, and the area of the forest has greatly increased of late years. Extensive woods of oak and hickory, more than 80 feet high, and with trunks nearly two feet through, are now growing on what was open prairie within the memory of some of the present owners of the land.

EASTERN BEES.—Mr. T. B. Blow, of Welwyn, Herts, delivered a lecture on bees in connexion with the jubilee exhibition of the Royal Cornwall Polytechnic Society. Mr. Blow remarked that the Cyprian and Syrian races of bees having of late years come prominently into notice, and there being a great difference of opinion as to their merits, he determined to make a visit to these lands, and see the bees in their native state, and so be able to form an accurate and unbiased judgment. He started from Liverpool on December 11, 1881. At Malta he was interested to find the bees were black. Of his experiences in Cyprus, while in search of bees, Mr. Blow gave a graphic and amusing account. In Cyprus the bees are kept in cylinders, and in Syria in long boxes. The bee-keepers of the East are far more advanced than the old-fashioned English straw skeppists, for they never kill their bees. The lid at the large end of the cylinder is removed, the bees smoked to the other end, and about half the comb extracted, the other half being left for the bees. The cylinders are placed in huge piles, and the bees enter at small holes in the front, the entrances not being a foot apart. Such grand stocks of bees as those he got both in Cyprus and Syria he had rarely seen, and these, too, never having had attention in the way of feeding, but left just in a natural state. The queens are very prolific, and the brood is raised in compact solid masses, no patches of comb being left empty. The bees are undoubtedly better workers, being much more active and stronger on the wing than our bees, though just a trifle smaller. The small amount of drone comb they build is another great point in their favour. He believed he could say he had seen more drone comb in two or three English hives than in the whole fifty or sixty he transferred. Their gnawing propensity too, he imagined would be of value. The development of the jaws of the Eastern bees is curious, and has doubtless been brought about by the grape crops of the East. A bee-keeper at Scanderou told him that great damage was done to the grapes by the bees. The great point against them is their irritability, and it is certainly a great drawback, and may prevent them from coming into general use. This irritability is far greater in the Syrian bees than in the Cyprian. An experienced bee-keeper would, of course, have no difficulty when once he knows the precautions it is necessary to take, but a careless manipulator would probably irritate them, and their temper once roused is not easily soothed. He believed the evil reports have arisen through a lack of knowledge on the part of the owners of these bees, or on account of not getting the genuine article. When these bees are angry they appear to be cautious in stinging, but attempt to bite in preference. The Palestine bees are much more slender and downy, and deserve to be ranked as a distinct variety. The Cyprians and the Syrians are, in his opinion, almost identical. The lecturer was thanked for his remarks.

Calls at Nurseries.

MESSRS. KELWAY AND SONS' NURSERIES, LANGPORT.

THESE famous nurseries are at all times full of interest to all who are in any way connected with gardening matters, but they are especially so in the months of August and September, when the gladioli are in full flower. It may interest the general reader to know that the cultivation of gladioli at these nurseries is still extending, about twenty acres of land being devoted to them now.

The raising of new varieties is still prosecuted with as much energy as ever, but with increased difficulties, as the standard of excellence set up by the firm is also more difficult to meet, and many really good kinds now raised are rejected because they do not come up to the requirements desired. This is no doubt a step in the right direction. In the form of the flower spiko there has been a manifest improvement during the last few years, and now the two rows of flowers face one way. The present difficulty seems to be to get rid of the sharp-pointed petals of the flowers. However, all those flowers that produce the pointed petals are rejected. Those with rounded points only are reserved, and as 200,000 seedlings are raised every year it should not be a difficult matter to find a goodly number that come up to the high standard. The seedling flowers of the present year bear evidence of the advances made in this matter: one could hardly find a more interesting entertainment than to spend an hour or two in rambling through the six acres of land occupied with plants flowering for the first time. Any attempt to write a description of the glorious display of colour must fall far short of giving an adequate idea of its splendour, or of the exquisite markings of the individual flowers. As there are other matters demanding attention, it must suffice to say that in all the stages of growth the gladiolus is still receiving increased care at these nurseries.

At the present time a considerable portion of the glass structures are occupied with cucumbers grown for seed. I do not know what might be the aggregate weight of the whole lot of fruit, but as many fruits weigh seven pounds each there must be several tons. The varieties of Telegraph afford an interesting and instructive lesson, as it is when the fruit has attained full development that each variety shows its true character. This fact was very striking, not only in the Telegraph varieties, but in all others. The original, or "Rollison's," variety is quite distinct from any other; it is not only the most handsome, but in colour and shape it possesses characteristics which are quite its own. Kelway's Paragon is another that is remarkable for its distinctness. Duke of Edinburgh is also a grand sight, but the lion is Kelway's Conqueror, which produces fruits of the great length of forty-three inches. There is also a new variety that has not yet been sent out, which is a very handsome sort of medium length, and as it bears freely I should say it would be most useful for winter fruiting. All the other sorts of cucumbers worth growing are included in the stock.

Single petunias are a new feature at this nursery, but there is every prospect of their receiving the usual attention that is given to any other class of plants taken in hand by the firm. The strain of large single-flowered varieties are very attractive: the aim seems to be to obtain a distinct coloured throat to each colour. So far the progress is most satisfactory, for I noticed flowers with pure white, others with pale pea-green, and some with creamy white throats, the markings in the limbs of the flowers being peculiarly pleasing and distinct. Tuberous-rooted begonias are grown in large numbers, and having watched the progress made, I am bound to confess the improvement made in the form of the flower is very great. We shall evidently soon have perfectly round flowers that will please the florist, for at the present time they approach very nearly a complete circle. In colour they vary from the most brilliant scarlet to the deepest crimson, and from pure white to a very pleasing tone of yellow. Amongst the begonias nothing struck me more than a large house completely filled with plants just coming into flower of Fröbeli, and a fine stock they are, either for decorating the conservatory, or for supplying cut flowers. How I wished I had a few dozen plants of them at home to make use of during the winter!

Tea roses are planted in every available place in the houses. From plants so grown cuttings are taken in the summer and inserted under handlights in the open ground, the only preparation being to incorporate with the soil a nice bit of sand. The success attending this mode of propagation is all that could be desired, several thousands being raised every year by this means. On examining the handlights I found the losses very insignificant as compared to the number of cuttings inserted.

Amongst other subjects in the open quarters of the nursery I must not forget the important part that the single pyrethrums take in making up the trade of this firm. Of course all the best sorts are grown, including several new varieties of great excellence raised by the firm. Some idea of the business done in the pyrethrums may be had when I say that as many as 50,000 plants have been sold during the last year. Indeed, so great has been the demand for them that although the firm has striven hard to maintain a supply equal to the demand, they have not at the present time more than a few hundred saleable plants.

The hundreds of amaryllis planted out in cold frames are a very interesting sight, and as they have stood in these frames during the past two winters, and are kept secure from frost by external coverings, it is evident that they can be cultivated with a minimum amount of trouble. On inquiring I learnt that it is the rule in these nurseries that when it is thought necessary, after the middle of December, to cover the frames, they are not uncovered again until all danger of hard frost is past. It has frequently happened that the frames have remained covered for six or eight weeks without the occupants suffering harm.

The quilled asters were just past their best on the day of my visit, but even then they were a grand sight: the long lines of different colours stretching across a large space produced an effect more easily imagined than described. The careful selection of stock plants, and the precautions taken to weed out inferior flowers, result in a degree of excellence that can only be obtained by such means. Herbaceous peonies find a genial home in the rich deep soil, the greater part of an acre of ground being occupied with them. The collection contains about two hundred sorts, which must be very effective in the early summer when they are in flower. A particularly striking plant is *Chrysanthemum leucanthemum maximum*, which produces large white flowers with a yellow disc. *Coreopsis lanceolata* is a very pleasing flower of a pale yellow colour. *Rudbeckia hirta* is conspicuous, and the several varieties of *galliardias* are well represented, as are also the *centaureas*, in three distinct colours. Growing under the shelter of a warm wall in the open border is a large stock of the pretty white-flowered *Amaryllis atamasco*. Its elegant

cup-shaped flowers and grass-like foliage afforded a pleasing change to the host of other good things. This amaryllis should make a fine companion plant in the months of September and October to the hardy cyclamens and the autumn-flowering crocuses.

The large area of land devoted to the cultivation of fruit trees and roses occupies a position in a fruitful vale for which the county of Somerset has few equals. That both of these subjects should therefore be found in the finest possible condition will not surprise any one. The clean healthy growth of the fruit trees and the luxuriant condition of the roses, both standards and dwarfs, is all that could be desired. In quite another direction we come upon large breadths of Connover's Colossal Asparagus, which the firm considers quite distinct. Its appearance certainly is very satisfactory, as also are large breadths of a specially-selected stock of beet-root grown for its seed. It has all the appearance of a first-class stock. Indeed, it appears to be the rule that no second-class article should occupy space at Langport.

J. C. C.

A COMPARISON OF LARGE AND SMALL FARMS.

AT the recent meeting of the Social Science Congress, a question was proposed in the Economic Section to the following effect:—"What are the comparative advantages, social and economic, of large and small farms?"

Mr. W. Lipscombe, in the opening paper, which embodied a number of details and statistics, defined a small farm as being below 100 acres and a large farm as being above 300 hundred acres. He said that, excluding holdings which did not exceed five acres, the area covered by the two classes of farms in the United Kingdom was nearly the same—viz., about 9½ million acres. The small farms exceeded the large by at least twenty to one. The counties of Derby, Devon, Westmoreland, and the West Riding of York might be taken as typical districts especially suited to small farms. No saving was beneath the notice of the tenants of these farms, and they mutually assisted one another. The chief advantage, however, lay in the saving of hired labour. Small farms were useful as forming stepping-stones from which the careful and intelligent labourer might achieve comparative independence. They filled up the wide interval in the social scale which divided the large employer from his workmen. A parish with twenty or thirty homesteads in which were reared industrious families, each member of a family contributing to its maintenance, was socially preferable to one containing a couple of large farms and no other residents than their servants. In the small farms were reared the servants whose industry and trustworthiness constituted the chief comfort of the homes of the middle and upper classes. On the whole, it was doubtful whether there was any class to whom society was more widely indebted and which it could so ill dispense with.

Mr. Gilbert Murray read a paper going over the same ground. He said that a few years ago the craze was for consolidation, but already the current had set in the opposite direction. All conversant with English agriculture would dismiss the question of a peasant proprietary as unworthy of serious discussion. Only a rich man could indulge in the luxury of landowning. The peasant proprietor, like other owners, must be content with 2 or 3½ per cent. for the capital invested in the fee simple value of the soil. The position of the agricultural labourer would be much improved if portions of estates were set apart for what were called cow leases.

Mr. King Fordham raised the question whether legislative action should be taken to establish peasant proprietorship. The author argued against such proprietorship and denied that any legislation for such purpose was desirable. He contended that there was no land hunger or class desiring to become peasant proprietors, and that economic laws taught and practice confirmed how impossible it was for small occupiers to compete successfully with large ones, either in economy or amount of produce.

Mr. Baden Powell thought that in some districts small farms were best in others medium-sized farms, and in others large farms. (Hear, hear.) He trusted that the three systems would remain side by side, and that legislation would do nothing more than relieve every system of impediments and restrictions. To have one system forced upon the country by law would be to ruin the greatest of British industries. Economically large farms were perhaps best, but socially there were many advantages about small farms.

Lieutenant-Colonel Seely, M.P., said it seemed to him that the interests of those who were immediately concerned in agriculture—the landlord, the tenant, and the labourer—were in no way different from the interests of the community, and when that was the case the proper course was to leave them alone. He was prepared for State interference when an industry was opposed to the general interests of the people, but that was not the case with agriculture. He rather doubted whether harm was not done by discussions upon the Land Question, for when legislation was expected men held their hands from doing what they otherwise would do.

The Chairman (Professor Price) agreed with Lieutenant-Colonel Seely that one of the misfortunes of this broad subject and the endless quantity of talk upon it had been the raising of great anxiety in the minds of farmers as to their future. It would be a great benefit if the people of this country would make up their minds as to the extent to which they meant to carry land changes. However, we might console ourselves with this great fact, that British agriculture was more productive than that of any other country. Let us have all sorts of tenants, all sorts of modes of farming, and let competition decide which was best. The inquiries of the Royal Agricultural Commission, of which he was a member, showed that all kinds and sorts of farming had equally suffered under the agricultural distress. Peasant proprietorship on a large scale in England was impossible. Traders who had made fortunes liked to be owners of land, and would offer prices to the peasant proprietors which they could not resist.

THE ENGLISH SPARROW is making itself unpopular across the Atlantic. In the United States it is almost universally denounced as "a fraud and a nuisance." Instead of eating up army-worms and other destructive insects that are so numerous in the country, it prefers a town life, and sticks to the cities, picking up all it can lay its beak on. Flocks of sparrows follow picnic parties for crumbs, and then return to their town quarters, quarrelling and fighting in a most discreditable way. Another complaint at New York is that the sparrows are driving all the native birds out of the city. Nor is the sparrow in greater favour in Lower Canada, where its proceedings are likely to be brought before the law courts. A farmer, by name Dennis Dincen, living near Montreal, has given notice of his intention to sue the Society for the Prevention of Cruelty to Animals for having imported sparrows. He declares that they have already eaten up thirty acres of barley, destroyed his potatoes, and played havoc with his early vegetables.—*St. James's Gazette*.

CARTER AND CO.'S BLACK CHAMPION CURRANT.

On the 9th of August last the Fruit Committee of the Royal Horticultural Society awarded a First-class Certificate to a new variety of black currant named *Black Champion*, sent for adjudication by Messrs. Carter and Co., of High Holborn. We reported on it in our issue for August 13 as "remarkably prolific and of special value for culinary purposes." But after the report was made we had an opportunity of tasting the fruit, and found it to be of the very highest quality, which, considering the great size of the berries and the immense productiveness of the tree, we did not expect. We remember with peculiar pleasure the branches laden with the jet-black fruit that were placed before the committee, and it is for the advantage of our readers that we now register, with the aid of an effective illustration, this black currant as the finest variety known for cultivation in the English garden.

This variety has been grown for many years by W. H. Dunnott, Esq., of Dedham, one of the principals in the firm of Carter and Co., and has proved constant in all the qualities noted when shown on the 9th of August. And it has the additional good quality of holding on the tree for a great length of time, so that it often happens that fresh fruit may be gathered when all other sorts have shrunk or fallen, or otherwise ceased to be useful.

The dreadful irregularity of our outdoor fruit crops should make us careful to be well provided with the best sorts of small fruits, for these rarely fail, and they often go a long way to compensate for the scarcity of large fruits.

A GARDEN IN CEYLON.

THE *Deutsche Rundschau* publishes an interesting letter from Professor Ernst Haeckel, describing his visit to Colombo and his impressions of the fauna and flora and the social condition of the island. His sketch of the garden belonging to Mr. Skipperger, the Austrian Lloyd's agent at Colombo, whose guest he was for a fortnight, is very interesting, as typical of the flora of the island generally.

The garden, under the tasteful care of Mr. Skipperger, has become a small Ceylon paradise, and contains representatives of almost all the most important species of the flora of the island, forming not only a pleasure ground rich in flower and scent, but also an instructive botanical garden. The very first morning, when, drunk with delight, I wandered under the shade of palms and figs, bananas and acacias, I gained an excellent insight into the composition of the flora of the plains. First in rank comes the noble family of palms with their stately valuable trunks; coconuts and talipot, areca and borassus, caryota and palmyra, then the splendid light green bananas, with their delicate but gigantic fronds split by the wind, and valuable golden fruit. Besides different species of the common banana (*Musa sapientum*), our garden contains a tall and magnificent specimen of the strange fan-shaped "Tree of the Traveller" from Madagascar (*Urania speciosa*). It stands where the principal pathway branches off on the left to a splendid example of the sacred fig-tree (*Ficus bengalensis*). This latter, with its pendent air-roots, is very curious; many beautiful Gothic arches open between those roots, which support the trunk like columns. Other trees belonging to different groups

(terminalia, laurals, myrtles, ironwood trees, breadfruit trees, &c.) are enveloped by splendid creeping plants, and overgrown with the lianas that play such a chief part in the flora of Ceylon; for the fulness of life and constant damp heat have such an effect that in the densest forests a crowd of the most various plants struggle upwards towards the light and air. Among the other ornaments of the garden I will specially mention the large-leaved callas or aroids, and the beautiful feathery ferns, two very important groups, both for the quantity of examples and the beauty and size of their fronds. Then there are still many of the most magnificent tropical leaf-and-blossom plants, which, partly indigenous to the island, partly from other tropical regions—for example, South America—thrive here excellently. Above them towers the stately hibiscus, with its large yellow-and-red flowers; acacias, with masses of beautiful fire-coloured blossoms (*Casalpinia*), and mighty tamarinds with their aromatic flowers; while from

their branches hang climbing thunbergias with gigantic violet-coloured bells, and aristolochias with large yellow-and-brown funnel-shaped flowers. Many rubiaceae, lilies, and orchids, show particularly large and beautiful blossoms. But I will not fatigue the reader with vain attempts to give some idea of the confusing splendour of the tropical Indian flora of Ceylon; rather will I confine myself to the remark that on the first morning I ran from plant to plant, unable to decide to which of these wonders I should dedicate a closer examination.

The animal world which enlivens this paradise does not entirely correspond with the extraordinary wealth and beauty of the vegetation, particularly as regards variety of large, striking, and beautiful forms. I had hoped to find the trees and bushes peopled with apes and parrots, the blossoming plants with beetles and butterflies of strange form and brilliant colouring. But neither the quantity nor quality of what I now saw and later found came up to my expectations, and my sole comfort was that all zoologists who had visited the island had been similarly disappointed. Notwithstanding, on closer research I found a quantity of remarkable and interesting things, and the fauna of Ceylon is, on the whole, no less peculiar, and uncommon, if not nearly so rich and brilliant, than its flora. The vertebrates that most struck me were the gay-coloured and strangely-shaped reptiles; snakes and lizards, and pretty little tree-frogs (*Ixalus*), whose remarkable bell-like voices are heard everywhere in the evening. The birds of the garden were starlings and crows, water-wagtails and bee-eaters, and particularly pretty honeybirds (*Nectarina*), which take the place of colibri; then, on the river bank, halcyons and herons. The most frequent animal is a charming little squirrel, which populates the trees and is very tame; its colour a brownish grey with three white stripes down its back (*Sciurus tristriatus*).

The ants are chief among the insects on account of their enormous quantity, from the minutest to the most gigantic species; then the ill-famed termites, or so-called "white ants;" other hymenoptera (wasps and bees) are very numerous represented, as well as the diptera (gnats and flies). But just that order of insects which contains the most beautiful and largest forms—that is, beetles and butterflies—are not present as richly as one would expect from the richness of the flora. The orthoptera (grasshoppers, crickets, &c.), are very various and remarkable. The spiders (arachnids) are very interesting, from the tiny mites and ticks up to the enormous bird-spiders and scorpions. The nearly-related centipedes or myriapods are very numerous and represented by colossal forms, often a foot long; they are greatly feared on account of the poisonous bite.



BLACK CHAMPION CURRANT.

The effect of the tropical heat upon European articles of produce, as well as upon these indigenous to Ceylon, cannot be imagined by Europeans at home. When I began to unpack my chests and boxes of instruments and other things, what a condition they were in! All the steel and iron parts of the scientific instruments were rusty, the little screws no longer worked smoothly; all the books and papers, as well as articles of leather, were damp and covered with mould; and, what particularly vexed me, my famous black tail coat, which has to play as great a part in Ceylon society as in England, was quite white! It and all other clothes were covered over and over with the prettiest forms of mould, which only disappeared after many days' drying in the sun. A special "clothes-boy" is kept in all the European houses of Colombo, whose duty it is to dry in the sun daily all the clothes, beds, linen and other things. But the worst was when I found that my new photographic camera obscura, which had been made by one of the first Berlin firms out of so-called "perfectly dry" wood, had become utterly useless from the distortion of its wooden parts. Even the lids of my boxes would no longer fit. My pulverized gum was melted into a mass almost like cement, and out of my peppermint-lozenge boxes, when opened, flowed a sweet syrup. The papers of Brause-pulves were still more surprising: the powder in the blue papers had quite disappeared, and that in the white had altogether altered its nature. With all this, the few months I spent in Ceylon were part of the so-called "dry period," that of the north-east monsoon, which blows from November till April. What must it be like during the "wet" period, when the rainy south-east monsoon blows from May to October? My friends informed me that then all men renounce the idea of keeping anything dry, and that the water literally runs down the walls within the houses. That such a damp hot climate, so different from that of Central Europe, must have a peculiar effect on human organisms accustomed to the latter is self-evident, and likewise that the struggle against this adverse climate forms the daily subject of conversation. I must confess that at first I was rather anxious. During the first days in Colombo I felt the discomfort and suffering unavoidably connected with the change of climate rather strongly, particularly in the hot nights, when the temperature seldom fell below 20 deg. Réaumur (77 Fah.), while in the day in the shade it rose often to 28 deg. (95 Fah.)

But the second week was far more bearable than the first, and afterwards, even on the south coast, near the fifth degree south latitude, I never suffered the sleepless nights and exhausted days I had passed at Colombo. Under these circumstances the daily bath is the greatest refreshment. I took a bath twice a day—early in the morning and before noon—and while in the south I added a third before dinner. Then I adopted the usual costume of the Europeans, made of thin white cotton, with a net shirt under the light jacket. The common Sola-hat, which I had bought at Port Said for three francs, was invaluable. By using these precautions I kept in good health the whole of my stay in Ceylon, in spite of, perhaps just on account of, my taking abundant exercise and going out of doors even during midday. But I lived much more temperately than is usual with Europeans in Ceylon, and did not take half the quantity of meat and drink absorbed by most Englishmen there. When, after a few years' residence, they complain of affections of the stomach and liver, I believe the fault lies less in the climate than in the want of exercise and luxurious living. They often eat and drink twice as much as is necessary to sustain a healthy man, eating besides heavy greasy meats, and drinking hot spirituous liquors. In this respect they form the greatest contrast with the simple mode of life of the natives, who generally eat only rice and curry, or at most a little additional fruit, while they drink palm wine or water.

In Ceylon, as probably in most parts of India, the daily order of the meals of Europeans is as follows:—On rising, tea and biscuits, bread, with eggs or marmalade, bananas, mangoes, pine-apples, and other fruit. At ten comes the so-called breakfast—according to our ideas, a complete dinner of three or four courses—fish, broiled fowl, beefsteak, and the never-missing rice with curry strongly spiced. Then at one follows the third meal, bread and butter and jam. Many people take tea again at three or four in the afternoon. Finally, at half-past seven or eight comes the principal meal or dinner, consisting of four to six courses, like the most opulent dinner in Europe—soup, fish, different meats, curry and rice again; sweet puddings, fruit, &c. These meals are accompanied by various wines, or strong beer imported from England; latterly, the much lighter and wholesomer Vienna beer. In some houses, however, part of these meals are omitted; but in general the eating in India must be characterized as too rich, especially when compared with the simple and frugal diet of Southern Europe. This is also the opinion of some old Englishmen, who have led an exceptionally frugal and simple life, and therefore, in spite of twenty or thirty years' residence in the tropics, have preserved their health without interruption; as was the case with Dr. Thwaites, for example, the excellent former director of the Botanical Garden of Peradenya.—*The Colonies and India.*

AMSTERDAM INTERNATIONAL EXHIBITION FOR 1883.—The Exhibition which is to be held next year at Amsterdam is to be especially devoted to colonial products and articles of commerce adapted for the export trade to the colonies and foreign countries. The Dutch, who depend so largely on the revenue and resources of their colonies, are anxious to institute comparisons with the products of our Indian, Australian, and African possessions. In 1869 an International Exhibition on a small scale was held at Amsterdam, but the glass building then occupied is much too small for the more ambitious views of the originators of the contemplated Exhibition, and is merely used as offices and rendezvous for the staff. About 70 acres of ground have been taken in for the Exhibition in the western suburbs of the city, and by diverting canals and driving piles a good foundation has been obtained for the main building and the numerous annexes and separate edifices. From the plans of the grounds it appears that the principal entrance will be through a new royal museum, which has just been completed. The Dutch colonies are to have a large edifice of their own, and will far surpass the very fine display they made at Paris in 1878. In the gardens there are to be erected a fine arts gallery, annexes for machinery, cafés, four restaurants—English, French, Dutch, and German—orchestras for music, &c.; and there will also be a captive balloon as at Paris in 1878. Commissions have been nominated for Belgium, France, Spain, Germany, China, Japan, Persia, Hayti, and other countries. In the absence of any Royal Commissioner for Great Britain, a committee has been formed, comprising the Ambassador and Consul-General for the Netherlands, the Lord Mayor and Sheriffs of London, the Agents-General for all the Colonies, the Council of the Royal Colonial Institute, the chairmen of the principal railways, and many influential noblemen and gentlemen. Our merchants and manufacturers will take an active part, and the British colonies are to be largely represented.

New Plants, Flowers, and Fruits.

WISTARIA SINENSIS FLORE-PLENO (*Florist and Pomologist*, 557).—A magnificent variety originally from Japan, now thriving in Mr. Anthony Waterer's nurseries at Knap Hill, Woking. In all its characters it agrees with the old single-flowered wistaria, save that the pale blue flowers are very double and may be likened to miniature roses.

NEW CHERRIES (*F. and P.*, 558).—*Bedford Prolific* is a seedling of the Black Tartarian, but harder than its parent, and will thrive in any situation in which the May Duke will ripen. The fruit is large, juicy, and rich in flavour. For cultivation under glass it will not supersede the Black Tartarian, its chief claim on our attention being that it is harder. *Bijarreau Gros Cœur* is the largest and best of the bigarreaux. The fruit is in form depressed spherical, the stalk not deeply inserted, the colour brilliant cherry-red inclining to orange on the shaded side and deepening to maroon on the sunny side.

PHALANOPSIS STUARTIANA (*F. and P.*, 559).—A fine new orchid allied to *P. Schilleriana*; the flowers are in respect of colour nearly equally divided, the upper half white and the lower yellow with red or chocolate spots.

AURICULA MABEL (*F. and P.*, 560).—A noble grey-edged variety raised by Mr. James Douglas. It was selected by the judges at the National Auricula Show at South Kensington in 1881, as the best grey-edged variety, and the best auricula of any class. It is of free habit, somewhat dwarf in growth; the flowers large, of the most perfect form, with fine pure paste and circular eye. It will probably be sometimes shown in the green-edged class.

NEW SINGLE DAHLIAS (*F. and P.*, 561).—These are varieties of *Dahlia gracilis*. *Superba* is of a rich deep red. *Cuprea* is coppery red. *Lutea*, pure yellow.

APPLE WERDER'S GOLDEN REINETTE (*F. and P.*, 562).—A very beautiful dessert apple somewhat below medium size, round, slightly compressed, the eye broad and placed in a smooth shallow basin. The skin is greenish yellow streaked with red on the exposed side. In use from October to February. It appears to differ from the old Golden Reinette in being somewhat smaller, paler in colour, and shorter in the stalk. The best figure of the old Golden Reinette we are acquainted with is in Lindley's *Pomologia Britannica*, 69.

NECTARINE DRYDEN (*F. and P.*, 563).—A large handsome variety raised from the Dagmar Peach by Mr. T. F. Rivers, of Sawbridgeworth. It is larger than the Elruge, brilliant in colour, and well flavoured.

APPLE BEAUTY OF HANTS (*F. and P.*, 564).—This variety was brought forward some years ago, and by many was considered identical with the Blenheim Orange; but it has maintained its character as in several points superior to that variety, and may now be regarded as having a right to a place of honour in the lists of dessert apples.

DECORATIVE PELARGONIUMS (*F. and P.*, 565).—*Mignonette* (Lemoine), a regal of smallish size, the colour carmine-rose, the upper petals blotched maroon, the centre white. *Belle du Jour* (Lemoine), a peculiar and very beautiful variety, the flowers of which may be likened to those of a convolvulus; they are salver-shaped, semi-double, pure white, produced continuously and profusely.

APPLE SOPS IN WINE (*F. and P.*, 566).—A good figure of this old English apple, the name of which refers to its red-tinted flesh, which appears as if freshly steeped in red wine. It is a beautiful table fruit; the tree is handsome when bearing a crop, and for decorative purposes it is of great value.

LILIUM NITIDUM (*F. and P.*, 569).—A quite miniature lily, allied to *L. parvum*. The flowers are golden yellow heavily spotted with reddish brown dots.

PEACH ALEXANDER (*F. and P.*, 570).—A new American peach of large size and good quality, and probably the earliest variety in cultivation. The fruit is large, with a well-marked suture, a deepish hollow at the base, and a nipple at the apex. The colour is pale straw-yellow clouded with crimson. The flesh is white to the stone, melting, juicy, and richly flavoured.

STROMANTHE LUBBERSIANA (*Belgique Hort.*, 1882, 1).—An elegant herb, native of Brazil. The leaves are marked with creamy stripes on a ground of rich green.

VRIESEA INCURVATA (*B. H.*, 1882, 2).—A handsome bromeliad with massive inflorescence, the bracts light orange-scarlet.

CROTON MAGNETICUM (*Illustr. Hort.*, 447).—A handsome croton with smallish narrowish leaves richly coloured vinous red and full deep green.

HELCONIA TRIUMPHANS (*J. H.*, 448).—A handsome musaceous plant, the leaves barred with black on a ground of deep green.

AZALEA INDICA GARDENIEFLORA (*J. H.*, 452).—A very pretty double white of smallish size; apparently an acquisition for decorative purposes.

ANTHURIUM SCHERZERIANUM, v. MAXIMUM (*J. H.*, 454).—A variety with a very large spathe, apparently identical with one we have many times seen in Mr. William Bull's nurseries.

AERIDES HOULETIANUM (*J. H.*, 455).—A grand orchid, the flowers in a flowing raceme, in colouring combining pale yellow, pure white, and soft rosy pink in the most delightfully delicate manner.

ANTHURIUM LINDENIANUM (*J. H.*, 456).—A distinct aroid, the leaves cordate, the spathe and spadix light rose-red.

APHELANDRA PUNCTATA (*J. H.*, 457).—A pleasing plant, the leaves dotted with grey, the flowers yellow.

ALSOPILOA CONTAMINANS (*J. H.*, 458).—A noble tree fern, the stem slender, the fronds finely divided, rich green.

ENCEPHALARTOS CYCADIFOLIUS, v. FREDERICI GUILLIELMI (*J. H.*, 459).—A very distinct plant with rigid fronds, set out like the feathers in a shuttlecock on a stem that may be likened to a gigantic wine jar.

NEPENTHES HENRYANA (*J. H.*, 460).—A beautiful hybrid with medium-sized pitchers richly blotched vinous red on a ground of grass-green.

NEPENTHES LAWRENCIANA (*J. H.*, 460).—A hybrid with smallish pitchers mottled with purplish red on a green ground.

SEASIDE FOR AN INVALID.—I should feel much obliged to any reader of the GARDENERS' MAGAZINE who would give the name of a quiet village on the seaside, which is well sheltered from the north and the east, suitable for an invalid, who can only take short walks, but cannot ascend hills. OLD MAN.

TWO BEAUTIFUL PALMS.

THE two palms now figured are of dwarf growth, and by reason of their geographical position may be considered as requiring stove temperature. On that point, however, we have perhaps as much to unlearn as to learn, for the more we observe palms under various conditions the more surely do we become convinced that they are generally much harder than theoretical considerations would suggest.

Pinanga patula (B. M., 6,581) is a native of the Island of Sumatra. It has flowered and fruited annually at Kew for some years past. The stem rises four to six feet, it is green, ringed, and swollen at the base. The leaves are four to five feet long, with from eight to eighteen pairs of segments; the colour full green. The flowers occur in two series, consisting of males and females, the former soon dropping away, the latter giving place to small egg shaped yellow fruit.

Synechanthus fibrosus (B. M., 6,572) is a free-growing extremely elegant American palm, native of Honduras, Nicaragua, and Guatemala. It has a clean solitary stem, irregularly ringed, and about four feet high. The leaves are about the same length, and the narrow leaflets are one to one and a half feet long, bright green. The flowers occur in clusters, the lowest of each cluster being females, the rest males. The fruits are egg-shaped, fleshy, and fibrous, orange-red, and present a beautiful and singular appearance.

PALMS WITHOUT A GREENHOUSE.

FOR some time I have been trying some interesting experiments in growing tropical palms in the ordinary temperature of a sitting room. My method consists in giving my pets plenty of fresh air, in keeping them sheltered from the sun and wind, and in watering them overhead with warm water. They have been accustomed to a temperate climate from early youth, for I take matters in time by removing them from the nurseryman's stove into my drawing room in a very young state. I find it the best way to select healthy little seedlings about six inches high, with only three or four leaves and a strong-looking leaf bud just rising; I then feel that all the growth is my own.

I start them in the summer months, in order not to let them feel the change of atmosphere much, and the warm shower baths that they receive from the rose of a watering-pot remind them of the syringing they had while in the hot plant-house, and corresponds with the warm dews of equatorial regions.

Palms should never be allowed to remain in a room with gas, and on cold nights it is best to remove them as far from the window as possible. A table in the centre of the room is as good a place for them as any, and on frosty nights in winter I find they are nowhere so safe as in the kitchen.

As a rule, however, the less palms are moved about the better they

thrive, for they get accustomed to the place where they stand, and object to being carried about from one apartment to another. Nothing is so bad for them as letting them out on hire and sending them to decorate heated dining rooms and ball rooms after being exposed to the cold wind out of doors. If there were a society for the prevention of cruelty to plants this practice would be prohibited.

How often they should be watered of course depends upon the state of the atmosphere. In dry hot weather twice a day is not too often, while twice a week might be often enough when it is damp and chilly. Of course in a dwelling house plants absorb much less moisture than they do in a greenhouse. I generally find, however, that they are ready for the warm water (really warm, not merely tepid) that I give them all round every evening.

Warm water is more easily absorbed than cold, and I take care that the water runs through the pot and does not stagnate about the roots. To encourage the roots and keep them warm is the leading idea of the remarkably simple plan I go upon, and my little plants are gallantly supporting my theory, for it is not too much to say that they all look actually better than when I bought them.

Another point that I ought to mention is that I purchase them of a respectable nurseryman, and direct from the stove, where I know they have been carefully grown and well looked after. It is a great mistake to buy palms from the shop window of a florist or greengrocer, for their constitution has probably been weakened by exposure to cold draughts in the market, and their leaves are seldom in good condition. They are tempting and cheap, but we do not know how they have been brought up, and after we have bought them they go off and get shabby, and we wonder why, and jump to the conclusion that palms do not answer without a greenhouse.

I have only seven tropical palms, because I want to give these, my first batch, a thoroughly long trial before attempting more; but I do not hesitate to say that there is no palm in cultivation that I should be afraid to try in the way that I am now doing.

On the table before me as I am writing are the following:—

Guilielma speciosa, the celebrated Peach Palm of the Amazons, described and named

by Humboldt, praised by Mr. Bates in his "Naturalist on the Amazons," and looked for in vain in the West Indies by Kingsley. This is my most ornamental plant. The stem is thorny, and the large dark green leaves are covered with little hairy spines.

Areca madagascariensis.—This is only a small specimen, and though a fine healthy little tree is not sufficiently developed to look of much importance. In a more mature state this is the most graceful palm imaginable. It is rather scarce, but in the cool palm-house in the Botanical Gardens in the Regent's Park there is one ten feet high, which is without exception the most exquisite palm I have ever seen.

Ptychosperma gracilis bids fair to live to a green old age, being the sturdiest of the set. It is a pleasure to see it in such rude health.



SYNECHANTHUS FIBROSUS.

Martinezia caryotefolia is another of the thorny palms which are supposed to require so much heat, and yet the broad leaves are like green satin, and the leaf bud is growing well.

Cocos Weddelliana is more admired than any, and I was told before I tried it that this was one of the best of all palms for growing in a house, as the leaves actually develop better in a cool temperature. I heard of a gentleman who had one in his room for two years.

Glaziovia insignis and *Areca lutescens* are satisfactory palms, too well-known to need to be described.

The foregoing are all I have at present. I am looking about for a seedling of my favourite *Phœnicophorium Sechellarum* (syn. *Stevensonia grandifolia*), which is supposed to require more heat than any other palm, but I have not succeeded in finding one young enough to begin upon.

In my palmy days, when I was the happy possessor of a tropical house of my own, I had a magnificent specimen of this noble tree seven feet high, and I should like to try it again in a young state under different conditions.

Who loves a garden loves a greenhouse too,

is a line familiar to all gardeners—(by the way, it is easy to see from the context that what Cowper meant was a stove). In humble imitation of the Quaker's advice to his son—"Get money, my son; honestly, if thou canst, but get money"—I would say "Grow palms, my friends; in a greenhouse, if you can, but grow palms." In the opinion of all who understand them they are better worth growing than any other plants, and if we cannot have any glass but the windows at our command why, as I now find, that misfortune need not deter us the least in the world. I cannot help thinking that if it were generally known how easily an interesting collection of palms may be made, and how readily the dwelling-house may be converted into a greenhouse, palms would be more widely cultivated than they are. Those who feel timid might begin with species known to be hardy enough to stand a low temperature.

First and foremost of these comes the Chusan Palm, *Chamærops Fortunei*; then come the *Seaforthias*, *Corypha australis*, *Areca sapida* and *Baueri*, the *Kentias*, and the date, *Phoenix dactylifera*. All the species of *Phoenix* may be said to be cool-house palms, and that pretty little Japanese tree *Rhapis flabelliformis* comes into our useful category.

Strange to say, the only palm I should feel any hesitation in trying on my new system is one generally considered particularly hardy, namely, the well-known *Latania*. Whenever I see this plant in the drawing rooms of my friends I notice that it is in very bad condition. The new leaf is apt to open too low down, with little or no stem (the effect of cold), and the other leaves are generally shabby and

scorched.* Brick walls afford better protection against frost than panes of glass, and on cold winter nights I feel that my horticultural treasures are safer in the house than they would be shut up in a glass case. Then there are certain insect plagues to which plants in the stove are subject, such as ants, red spider, and scale; and these they are altogether free from in a drawing room. I am gratified to find, too, that the leaves last longer and do not get scorched or turn yellow in a room; whereas in a greenhouse shading is a matter of constant difficulty, so that in some respects plants thrive actually better in a room than in a house constructed expressly for them.

I am aware that the theory of acclimatization does not find favour in the eyes of gardeners, especially those of the old school. The late Mr. George Glenny would not hear of it, and strongly opposed such an idea

in his writings as that a plant could change its constitution, however gradually. His explanation was that its nature must have been misunderstood in the first instance. However this may be, I believe all tropical palms are much more accommodating than has been hitherto supposed, and that with care and attention they may one and all be grown to perfection on a drawing-room table.

G. LAYARD.

PETUNIAS FOR EXHIBITION.

PETUNIAS are grown for exhibition as bushy symmetrical specimens, and, as it is seen in the West of England, as somewhat formal examples trained to wire frames. It is in the last of these two ways that petunias are grown in the Devizes and Trowbridge districts in the West of England, and when they are well done they are most effective examples. The plan is to use oval wire frames, and by means of an iron pin these are placed firmly in the soil at the back of the plants, and the shoots are tied to the frames, and, being distributed all over it, they flower, and when in full flower they make a fine display. There is this advantage about this mode of training, that, when the plants are placed on the exhibition table, the whole of the flowers are presented to view to

the visitor. I have counted on a well-grown plant from seventy to one hundred and twenty flowers of fine shape and beautifully striped, or else of showy self colours. When plants of this style of training are well grown, and there is a good balance between foliage and bloom, they are objects not soon forgotten.

At the exhibition of the Trowbridge Horticultural Society, in August last, Mr. James Lye, gardener to the Hon. Mrs. Hay, Clyffe Hall, Market Lavington, Wilts, won the first prize with six plants of remarkable growth. This is the position Mr. Lye invariably occupies at this

* [We are accustomed to see *Latania borbonica* in perfect condition as a parlour plant, and we regard it as a long-suffering and most accommodating palm.—ED.]



PINANGA PATULA.

show, and as his mode of cultivation may have an interest for your readers I herewith set it forth in detail.

As soon as the plants are done with for exhibition they are slightly cut back, in order to get young tops to make cuttings from, and these are put into pots, several in a pot, and placed in a brisk bottom heat; and, after they are nicely rooted, they are hardened off slightly and placed in a cool frame or greenhouse, where they can be kept growing slowly all the winter, and by April they are nice bushy plants. Then they are potted singly into six-inch pots, being full of roots, and they are shifted into larger pots as required until the end of May, by which time they receive their final shift into ten-inch pots and are stood out of doors on an ash bottom. This keeps the plants stout, short-jointed, and yet vigorous, and this is of considerable importance in growing good specimens. The plants are only slightly topped, and then the strongest shoots, merely in order to give a little more strength to the more backward growths.

The flower buds are removed as fast as they are formed, or at least large enough to handle, and this is done up to about fourteen days before the exhibition day when the plants are to be shown, and then they are placed under glass and brought on into flower.

The compost used by Mr. Lye for growing his petunias is one made up of rather more than two parts of decayed turf that has lain by for about a year in a heap, one part of leaf-mould, and one of horse droppings that have lain together for a few months and become pretty well decomposed. Such a compost is quite porous enough; but a little silver or river sand can be used to suit the taste of the cultivator.

But all who contemplate growing petunias for exhibition may not have cuttings of acceptable sorts to commence with, and then they must raise their plants from seed. If this has to be done a good strain of seed should be secured to ensure suitable sorts. The seed should be sown in heat at the end of February or beginning of March, and the plants grown on into size in the usual way.

It is very probable that the style of plant grown by Mr. Lye may not commend itself to all, as there are many who would prefer nice bushy all-round specimens; but there is this to be said in favour of the trained mode, that all the flowers are concentrated on a front view, and they form a very striking and attractive sight. I have beautifully-bloomed bush specimens, but they are the exception rather than the rule. It should be stated that the style of plants grown by Mr. Lye is one with which the habitués of the West of England flower shows are familiar, and it is no wonder this style of culture is generally followed. One thing Mr. Lye can proudly state—that in his own immediate district he has taken more first prizes than any other grower in the West of England.

SEMPER AUGUSTUS.

STORAGE OF THE ROOT CROPS.

By JOSEPH MACDONALD.

THE conditions most favourable for preserving the root crops of the kitchen garden are not difficult to obtain or understand. The first is that they should be kept cool, that is to say, they should not be kept in a temperature sufficiently warm to promote a premature growth or they will very soon be deteriorated in quality. On the other hand, they must for the most part be kept out of the reach of frost. The next point is that the air which surrounds them should be kept as dry as the circumstances of the case will permit. To secure these conditions there is nothing that answers so well as a frost-proof building. An underground cellar will no doubt be suggested by some as offering these conditions without any drawbacks, but according to my experience an underground cellar is about the worst place that could be found. Underground cellars are as a rule not only insufficiently ventilated, but they are much too warm, and when such subjects as potatoes, beet-root, and carrots are stowed away in them a premature growth results. The roots, in fact, begin to grow six weeks or two months earlier than they would do if they were placed in a cooler place, and as a consequence the quality of the store is impaired. For these reasons an underground cellar is not suitable, and therefore cannot be recommended.

The structure best suited for root storage is a frost-proof building standing in a shady position on level ground. A lean-to structure placed against a wall is as suitable as any other, and the front and end walls should be hollow, and a good layer of straw ought to be placed between the rafters and the slates. Round the outside there should be a good belt of evergreen shrubs, to aid in sheltering the place from frost. The furnishing of the interior is a very simple matter. A good wide shelf should be fixed about four feet from the floor, and on it may be kept seed potatoes, onions, carrots, and such roots as salsify. The potatoes for the household use should be laid on the floor, but I shall be better understood if I refer to the storing of each crop separately, and explain the ways in which they may be stored to suit the circumstances of the general body of cultivators.

CARROTS.

These should be taken out of the ground in the second week of October, choosing a fine day for the work. As they are dug up rub off all the earth from the roots, and cut the tops off close to the crown. Then lay the roots out singly on the ground to dry, for which purpose a few hours will suffice, and the fewer the better, so long as the outside of the roots is dry. If they are left too long exposed to the air a sudden contraction of the skin takes place, and this often causes the roots to crack their whole length. The cracks not only disfigure the roots, but they promote early decay. I like a proper store in which to place at once a quantity sufficient to last an ordinary household a few weeks, but the bulk of the crop I treat in another way. For storing the supply for immediate use, if there is no better,

any ordinary cellar or garden shed will suffice, if the roots are covered with perfectly dry earth or sand; but the larger bulk is clamped, in the same way as potatoes, and from time to time we draw enough to last two or three weeks.

POTATOES.

Having described the kind of store that I should prefer for potatoes, what further I have to say on the subject will be to recommend a substitute for gardens in which a proper store is not provided. This is assuming, of course, that there is no suitable building available, and then a clamp must be resorted to. But there will be no harm in my saying that I do not like clamping potatoes, because it is not the best way to keep them in perfection. Once placed in a clamp they are out of reach, or, to speak more correctly, it is not always desirable or convenient to open a clamp of potatoes for the purpose of examination only, and as a consequence they are neglected at a time when they should be occasionally overhauled, and any affected tubers or premature growth removed. This neglect means a deterioration in the quality, but as a makeshift clamping has often to be resorted to, and as there are right and wrong ways of doing this I will describe the best way known to me. The one I shall recommend has invariably been found to answer very well, and my experience in this matter extends over a good many years. The position on which the clamp is formed should be fully open to the south, as much shelter as you like may be on the north and east sides, but a north aspect exposes the clamp to the severest frost, and renders the tubers liable to be frozen in very severe winters. The foundation of the clamp should also be dry, and to make it so it must be raised six inches above the surrounding level. The form should be long, not wide, as it is a mistake to lay potatoes together in very large bulk; for the greater the bulk the more likely is fermentation to take place, and as sure as it does set in the quality of the tubers will be impaired. By making the clamp long and not more than three feet wide fermentation will to a great extent be avoided. After raising the surface place a layer of straw on the soil for the potatoes to rest upon, and cover them up with clean straw of sufficient thickness to exclude the air, and let them remain for five or six days. After being fresh lifted from the soil, all potatoes give off a certain amount of moisture, which will escape through the layer of straw. But if they are covered with earth directly they are put in the clamp the moisture, owing to its having no means of escape, is confined about the tubers to their manifest injury. If, before the earth is added, the layer of straw has been moistened by rains, it should be replaced with fresh dry material, and be immediately covered with earth. When digging out the earth let it be first taken close round the base of the clamp, so that a deep trench is made all round it to drain away any water resulting from heavy rain, the object being to keep all the materials which surround the potatoes as dry as circumstances will allow. A ten or twelve inch layer of soil should be placed all over the clamp to render it frost-proof, and then it should be thatched with straight straw to carry off the rain.

BEET-ROOT.

This crop should be taken up towards the end of November, all the earth should be rubbed from the roots, and the tops cut off about half an inch above the crowns. The best cooks tell us that beet-root loses its colour in cooking if the bulb is in any way injured either at the crown or the root. It should, therefore, be dug up carefully so as not to break any of the roots. It is advisable to take to the store a sufficient supply to last three or four weeks at taking-up time, but if you want to keep the remainder plump and fresh place them in a clamp the same as you would potatoes, only they do not require quite such careful management. In the garden under my charge we select a spot in an out-of-the-way corner, then pack the roots in a heap and throw some earth over them—sufficient, in fact, to keep frost out. Stored in this way there is no shrivelling, and but very little loss from any cause.

SALSIFY AND SCORZONERA.

These roots we store in the same way as the carrots, but they are rather more excitable, and will quickly form roots and commence to make growth if they come in contact with a soil that is moist. If perfectly dry soil is not at hand to cover them with they will keep better without it.

PARSNIPS.

These are best left in the ground until the month of December, except it be sufficient to supply daily wants, when the bulk of the crop is lifted take the roots to the store, or some other structure where the frost and air cannot reach them, and cover with dry soil.

ONIONS.

This crop will have been already gathered in. Any light airy loft will suit onions, providing it is cool. We find them keep best when made into ropes and then suspended in a dry airy shed, as a few degrees of frost does not hurt them. We always make it a point to use the largest grown bulbs first, as those of medium size keep the best. Do not expose them to more than five or six degrees of frost.

FUCHSIA SIR GARNET WOLSELEY, raised by Mr. George Smith, of Tollington Nursery, Hornsey Road, is peculiarly attractive and novel; the flowers are single, of the largest size, stout, and not less majestic than elegant. The sepals are broad, and are reflected upon the peduncle without being recurved, thus presenting their flat undersurfaces of vivid vinous red to view. The corolla is goblet-shaped, the colour soft rosy crimson, each petal broadly margined with bluish purple. In habit of growth and profusion of the bloom the plant is all that can be desired.

The House, Garden, and Home Farm.

THE VINE.

HEARKEN! there is in old Morwenno's* shrine,
A lonely sanctuary of the Saxon days
Reared by the Severn sea for prayer and praise,
Amid the curved work of the roof, a vine.
Its root is where the eastern sunbeams fall
First in the Chancel; then along the wall
Slowly it travels on, a leafy line,
With here and there a cluster, and anon
More and more grapes, until the growth has gone
Through arch and aisle. Hearken! and heed the sign:
See at the altar side the steadfast root,
Mark well the branches, count the summer fruit;
So let a meek and faithful heart be thine,
And gather from that tree a parable divine.

REV. R. S. HAWKER.

THE HOUSE.

THOSE who prefer to grow hyacinths in water from the first may be reminded it is time to put them into glasses, and large hard bulbs should be chosen for the purpose. This department of domestic horticulture is too often badly managed, and the result is long-stemmed starveling specimens that afford no pleasure. It is a great folly to use small cheap bulbs, because a very little more outlay will secure fine ones that will be worth the little trouble needed to do justice to them. In all cases *single* varieties are the best: the doubles are quite unfit for water culture. Having filled the glasses, place the bulbs and take care they do not touch the water. Pure spring water is best, and there is no need for the use of charcoal or any fertilizing substances. Wrap each glass in flannel or waste cloth or brown paper, and shut all up close in a cool dark closet. This course of procedure will cause the roots to grow before the growth begins at the top of the bulb. In about ten days the roots will be growing freely, and the top will be wanting to grow. Now put them in the window where the light is the strongest, and occasionally add a little water to make good the loss by evaporation, but do not at any time allow the water to reach the base of the bulb. Cheap wire supports are easily obtainable, and should always be used, for elegance is needed in this kind of gardening.

THE GARDEN.

ASPARAGUS, when brown and half-withered, to be cut down to the surface of the ground, the beds to be well cleaned, and covered with four inches of half-rotten dung. The spade must not be used on the beds.

BEGONIAS with tuberous roots employed in flower garden decoration should remain out as long as it appears safe; then lift them and put in pots or boxes with a little light soil about the corms, pot off, and place in the greenhouse. Be careful not to hasten the drying off of the bulbs. When the stems fall begonias may be stored away for their season of rest, taking care to let them remain in the same pots in which they have flowered. They may be put away in a dry cellar, or on the ground covered up with cocoa-nut fibre, in any shed or frame where the bulbs will remain dry and be protected from frost. Both damp and cold are very dangerous to them. The temperature during their season of rest should be kept as near 50 deg. as possible. Nothing more remains to be done till they are started into growth in the spring.

BULBS for the embellishment of the flower garden should be planted immediately the beds and borders can be prepared for them, for they are injured more or less by exposure long after this date, and the autumn rains will saturate the soil and render it more difficult to plant them in a thoroughly satisfactory manner. Cheap varieties of both hyacinths and tulips should be employed for outdoor decorations, and they should be planted more plentifully and closer together than is usually the case. It is also desirable to fill each bed with one or two distinct colours, for mixtures are seldom satisfactory, particularly when seen from a short distance.

CARNATIONS and PICOTEES not yet rooted from layers must be taken off the stools and planted under hand-glasses; those with a few root fibres may be potted; having begun to root, they will soon gain strength.

CROPPING.—Now is the time for the cultivator to plan his system of cropping, so as to take full advantage of the benefits of a proper system of rotation, and according to the shape that system is to assume should be the preparations made during autumn and winter. There is no occasion to follow an elaborate system; it will suffice to let the crops on the same piece follow each other, so that there shall be a thorough change in the families. Lands that lie high and dry may be heavily manured now, and left rough, to be sown with early peas, salads, spinach, and other vegetables, to come on quick in the spring of the year. But ground subject to be flooded should not be manured till spring, or the goodness will all be washed away.

FORCING to be prepared for according to the demand for asparagus, seakale, rhubarb, &c. Take up all the roots that are to be used in the first batch, and lay them in by the heels: the roots force better if taken up some little while beforehand, especially for the earliest supplies, for which the plants are still in a somewhat active state, and needing to be artificially rested. This method answers also to afford an opportunity for trenching the ground, as every piece cleared of roots can be deeply stirred, manured, left a little to sweeten and pulverize, and be planted if necessary with roots for succession crops.

FRUIT TREES.—Make stations ready at once for all trees to be planted in the course of the autumn. The ground should be deeply stirred and left in a very rough condition, but the holes should not be made till wanted, as by that time they might happen to be full of water.

MUSHROOM BEDS for winter supplies should be spawned. But it will be loss of time to hurry the operation by inserting the spawn while the heat is too high. The safe temperature is 75 deg.; if the bed is a few degrees above that, wait a few days without disturbing it, for any disturbance will give a fresh start to the fermentation, and run it up again to a high pitch; and, besides, the more solid the bed the better. It is a pity this delicious esculent is not more commonly grown. Every amateur should have a mushroom bed, for the whole culture is simple and certain.

ROOT CROPS.—In storing potatoes, be sure they are dry first; if taken up in wet weather, spread them out in a shed or outhouse, but do not expose them to the light more than can be hepled. Parsnips keep best in the ground, to be dug up as wanted. Beet to be taken up at once; cut off the leaves an inch above the crown, and avoid bruising or cutting the roots. Carrots treat the same; store both in sand or dry earth.

THE HOME FARM.

HEDGEROW TIMBER contributes in such a decisive manner to the beautifying of the country that to propose its destruction in a wholesale way would be to prepare a programme for the Vandals. But in very many instances hedgerow timber operates injuriously in robbing the land below and shading it above, and the truth of the matter is of considerable importance. Cases will arise, however, where the question of planting hedgerow timber and sheltering belts of trees and plantations requisite to the enrichment of the landscape, and then we would wish those to whom such questions are remitted to consider how far it may be advisable to plant fruit trees, which are rarely thought of in such cases. It must be clearly understood that we do not advocate the planting of fruit trees everywhere. The aspiring elm, the sturdy oak, the graceful beech, the solemn pine, will never lose their importance as components of a woodland scene; but the fruit trees can make their own claim to be sometimes thought of, both for the adornment of the landscape and as capable of contributing in a most material degree to the payment of a farmer's rent. We have seen on grass farms enormous crops of first-class market fruits produced by hedgerow and woodland trees, and there are thousands of places where the same thing might be done, but where, generally speaking, it has never been thought of. It will not do to plant fruit trees in hedgerows near a town, for the crop will be stolen before it is ripe, and the thieves will tear the trees to pieces to get it. But where there is no such risk, and markets are not too far removed, the proposal is at least worth consideration. It would, however, be quite easy to make the resolve as the result of reasonable conviction, and then to go to work in the wrong way and have occasion afterwards to regret it. The soil, climate, and requirements of the district should first be taken into account. It should also be borne in mind that perishable summer fruits are altogether unfit for farm cultivation. The safe things are apples, pears, and nuts, that can be marketed in quantity and at times when there is a slackness of outdoor work, and that require no cultivation beyond being properly planted in the first instance; for the trees must take care of themselves to a great extent, and should never interrupt the regular work of the farm, or cause a single anxiety to their owner. They are to give shelter and beauty to the land, and make a substantial annual addition to the returns in money, and this in the way of supplement, bounty, bonus—call it what you will.

THE COLOURS OF FLOWERS.

By GRANT ALLEN.

From the *Cornhill Magazine*.

(Concluded from page 528.)

Now, the earliest ray-florets would naturally be bright yellow, like the tubular blossoms of the central disk from which they sprang. And to this day the ray-florets of the simplest daisy types, such as the corn-marigold, the sunflower, and the ragwort, are yellow, like the central flowers. In the camomile, however, the ox-eye daisy, and the mayweed, the rays have become white; and this, I think, fairly establishes the fact that white is a higher development of colour than yellow; for the change must have been made in order to attract special insects. Certainly, such a differentiation of the flowers in a single head cannot be without a good purpose. In the true daisy, again, the white rays become tipped with pink, which sometimes rises almost to rose-colour; [and this stage is exactly analogous to that of apple-blossom, which similarly halts on the way from white petals to red. In the asters and Michaelmas daisies we get a further advance to purple, lilac, and mauve, while both in these and in the chrysanthemums true shades of blue not infrequently appear. The cinerarias of our gardeners are similar forms of highly-developed groundels from the Canary Islands.]

I must pass over the blue tubular gentians and periwinkles, with many other like cases, for I can only find room for two more families. One of these, the borage kind, has highly-modified flowers, with a tube below and spreading lobes above; in addition to which most of the species possess remarkable and strongly-developed appendages to the corolla, in the way of teeth, crowns, hairs, scales, parapets, or valves. Of the common British species alone, the forget-me-nots are clear sky-blue with a yellow eye; the viper's bugloss is at first reddish-purple, and afterwards a deep blue; the lungwort is also dark blue, and so are the two alkanets, the true bugloss, the madwort, and the familiar borage of our claret-cup, though all of them by reversion occasionally produce purple or white flowers. Houndstongue is purple-red, and most of the other species vary between purple and blue; indeed, throughout the family most flowers are red at first and blue as they mature. Of these, borage at least is habitually fertilized by bees, and I believe the same to be partially true of many of the other species. The second highly evolved family to which I wish to draw attention is that of the labiates—perhaps the most specialized of any so far as regards insect fertilization. Not only are they tubular, but they are very bilateral and irregular indeed, displaying more modification of form than any other flowers except the orchids. Almost all of them are purple or blue. Amongst the best known English species are thyme, mint, marjoram, sage, and basil, which I need hardly say are great favourites with bees. Ground-ivy is bright blue; catmint, pale blue; prunella, violet-purple; and common bugle, blue or flesh-colour. Many of the others are purple or purplish.* It must be added that in both these families the flowers are very liable to vary within the limit of the same species; and red, white, or purple specimens are common in all the normally blue kinds.

Sometimes, indeed, we may say that the new colour has not yet begun to fix itself in the species, but that the hue still varies under our very eyes. Of this the little milkwort (a plant of the type with separate petals) affords an excellent example, for it is occasionally white, usually pink, and not infrequently blue; so that in all probability it is now actually in course of acquiring a new colour. Much the same thing happens with the common pimpernel. Its ancestral form is probably the woodland loosestrife, which is yellow; but pimpernel itself is usually orange-red, while a blue variety is frequent on the Continent, and sometimes appears in England as well. Every botanist can add half a dozen equally good instances from his own memory.

So far I have spoken only of what the ladies would call self-colour, as though every flower were of one unvaried hue throughout. I must now add a few words on the subject of the spots and lines which so often variegates the petals in certain species. On this subject, again, Mr. Wallace's hint is full of meaning. Everywhere in nature, he points out, spots and eyes of colour appear on the most highly-modified parts, and this rule applies most notice-

* The church of Morwenstow, near Bude, in Cornwall.

* Our English archangels and a few others are yellow. Such cases of reversion are not uncommon, and are doubtless due to special insect selection in a retrograde direction.

ably to the case of petals. Simple regular flowers like the buttercups and roses, hardly ever have any spots or lines; but in very modified form like the labiates and the orchids they are extremely common. The scrophulariaceous family to which the snapdragon belongs, is one most specially adapted to insects, and even more irregular than that of the labiates; and here we find the most singular effects produced by dappling and mixture of colours. The simple yellow mullein, it is true, has no such spots or lines, nor have even many of the much higher blue veronicas; but in the snapdragon, the flaxglove, and toadflax, the ivy-linaria, the eyebright, and the calceolarias, the intimate mixture of colours is very noticeable. In the allied tropical bignonias and gloxinias we see much the same distribution of hues. Many of the family are cultivated in gardens on account of their bizarre and fantastic shapes and colours. As to the orchids, I need hardly say anything about their wonderfully spotted and variegated flowers. Even in our small English kinds the dappling is extremely marked, especially upon the expanded and profoundly modified lower lip; but in the larger tropical varieties the patterns are often quaint and even startling in their extraordinary richness of fancy and apparent capriciousness of design. Mr. Darwin has shown that their adaptations to insects are more intimate and more marvellous than those of any other flower whatsoever.

Structurally speaking, the spots and lines on petals seem to be the direct result of high modification; but functionally, as Sprengel long ago pointed out, they act as honey-guides, and for this purpose they have no doubt undergone special selection by the proper insects. Lines are comparatively rare on regular flowers, but they tend to appear as soon as the flower becomes even slightly bilateral, and they point directly towards the nectaries. The geranium family affords an excellent illustration of this law. The regular forms are mostly uniform in hue; but many of the South African pelargoniums, cultivated in gardens and hothouses, are slightly bilateral, the two upper petals standing off from the three lower ones; and these two become at once marked with dark lines, which are in some cases scarcely visible, and in others fairly pronounced. From this simple beginning one can trace a gradual progress in heterogeneity of colouring, till at last the most developed bilateral forms have the two upper petals of quite a different hue from the three lower ones, besides being deeply marked with belts and spots of dappled colour. In the allied tro-pæolum or Indian cress (the so-called nasturtium of old-fashioned gardens—though the plant is really no more related to the water-cress and other true nasturtiums than we ourselves are to the great kangaroo) this tendency is carried still further. Here, the calyx is prolonged into a deep spur, containing the honey, inaccessible to any but a few large insects, and towards this spur all the lines on the petals converge. Sir John Lubbock observes that without such conventional marks to guide them bees would waste a great deal of time in bungling about the mouths of flowers, for they are helpless, blundering things at an emergency, and never know their way twice to the same place if any change has been made in the disposition of the familiar surroundings.

Finally, there remains the question—why have some flowers green petals? This is a difficult problem to attack at the end of a long paper; and indeed it is one of little interest for ninety-nine people out of a hundred, since the flowers with green petals are mostly so small and inconspicuous that nobody but a professional botanist ever troubles his head about them. The larger part of the world is somewhat surprised to learn that there are such things as green flowers at all, though really they are far commoner than the showy coloured ones. Nevertheless, lest I should seem to be shirking a difficulty altogether, I shall add that I believe green petals to be in almost every case degraded representatives of earlier yellow or white ones. This belief is clean contrary to the accepted view, which represents the green wind-fertilized blossoms as older in order of time than their coloured insect-fertilized allies. Nevertheless, I think all botanists will allow that such green or greenish flowers as the hellebores, the plantains, the lady's mantle, the salad-burnet, the moschatel, the twayblade, and the parsley-piert are certainly descended from bright-hued ancestors, and have lost their colours or their petals through acquiring the habit of wind-fertilization or self-fertilization. Starting from these, I can draw no line as I go downward in the scale through such flowers as knawel, goosefoot, dog's mercury, nettle and arrowgrass, till I get to absolutely degraded blossoms like glasswort, callitriche, and pondweed, whose real nature nobody but a botanist would ever suspect. Whether the catkins, the grasses, and the sedges were ever provided with petals I do not venture to guess; but certainly wherever we find the merest rudiment of a perianth I am compelled to believe that the plant has descended from bright-coloured ancestors, however remotely. And when we look at the very degraded blossoms of the sparges, which we know by the existence of intermediate links to be derived from perianth-bearing forefathers, the possibility at least of this being also true of catkins and grasses cannot be denied. So far as I can see, the conifers and cycads are the only flowering plants which we can be quite sure never possessed coloured and attractive petals. But this digression is once more only intended for the scientifically-minded reader.

If the general principle here put forward is true, the special colours of different flowers are due to no mere spontaneous accident, nay, even to no meaningless caprice of the fertilizing insects. They are due in their inception to a regular law of progressive modification; and they have been fixed and stereotyped in each species by the selective action of the proper beetles, bees, moths, or butterflies. Not only can we say why such a colour, once happening to appear, has been favoured in the struggle for existence, but also why that colour should ever make its appearance in the first place, which is a condition precedent to its being favoured or selected at all. For example, blue pigments are often found in the most highly-developed flowers, because blue pigments are a natural product of high modification—a simple chemical outcome of certain extremely complex biological changes. On the other hand, bees show a marked taste for blue, because blue is the colour of the most advanced flowers; and by always selecting such where possible, they both keep up and sharpen their own taste, and at the same time give additional opportunities to the blue flowers, which thus ensure proper fertilization. I believe it ought always to be the object of naturalists in this manner to show not only why such and such a "spontaneous" variation should have been favoured whenever it occurred, but also to show why and how it could ever have occurred at all.

KOHL-RABI is scarcely known in this country as a garden vegetable. On the Continent it is much cultivated for the purposes of the cook, and the leaves are as much prized as the root. We are reminded of this by observing in the wholesale catalogue of Messrs. Dammann and Co., of Portici, that a very ornamental variety of Kohl-rabi is in cultivation. This has leaves curled and crisped in the way of the curled kale, and makes a very gay figure in the kitchen garden.

Notes of Observation.

NEW AND OLD BERRIES ON THE SAME HOLLY TREE.

ON one of the holly trees here there is a fine crop of old berries still remaining, and also a full crop of new berries, and in some cases the old and the new berries are clustered together on the same branch. I do not know if there is anything singular in this, but it strikes me as not of frequent occurrence. It is worthy of remark that the berries of last year are as fresh and bright as they were last Christmas. I may also mention that there is a fairly good show of holly berries generally, both on the variegated and green varieties.

J. C. CLARKE.

NEMOPHILAS FOR SPRING FLOWERING.

All the nemophilas are very pretty, but they are never more so than in the early spring when grown in suspended baskets, or in pots placed upon a shelf and the growth allowed to hang down, which it will do in the most graceful manner. If they are to be grown in suspended baskets the seed should at once be sown in a pan rather thinly, and when large enough the plants should be planted in the baskets. If they are to flower in pots the seed may be sown in the pots in which they are to flower, those five inches in diameter being the most useful size. One strong plant is enough for each pot and from four to six are required for each basket according to its size. The three most distinct sorts are *N. insignis*, *N. insignis alba*, and *N. maculata*.

J. MACDONALD.

MESSRS. BARR AND SON'S DAFFODILS.

The new "Autumn Catalogue" issued by Messrs. Barr and Son, King Street, Covent Garden, contains not only the usual lists of hyacinths, tulips, lilies, and other useful subjects that are in demand at this season of the year, but a special list, preceded by a brief essay representative of Messrs.



NARCISSUS MILNERI.

Barr's extensive collection of daffodils. Of these, as they appear in the catalogue, there are offered for sale no less than 169 varieties, a very considerable proportion of which are of quite recent introduction. The collections of the late Mr. Leeds, the late Mr. Backhouse, and the late Mr. Nelson have fallen into the hands of the firm by the process of purchase, and have been systematically sorted, and studied, and named, and exhibited, and it may be said of them that whoever can make room to accommodate the entire collection will be well rewarded by their variety and their beauty. In all the sections we make note of names that are new to us, although we have submitted to our readers the results of frequent and copious note-making in Messrs. Barr's nurseries. And while there are new varieties that will have to be made known, so there are old varieties that have been famous in their time and have been well-nigh lost, but by some magical process have been recovered from oblivion and re-established as garden flowers by Messrs. Barr. Thus we see that the common daffodil of the meadows has come into the market, and the double variety known as Parkinson's is no longer to be regarded as apocryphal. For the student of the species of *Narcissus* there are now many new intermediate types that demand attention, for the hybridists have been busy spoiling the species, and have thereby enlarged the range of our garden delights, and of our knowledge of the ways of Nature. Such novelties as Milneri, Nelsoni, Barri, and Burbidgei, with their subsidiary forms, very strikingly illustrate what we may term the fluidity of the daffodil, for by crossing it appears capable of infinite variety of form, while somewhat severely restricted in its variation of colour. Nor is the unscientific amateur excluded from an interest in this catalogue. For the garden where collections obtain but little attention, but showy flowers are always in demand, there are new daffodils of the noblest character that will afford much delight. In the Trumpet section we have Bicolor, J. B. Camm, Hudibras, John Nelson, Shirley Hibberd, William Goldring, and Humei colorator deserving of attention. In the Chalice series Vincenti, Leedsi, and Barri, with their related forms, are immensely interesting, and Burbidgei curiously connects the incomparable with the Poet's daffodil, and brings in some striking colours.

THE CORAL TREE.

The severe winters of 1879-80 and 1880-81 appear to have destroyed many examples of the Coral Tree (*Erythrina crista-galli*), for I had not seen it in any garden for two years past until I met with a fine example in the garden of Dr. Harkness, at Trull, the other day. I was not fortunate enough to find the Doctor at home when I called, which I much regretted, as from him I might have gained some information as to the manner in which the *Erythrina* had been preserved. The specimen in question is not a very large one, but it is making excellent growth and producing three spikes of its beautiful flowers. From present appearances I should say that it has in the autumn been lifted and potted, and during the winter kept under glass. Upon this point I have no information, but if the Coral Tree has been wintered in the manner indicated, it is fully worth the trouble. If the Doctor would kindly tell us how he has kept his plant alive during a period when others have lost theirs he would, I am well sure, confer a great favour on a large number of admirers of the Coral Tree. I would add that in the garden I saw enough to convince me that great interest is taken in numerous other subjects.

J. C. CLARKE.

CELERY IN DRAIN PIPES.

One of your contemporaries has evidently been charmed by the appearance of some celery that had been grown in drain pipes, or rather blanched with their aid. With reference to the matter, I do not wish to say that the celery was not good, or that your contemporary has not a right to express an opinion upon its quality, but I do say that the practice is a very old one, and has not much to recommend it. From twenty-five to thirty years ago the use of drain pipes in blanching celery became quite the fashion, but the practice soon died out, and is not likely to be very quickly revived. After the pipes we had the ridiculous paper-collars, which were to effect such a great change in celery culture, but they did not receive much attention from sensible men, and those that tried them did not use them more than a second time. The fact of the matter is, there is nothing better for blanching celery than friable soil carefully packed about it. To apply the soil is easy enough. You have only to tie a piece of bast or matting round each plant as soon as large enough for earthing up, and then to draw round it a little soil carefully dropped down from the sides of the trench, the soil to be added to the rows at intervals, until a ridge sufficient to effect the desired purpose has been formed. If the matting is tied loosely it can be easily drawn up above the soil each time an addition of soil is made.

T. M. P.

BEDDING PANSIES AND VIOLAS.

During the last three or four days we have been busily engaged in clearing the flower beds of the plants with which they have been occupied during the season, and in refilling them with subjects intended for furnishing the spring display. Many years' experience has impressed upon me the importance of transferring the spring flowering plants to the beds as early in the autumn as possible, and I now make a point of beginning about September 21, and pushing on the work as rapidly as possible. By taking this course we have the beds filled early enough to give the plants time to become established before the winter. It is especially necessary to plant the pansies and violas early, for unless they are nicely rooted by the end of the autumn there is a great risk of their being cut off by a severe frost in December or January. This being the case, the beds to be filled with these subjects are cleared first, and they are dug over and replanted as expeditiously as possible, for every day is of importance, and a spell of wet weather may delay the work for some time. As the result of the practice indicated we invariably have the most splendid display in the spring. Although I am careful to propagate the greater part of the stock each year from cuttings, and consequently obtain more thrifty plants than can be had by division, I attribute my success chiefly to early planting.

A. PRACTICAL MAN.

THE WASHINGTON ASTER.

The present season has not been altogether the best I have known for asters. The seed did not germinate so well as it might have done, and after the plants were put out the cold rains did not suit them, and it was not until late in the season that they produced any good flowers. My quilled varieties were a failure; the Victorias did very well; but the best of all was the Washington. The varieties of this type made a fairly good growth and produced some splendid flowers. I do not recommend these for exhibition purposes, but to make a display of large asters in the beds or borders the Washington varieties are most valuable.

T. M. P.

THE CACTUS DAHLIA.

Is this dahlia anything different from the old scarlet bedding kind that used to be grown thirty years ago, and is even to be found now in plenty in some old-fashioned gardens? I lately saw it in quantity in a garden in Wiltshire. I do not say that the Cactus Dahlia is identical with the one mentioned, but to my mind it differs so little that one is as good as the other. Even if it is new or rare, I fail to discern any particular beauty about it. It has certainly very ugly flowers, and their ugliness is, I suppose, the reason why it is becoming fashionable.

J. C. CLARKE.

THE GOLD-CLOUDED IVY.

The variety of ivy named in my monograph *Chrysophylla*, and which has about a dozen different names in the catalogues, is not often seen in a first-rate condition. In driving through St. John's Wood the other day I made note of several fine patches of it on the side walls of houses in Wellington Road. Their proximity to Messrs. E. G. Henderson and Sons' nurseries would suggest an explanation of their appearance in that locality. I remember a very fine sheet of this ivy on the front of a house at Ponder's End, but whether it remains at the present time I do not know.

S. H.

EULALIA JAPONICA VARIEGATA.

This hardy variegated grass is not yet so much known as it might be, to the advantage of all who are fond of hardy plants. This is accounted for by the fact that it is quiet in colouring and without any conspicuous properties to recommend it. Yet it is not dull in colour, nor is it a diminutive plant, as it grows to a height of four feet or more. Although hardy, it may be grown in pots, and may be used with good effect in the decoration of the conservatory or greenhouse. I grow it largely, chiefly because we require a large number of flowers and foliage plants for the decoration of large vases and épergnes indoors. We find it most valuable because of its graceful arching habit. When judiciously displayed there is in this grass a degree of elegance and lightness of outline that I cannot obtain from any other plant. I recommend the eulalia to your readers, confident that those who require plants of similar character will find it all that I have stated it to be.

J. M.

WHERE ARE THE PAMPAS GRASSES?

There are many in the west of England now, and in the Isle of Wight and other favoured spots, flowering freely and filling many happy folks with joy; but where in the neighbourhood of London shall we find them? There are some, but they are few, for the winter of 1880-81 killed them, or spared so little of them that they must have at least another year of growth to be strong enough to flower. Certain friends of mine, having stores of dried pampas plumes, stuck them into the midst of their flowerless plants last year, and for garden party purposes the dressing up answered fairly well. In due time, no doubt, we shall again see pampas plumes where they are wanted, and they may for many years escape the winter frost. The best pampas I have seen this season is in a front garden on the right hand of the road going from London, and just before reaching Turnham Green. A few notes on the general state of pampas grasses in various localities would be acceptable just now.

S. H.

AUTUMNAL FLOWERS.

On the 2nd of October I managed to "drop in" for half an hour at the Chiswick garden of the R.H.S. Seeing that flowers were abundant and many of them in beautiful condition, I made note of the state of things as regards the more popular subjects. I shall begin and end with this remark, that the most strikingly perfect of all the flowers in the garden were the herbaceous lobelias. A circle of these bearing flaming scarlet flowers is at this time so brilliantly effective that one must marvel that such a cheap and charming display is quite a rarity.

Anemone japonica.—The white variety is as good here as elsewhere, and we have no finer plant of its class.

Antirrhinum of many kinds were in excellent condition, but somewhat past their best.

Begonias were quite over for any useful purpose, though still showing a few flowers. The best were some of the Ascot race, but these were not, in the proper sense of the word, attractive.

Calceolarias, all good, though a little thin. The yellows very acceptable now, and having a different effect to what they have in the height of summer.

Cannas were quite grand, not a leaf torn or discoloured, but there were not many flowers. It seems that these noble plants improve as the year advances until frost brings them to a stop. Certainly the cannas in this particular garden look better now than at any time in the past season.

Ceanothus stand apart somewhat from the kind of subjects now under notice. But it is proper to say that a large bed of these shrubs presents at this time a beautiful appearance, the flowers being abundant and giving delicate shades of blue, grey, pink, and white.

Chrysanthemum frutescens illustrates the importance of seeing a thing more than once in the season. A month ago the broad-leaved varieties, of which C. Halleri is the type, were the best. Now these are ragged and quite second-rate, whereas the typical C. frutescens and C. frutescens pinnatifidum are deliciously beautiful, the last-named having more flowers than at any previous time in the season. The delicate glaucous foliage of these two plants is in its way unique in beauty. The yellow marguerite is also as fresh and bright as in the height of summer.

Dahlias are in brilliant trim, and the singles are conspicuous for their beauty. It happens that there are not many double dahlias in the place, and so "odious" comparisons cannot be made. Some plants of single white and single yellow may share with the scarlet lobelias the honour of being the best things in the garden on October 2.

Fuchsia fulgens in several forms, all good, not a stain on their leaves and their flowers fairly plentiful.

Heliotropes are still flowering freely, but they look dingy, and emit but a faint suggestion of their summer perfume.

Lantanas very poor.

Lobelias of the *Cardinalis* section are brave and brilliant, the very finest flowers of the time.

Marvel of Peru would be good if it could, but the flowers do not open well, showing as mere dots on the leafage, owing to the want of strong sunshine. But there is here a variety with yellowish leaves, and the flowers show upon these in the form of purple dots, and one must pronounce them pleasing.

Pelargoniums of the zonal section are very fine when viewed from a distance, but when inspected are found to be the worse for wear, and the worse also for being cut for stock of sorts. However, the zonals glow with colour, and as happens when the cool days and long nights come those of a purple colour now show how near they can come to true blue when circumstances are favourable.

Pentstemons middling, and good enough to keep. The varieties appear to be of nearly equal merit as regards continuance of bloom; but the white one that was certified six weeks ago is not now in flower.

Rudbeckia Neumannii is perfect, and very acceptable—more so than in the height of summer, when yellow flowers are somewhat obtrusive.

Sedum spectabile is very fine: a bed filled with it is a solid block of warm rosy pink, different from all else in the garden.

Solanums correspond with cannas in the perfection of their fine leafage. There is not a spot on any of them; they are perfect.

Tropæolums are rather the worse for wear, but the *Bedfont* variety and the new ones from St. Osyth are full of flowers, and very gay.

Verbenas poor and ill-looking.

Finally, to conclude as promised, the scarlet lobelias have no equals at this time in respect of real beauty amongst the outdoor flowers.

ALPHABETAGAMMA.

TRADE CATALOGUES.

JAMES GRAY, HORTICULTURAL BUILDER, DANVERS STREET, CHELSEA, S.W.—*Designs for Horticultural Erections and Hot-Water Apparatus, &c.*

CRANSTON'S NURSERY AND SEED COMPANY, HEREFORD.—*Catalogue of Roses; Catalogue of Forest Trees, Conifers, &c.*

WILLIAM RUMSEY, JOYNING'S NURSERIES, WALTHAM CROSS, N.—*Catalogue of Roses, Trees, Shrubs, Fruit Trees, &c.*

WEBB AND SONS, WORDSLEY, STOURBRIDGE.—*Catalogue of Seed Corn.*

DAMMAN AND CO., PORTICI, NEAR NAPLES, ITALY.—*Wholesale Catalogue of Garden, Flower, Tree, and Agricultural Seeds.*

THE PINK.

It will be interesting to know whether there is any truth in the rumour "that there is likely to be a National 'Pink' Show held in London next year, and that Mr. Douglas is taking an active part in the matter." If it be true, the hearts of many lovers of this beautiful and old favourite flower will be warmed up to fever heat with delight. Having cultivated pinks and other florists' flowers for over thirty years, none have afforded me more pleasure than the pink. In the first place, it is very hardy, easy of cultivation, and will flourish in all situations, and, when well grown, for exhibition purposes forms one of the most attractive specimens staged. Secondly, it is a delightful border flower, and the perfume of a bed of pinks in full bloom is as delicious as its appearance is charming. Should a National Pink Show take place, it would be essentially necessary that a distinct understanding be first arrived at as to what constitutes a "show" pink. Many discussions have taken place years ago between the growers of the South and North. The former advocated large flowers full of petals, to which the latter gave the appellation of "mops," their fancy being fifteen to twenty petals only, and these the Southerners condemned as being nearly "singles." On the other hand, the Midland Counties growers adopted a medium, and endeavoured to produce flowers containing from twenty to forty petals, so that each bloom could be dressed for exhibition, and appear as a "full pink," with petals beautifully imbricated, without having any appearance of confusion. I have raised several of this class possessing great merit, and have been complimented upon my success by numerous reliable and well-known florists.

If anything definite is decided upon in favour of the show, I shall be pleased to let out my batch of six, or eight seedlings, upon moderate terms, so as to enable growers to possess, what I am sure would prove, an acquisition to every collection.

If the pink is to come to the front again, it should appear in the best possible form, and not be supported with varieties having serrated edges, with lacing jutting into the white, and which were exhibited nearly a quarter of a century ago, but which nevertheless are advertised in some of the florists' catalogues of present date.

The Cedars, Merridale, Wolverhampton. JAMES THURSTAN.

CHOICE BULBOUS AND TUBEROUS PLANTS.

At the request of several correspondents we have prepared a list of bulbous plants specially adapted for general cultivation. The majority of the subjects should be potted or planted at once, and the remainder in December, January, or February, according to the character of the season and soil and the purpose for which they are required. The several varieties of the first importance are indicated by an asterisk.

ANEMONES.

SIX CHRYSANTHEMUM-FLOWERED OR FRENCH.—Gloire de Nantes, La Brillante, Lilas, Mauve Clair, Ponceau, Rosy Queen.

TWELVE DOUBLE POPPY OR DUTCH.—Bleu Aimable, Célestine, Duchesse de Lorraine, Feu Incomparable, King of Scarlets, La Neige, Lord Palmerston, Marie Stuart, Prince Albert, Rose Mignonne, Victoria Regina.

SIX SPECIES AND VARIETIES FOR BORDERS.—Apennina, Apennina alba, Blanda, Fulgens, Palmata, Ranunculoïdes.

COLCHICUM.

SIX FOR BORDERS.—Autumale, Autumnale album*, Autumnale pallidum, Autumnale roseum*, Byzantinum*, Variegatum. These all flower early in the autumn, and must be planted not later than the end of August to insure their blooming satisfactorily the same season. Speciosum and Speciosum rubrum are the two finest of the autumn-flowering Meadow Saffron, but they are too expensive for planting in quantities.

CROCUSES.

TWELVE FOR POT CULTURE AND EXHIBITION.—Albion*, Baron Brunnov*, David Rizzio, Golden Yellow*, King of the Blues, La Majestueuse, Lamp-lighter, Mont Blanc*, Ne Plus Ultra*, Prince Albert, Queen Victoria, Sir John Franklin, and Van Speyk*.

SIX FOR BEDS AND BORDERS.—Caroline Chisholme, Cloth of Silver, Cloth of Gold, Golden Yellow, Prince Albert, and Vulcan.

TWELVE AUTUMN AND WINTER FLOWERING SPECIES FOR BORDERS.—Byzantinum, Chrysanthus, Elwesi, Imperati, Nudiflorus, Odorus longiflorus, Sativus, Suaveolens, Scrotinus, and Speciosus.

FRITILLARIAS.

TWELVE FOR BEDS AND BORDERS.—Imperialis (Crown Imperial), Imperialis Aurora*, Imperialis aurea marginata*, Imperialis argentea marginata, Imperialis lutea, Imperialis rubra maxima*, Imperialis Sulpherine*, Barnati*, Latifolia*, Pudica, Pyrenaica, and Recurva.

HYACINTHS.

FORTY-EIGHT FOR EXHIBITION.—Single Red—Cavaignac*, Cosmos, Fabiola, General Pellissier, Howard*, La Joyeuse, Le Prophète, Linnaeus*, Macaulay*, Mrs. Beecher Stowe, Prince Albert Victor, Princess Charlotte, Princess Clothilde, Solfaterre*, Von Schiller*. Single Blue—Argus*, Czar Peter*, Grand Lilas, King of the Blues*, Lord Derby*, Lord Melville, Marie*, Masterpiece*, Sir John Lawrence. Single White—Alba maxima, Grandeur à Merveille, La Grandesse*, L'Innocence, Mont Blanc*, Princess Helena, Snowball*, Single Mauve, Lilac, and Black—De Candolle, Feruik Khan*, General Havlock*, Haydn, President Lincoln, Prince Albert, Yeshco. Single Yellow—Bird of Paradise*, Duc de Malakoff, Ida*, L'Or d'Australie. Double Red—Duko of Wellington*, Koh-i-Noor*. Double White—Florence Nightingale. Double Blue—Garrick*, Laurens Koster, Van Speyk.

TWENTY-FOUR CHEAP VARIETIES FOR THE CONSERVATORY.—Single Red—Amy*, Diebitz Sabalskanský, Duchesse of Richmond*, Homerus, Madame Hodgson*, Mons. Paesch, Ornement de la Nature, Princess Clothilde, Robert Steiger*, Victoria Alexandrina. Single Blue—Argus, Baron van Tuyll*, Charles Dickens*, Grand Lilas*, Leonidas, Marie, Orondates. Single White—

Emmeline*, Mirandoline*, Paix de l'Europe, Queen of the Netherlands. Single Black, Lilac, and Mauve—L'Unique*, Mimosa, Prince Albert*. Single Yellow—Anna Carolina*.

TWELVE CHEAP VARIETIES FOR BEDDING.—Red—Amy, Belle Quirine, Robert Steiger, Victoria Alexandrina, Waterloo. Blue—Bleu Mourant, Baron van Tuyll, Charles Dickens, Orondates, Grand Lilas. White—La Candeur, Queen Victoria.

IRIS.

SIX VARIETIES OF IRIS PUMILA.—Albida, Aurca, Cærulea, Cærulescens, Lutea, Purpurea.

SIX VARIETIES OF IRIS SIBERICA.—Acuta, Alba, Atropurpurea, Euterpe, Grandiflora, Major.

EIGHTEEN VARIETIES OF IRIS KÄMPFERI.—Achilles, Alexander von Humboldt*, Alexander van Siebold*, Calypso*, Caroline, Cleopatra, Duchesse de Belcourt*, Hermia, Iago, Jersey Belle, Lemoinei*, Ernst Moritz Arndt, Leonidas, Lord Byron*, Macbeth, Rutherford Alcock*, Thomas S. Ware*, Victoria Regina.

EIGHTEEN VARIETIES OF IRIS XIPHIODES (ENGLISH IRIS).—Alba, Arch Duchesse*, Blanche Fleur, Chapeau de Cardinal*, Duchesse de Fleures, Grand Vainqueur*, Grande Blanche, Joost Van Vondel*, La Charmante*, La Vierge, L'Unique*, Miss Barclay, Mountain of Snow*, Perfecta, Rose Pertuse*, Saturnus*, Tritis, Victoria.

TWELVE VARIETIES OF IRIS XIPHIIUM (SPANISH IRIS).—Alexander, Armida, California, Cleon, Cleopus, Darius, Florence Nightingale, General Havelock, Louis le Grand, Louis Philippe, Ne Plus Ultra, Venus.

IRIS RETICULATA is one of the most valuable of the iris for general culture, and should be extensively grown in all gardens both in pots and out of doors.

LACHENALIAS.

SIX FOR POTS.—Aurea, Pendula, Quadricolor, Rubida, Luteola, Tigrina.

LILIUMS.

TWELVE FOR INDOOR DECORATIONS.—Auratum*, Browni, Giganteum, Humboldt*, Krameri, Longiflorum, Longiflorum Wilsoni, Longiflorum Wallichianum*, Pardalinum californicum*, Speciosum album*, Speciosum Melpomene*, Speciosum rubrum.

FIFTEEN FOR BEDS AND BORDERS.—Auratum, Bulbiferum, Umbellatum*, Candidum*, Chalcidonicum, Davuricum erectum, Davuricum atrosanguineum*, Davuricum citrinum*, Davuricum bicolor, Davuricum sanguineum*, Longiflorum*, Martagon, Speciosum* in variety, Tigrinum, Fortunei*, Tigrinum fl. pl., Tigrinum splendens.

NARCISSUS.

TWELVE TAZETTA OR POLYANTHUS NARCISS FOR POT CULTURE.—Bazemann Major*, Florence Nightingale, General Wyndham, Gloriosa*, Grand Primo Yellow, Her Majesty*, Jaune Suprême, Paper White*, Queen Victoria, Roman*, Sir Isaac Newton, Staten General*.

TWENTY-FOUR SPECIES AND VARIETIES FOR GARDEN DECORATION.—Abscissus, Bicolor Horsfieldi*, Bicolor Empress*, Bulbocodium, Cernuus, Cernuus plenus, Humei albidus*, Lobularis, Lobularis grandiplenus, Lorifolius, Emperor*, Maximus*, Minimus*, Obvallaris maximus*, Incomparabilis, Incomparabilis aurantius plenus*, Incomparabilis albus, Incomparabilis Leedsii superbus*, Montanus, Nelsoni*, Odorus, Poeticus, Poeticus fl. pl., Poeticus ornatus*, Rugilobus, Telamoni*, Telamoni plenus.

RANUNCULUS.

TWELVE DOUBLE PERSIAN VARIETIES FOR BEDS AND BORDERS.—Aigle Noir, Blanche superbe, Bouton d'Or, Commodore Napier, Couronne des Roses, Fireball, Jaune Suprême, Œil Noir, Queen Victoria, Richesse de Fleurs, Rose de Haarlem, Vesuvius.

SIX TURBAN VARIETIES FOR BEDS AND BORDERS.—Hercules, Janisarius, Romano, Séraphique d'Alger, Turban d'Or, Viridiflora.

SCILLAS.

TWELVE FOR BEDS AND BORDERS.—Amœna*, Bifolia*, Bifolia alba, Bifolia taurica*, Campanulata, Campanulata alba*, Hyaciuthoides nutans*, Nutans alba*, Peruviana*, Peruviana alba, Sibirica.

SPARAXIS.

TWELVE FOR POT AND FRAME CULTURE.—Angélique, Bulbifera, Grandiflora, General Pellissier, Lady Carey, Leucantha alba, Leonidas, Leopard, Plutarchus, Rosea punctata, Schamyl, Tricolor.

TRITONIAS.

SIX FOR POT AND FRAME CULTURE.—Brilliant, Crocata major, Eleonore, Gladstone, Prince Alfred, and Squalida.

TULIPS.

TWENTY-FOUR EARLY-FLOWERING FOR POT CULTURE AND EXHIBITION.—Single.—Bacchus, Belle Alliance, Chrysolara*, Keizerskroon*, Fabiola, Globe de Rigant, Grootmeester van Maltha, Joost Van Vondel*, White Pottbakker*, Prosperpine*, Vermilion Brilliant*, Superintendent, Wouvermau. Double.—Couronne de Roses, Imperator Rubrorum, La Candeur*, Mariage de ma Fille, Overwinnaar*, Purple Crown, Rex Rubrorum*, Tournesol*, Yellow Tournesol.

EIGHTEEN EARLY-FLOWERING FOR BEDS AND BORDERS.—Single.—Artus*, Couleur Cardinal, Cottage Maid*, Couronne Pourpre*, Duc Van Thol, Duchesse de Parme*, Fabiola, Keizerskroon*, Pottbakker Yellow, Pottbakker White, Thomas Moore*, Yellow Prince. Double.—Couronne de Roses, Gloria Solis, Imperator Rubrorum*, Purple Crown, Rex Rubrorum*, Tournesol*.

DR. NEUBERT'S "DEUTSCHES GARTEN-MAGAZIN" for October contains a figure of the beautiful *Primula Clusiana*. This is a very singular plant of low tufted growth, the leaves five-lobed, the flowers ten-lobed, the size of a florin, the colour rich violet-purple. In the same number is a plan of the garden of the exhibition at Nürnberg.

AUTUMN DANGERS.—Pestilential fogs and vapours always follow excessive summer rainfall, and infectious diseases are at no time more prevalent than in the autumn. Every household should be on his guard, and provide in every bed-room, bath-room, and nursery WRIGHT'S COAL TAR SOAP. It is a simple but efficacious preventive of infectious disease. Purchase only Wright's "Sapo Carbonis Detergens," as prescribed by the medical profession, and see these words on every wrapper and tablet.—[ADVT.]

Literature.

The Sea, its Stirring Story of Adventure. (Cassell.)—A handsome illustrated work, descriptive and critical, devoted to sea-fights, discoveries, perils, and adventures. In the first part is a stirring story of the origin of ironclad war ships and their present position, as illustrated by the bombardment of Alexandria.

Familiar Wild Birds. By W. SWAYSLAND. (Cassell.)—An acceptable work that will be of permanent value, and as it appears monthly will brighten many a table with its beautiful pictures and admirable descriptions. The magpie in No. 1 is quite a work of art.

Familiar Wild Flowers. By F. E. HULME. (Cassell.)—This work has reached Part 67, and is as fresh as when it first appeared.

Familiar Garden Flowers (Cassell) has reached Part 44, in which are figures and descriptions of the Ranunculus and Erica hymenalis. In treating of the cultivation of the Ranunculus Mr. Hibbard advises the raising of the plants from seed for all ordinary and decorative purposes. Step by step we appear to be reverting to the most ancient practices, and by improving practice justifying the doctrine that Nature's way is the best way.

Zonals in Box.—The zonals Commander-in-Chief and Sir Garnet Wolseley are of the highest order of floral quality, and as we see them on the desk, are very much alike, the pips being of great size, with broad overlapping petals, the colour light scarlet. The truss not labelled is massive and even, and of pure colour throughout. It appears to be the same as the pip labelled Commander-in-Chief.

The Ladies' Gazette of Fashion (4, Ave Maria Lane) presents its elegant pale pink cover amongst a heap of periodicals devoted to the interests of the fair sex, and wins pre-eminence at the first glance. But its inward merits agree with its outward aspects, as Manfred might say. It is beautifully produced and has larger aims than to deal with fashions merely, for it touches wisely, if lightly, on commercial matters, domestic matters, and matters of science, art, and taste, and is at some pains to find work for nimble fingers, and items of gossip for tongues that would not be still.

Fairy Tales. By HANS CHRISTIAN ANDERSEN. Illustrated by E. V. B. (Sampson Low and Co.)—The ever fresh, simple, delightful, and dainty stories of the immortal Dane do not need illustrations, for they carry their pictures in their words. But the world believes in pictures, and Messrs Low and Co. have done well to produce this very characteristic edition. The coloured designs are curiously conceived in a happy intermediary vein between the mediæval and the magical; there is plenty of colour to give force to the rare fancies of the artist.

Native Guano is the title of a pamphlet issued by the Native Guano Company, Aylesbury, Bucks, in connexion with their schedule of prizes for the root show to be held in Aylesbury on the 19th instant. The pamphlet contains directions for the use of the native guano, but does not contain any analysis of it, and this, it appears to us, is a matter of great importance.

The Flowers of Shakspeare Depicted. By VIOLA. (Sampson Low and Co.)—This is a neat smallish quarto volume filled with coloured figures of flowers illustrative of passages in the works of our great national poet. To criticise it from a strictly scientific standpoint would be sheer folly, and we shall better serve the interests of our readers by saying that it is a tasteful, showy, and inviting book, admirably adapted for a birthday or new year's gift. The subjects selected are such as will occur to the mind of every reader of Shakspeare: the daffodils that come before the swallow dares, the violets that are sweeter than Cytheria's breath, the cockle that injures our sustaining corn, the green holly, the garlands of Titania and Ophelia and Fidele, and that garland of promise that appears in the masque of the *Tempest*. There are thirty groups of flowers with Shakspearian verses attached; they are cheerful and gratifying, and will be a comfort to many.

Replies to Queries.

Constant Reader.—The usual twelve months' notice should suffice.

Names of Plants.—W: C.—The scarlet flower is *Pentstemon barbatus*, also known as *Chelone barbata*. The shaggy head is *Eryngium alpinum*. J. B., Battersea.—No. 1, *Begonia prestoniensis*; 2, *B. fuchsoides*; 3, *B. nitida*; 4, *B. weltoniensis*; 5, *Pteris serrulata*; 6, *Davallia bullata*.

INSECTS ON THE SURFACE OF ORANGES.—When a dish of oranges is seen on the table for dessert, the fact is hardly realized that, in all probability, their surface is the habitat of an insect of the *Coccus* family. This tiny insect is found on the orange skin in every stage of transformation, from the egg to the perfect insect, during the winter months, instead of remaining dormant in the cold weather, as is the case with most of the insect tribe. It would hardly be possible to find a St. Michael's or Tangerine orange that has not hundreds of these little creatures, in various stages of development, on its surface. Lemons, too, are frequently covered. Upon inspection, the skin of an orange will be found to be dotted over with brownish-scarlet specks of different sizes. These specks can be easily removed by a needle; and when placed under a microscope an interesting scene is presented, consisting of a large number of eggs, which are oval, white bodies, standing on end like little bags of flour, some of the inhabitants of which may very probably be seen in process of emerging from the opened end of the egg. On leaving the egg the female insect has six legs, two long hair-like appendages, and no wings; it thrusts a sucker into the orange in order to obtain nourishment, and never moves again, passing through the various stages of development until it lays its egg and dies. In the case of the male insect, the chrysalis after a short period opens, and the insect flies off. The male is supplied with wings twice the length of its body, and each of its legs has a hook-like appendage. It has four eyes and two antennæ, and is so tiny that it cannot be seen flying. From some parts of Spain oranges come to us covered with a *coccus* of quite a different type. The surface of oranges, indeed, furnishes the possessor of a microscope an infinite amount of interest and amusement.—*Chambers's Journal*.

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPLOUGH'S PYRETIC SALINE restores health and vigour to the system? Headache, fevers, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist, and of the Maker, 113, Holborn, London.—[ADVT.]

Markets.

COVENT GARDEN.

FRUIT.			
Apples.....	per 3 sieve	3s. 0d. to 5s. 6d.	
Cob Nuts.....	per lb.	0s. 6d. to 0s. 9d.	
Grapes.....	per lb.	0s. 6d. to 2s. 6d.	
Lemons.....	per 100	5s. 0d. to 8s. 0d.	
Pears.....	per lb.	1s. 0d. to 2s. 6d.	
Pine-apples, Eng. .	per lb.	3s. 0d. to 4s. 0d.	

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.	
Beans, French	0s. 6d. to 0s. 9d.	
Beet	1s. 0d. to 1s. 6d.	
Cabbages	1s. 0d. to 1s. 6d.	
Carrots	0s. 4d. to 0s. 6d.	
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.	
Cucumbers	0s. 8d. to 1s. 0d.	
Endive	1s. 6d. to 2s. 6d.	
Garlic	0s. 10d. to 1s. 0d.	
Herbs	0s. 2d. to 0s. 4d.	
Horse-radish, per bundle	3s. 0d. to 4s. 0d.	
Lettuces, Cabbage, per dz.	1s. 0d. to 2s. 0d.	
Lettuces, Cos	1s. 6d. to 2s. 6d.	
Mushrooms	1s. 0d. to 3s. 0d.	
Onions	3s. 0d. to 4s. 0d.	
Onion Spring	0s. 4d. to 0s. 6d.	
Parsley	0s. 4d. to 0s. 6d.	
Radishes	0s. 1d. to 0s. 3d.	
Small Salad	0s. 3d. to 0s. 4d.	
Spinach	2s. 6d. to 3s. 6d.	
Tomatoes	0s. 6d. to 1s. 6d.	
Turnips	0s. 4d. to 0s. 6d.	

FLOWERS.

Abutilons, per doz. blooms	0s. 2d. to 0s. 4d.	
Asters	2s. 6d. to 5s. 0d.	
Bouvardias	0s. 9d. to 1s. 6d.	
Chrysanthemums, per doz. bunches	4s. 0d. to 8s. 0d.	
Calceolarias, per doz. bun.	5s. 0d. to 8s. 0d.	
Eucharis	3s. 6d. to 6s. 0d.	
Gardenias, per doz. blooms	2s. 6d. to 6s. 0d.	
Gladioli	7s. 6d. to 10s. 0d.	
Heliotropiums	0s. 6d. to 1s. 6d.	
Lapagerias, per doz. blms.	1s. 0d. to 5s. 0d.	
Liliums	2s. 6d. to 5s. 0d.	
Marguerites, per doz. bun.	3s. 0d. to 5s. 0d.	
Mignonette	2s. 0d. to 4s. 6d.	
Sunflowers, per doz. blms.	1s. 0d. to 2s. 6d.	
Pelargoniums, Zonal, per doz. trusses	0s. 4d. to 0s. 8d.	
Roses	1s. 6d. to 3s. 6d.	
Roses, Tea	1s. 6d. to 2s. 6d.	
Stephanotis, per dz. sprays	3s. 0d. to 6s. 0d.	
Tropæolum	1s. 0d. to 2s. 0d.	
Violets	1s. 0d. to 1s. 6d.	

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.			
Lincoln Champions, ton	65s. 0d. to 70s. 0d.		
„ Magnum Bonums „	0s. 0d. to 80s. 0d.		
Kent Regents „	90s. 0d. to 100s. 0d.		
„ Champions „	0s. 0d. to 80s. 0d.		
Victoria „	90s. 0d. to 100s. 0d.		
Magnum Bonums „	90s. 0d. to 100s. 0d.		
Essex ditto „	80s. 0d. to 90s. 0d.		
Victoria „	80s. 0d. to 90s. 0d.		
Champions „	70s. 0d. to 80s. 0d.		
Regents „	80s. 0d. to 90s. 0d.		

CORN.—MARK LANE.

Wheat, Red, new.....	per qr.	31s. to 41s.
Wheat, White, new.....	„	30s. „ 42s.
Flour, town-made whites, per sack of 280lbs.....	„	37s. „ 42s.
Flour, household.....	„	34s. „ 39s.
Flour, country households, best makes.....	„	31s. „ 36s.
Flour, Norfolk and other second ls	„	30s. „ 34s.
Barley, Malt, new.....	per qr.	25s. „ 41s.
Barley, Grinding.....	„	21s. „ 30s.
Malt, English.....	„	32s. „ 48s.
Malt, Scotch.....	„	34s. „ 48s.
Malt, old.....	„	24s. „ 35s.
Malt, brown.....	„	28s. „ 32s.
Oats, English.....	„	21s. „ 29s.
Oats, Irish.....	„	21s. „ 25s.
Oats, Scotch.....	„	21s. „ 29s.
Rye.....	„	40s. „ 42s.
Tares.....	„	52s. „ 60s.
Beans, English, Mazagan.....	„	36s. „ 40s.
Beans, Tick.....	„	37s. „ 41s.
Beans, Winter.....	„	38s. „ 40s.
Peas, Grey.....	„	30s. „ 36s.
Peas, Maple.....	„	42s. „ 46s.
Peas, White.....	„	40s. „ 44s.

METROPOLITAN MEAT MARKET.

Beef, prime.....	per 8 lbs.	4s. 8d. to 5s. 2d.
Beef, middling.....	„	3s. 8d. „ 4s. 0d.
Beef, inferior.....	„	3s. 0d. „ 3s. 6d.
Mutton, prime.....	„	6s. 0d. „ 6s. 4d.
Mutton, middling.....	„	4s. 8d. „ 5s. 4d.
Mutton, inferior.....	„	4s. 0d. „ 4s. 4d.
New Zealand killed.....	„	3s. 4d. „ 4s. 0d.
Lamb.....	„	5s. 0d. „ 6s. 4d.
Veal, prime.....	„	5s. 0d. „ 5s. 4d.
Veal, midling.....	„	4s. 0d. „ 4s. 4d.
Veal, inferior.....	„	3s. 4d. „ 3s. 8d.
Pork, prime.....	„	5s. 0d. „ 5s. 4d.
Pork, middling.....	„	4s. 4d. „ 4s. 8d.
Pork, inferior.....	„	3s. 8d. „ 4s. 0d.

HAY MARKET.

WHITECHAPEL.			
Prime Clover.....	per load	100s. to 133s.	
Inferior do.....	„	60s. „ 95s.	
Prime Meadow Hay.....	„	109s. „ 110s.	
Inferior do.....	„	50s. „ 90s.	
Straw.....	„	30s. „ 41s.	

COAL MARKET.

Wallsend Hetton.....	per ton	21s. 0d.
„ Limbton.....	„	20s. 6d.
„ Caradoc.....	„	21s. 0d.
„ South Kelloe.....	„	19s. 6d.
„ Hetton Lyons.....	„	18s. 6d.
„ Thornley.....	„	20s. 0d.
„ Wear.....	„	18s. 6d.
„ Ravensworth West Hartley.....	„	15s. 0d.
„ East Wylam.....	„	17s. 0d.

MONEY MARKET.

Consols.....	100 $\frac{1}{2}$ to 10 $\frac{1}{2}$
Reduced 3 per cent.....	95 $\frac{1}{2}$ „ 99 $\frac{1}{2}$

A PLEA FOR TREE-PLANTING IN IRELAND.—“A dreary treeless waste” will shortly be the appellation of our otherwise justly-favoured isle, as we have lost the homestead law and timber-planting mania of our forefathers. We ought to learn from the tree-planting lairds of Scotland, where the Duke of Athole can boast of 27,000,000 trees, covering 15,000 acres. The vast woods and plantations exist for use as well as ornament, and the Duke plants annually from 600,000 to 1,000,000 trees. During the past planting season, 2,000 acres were laid out, and the once desolate and bare region, the Dunkeld Hills, are now a place of beauty. The plantations consist of every variety of timber; but recent nurseries are set with white willow trees, as they are in popular demand, and the wood is worth 1s. 6d. per foot for cricket bats and other purposes. Clean and best quality butts of 9-inch diameter fetch from 2s. 6d. to 3s. 6d. per foot in the London market. These are planted in marshy tract, where they thrive and grow rapidly from stumps and cuttings. We think our rural industries could be further stimulated by tree-planting, as the season is fast approaching. Osier culture pays as high as £10 per acre in the moist grounds of the North and South of Ireland.—*Freeman's Journal*.

BEES AND GRAPES.—A correspondent writes to the *Scientific American*:—“It has long been believed, and is now almost universally accepted as a fact, that the bee destroys grapes and other fruits. I have watched the little workers for years, and have been loth to believe it. I observed long ago that they never attacked sound grapes. But when defective, or split as the result of a rainy spell, they would then suck out the juices. Being unable to convince others of the harmlessness of the insect in any other way, I devised for that purpose the following experiment, which any one may try for himself. I placed at the mouth of the hives bunches of several varieties of thin-skinned grapes, and for days, although the bees were constantly crawling over them, not a berry was injured. I then punctured half of the berries on each bunch, and instantly the bees went to work on all so punctured, in a short time sucking them dry. The remainder of the berries were untouched, and remained so until punctured by me, when they in turn were attacked as promptly as the former. This experiment demonstrates that it is necessary for the grape to have been previously injured so as to allow exudation of juice; otherwise the bee will not molest it. I have not observed so carefully in the case of other fruits, but it is my belief that this is the *modus operandi* in all cases. Rot splitting of the grape, injury by insects and birds (in this latitude a small yellowish bird is conspicuous), are the causes that render grapes liable to attack by bees. And when we reflect that the berries thus injured would decay, it will be seen that the bee actually saves to us what would otherwise be lost, by storing it up as honey. I have been hurried into this communication by observing that in some quarters legislative action is about to be taken against an insect which I believe closer observation will demonstrate to be not only innocent of harm, but productive of good.”

Sales by Auction

Hyacinths, Tulips, Crocuses, Narcissus, Iris, Scillas, Snowdrops, and other Flower Roots, from Holland.

M. R. J. C. STEVENS will **SELL BY AUCTION**, at his GREAT ROOMS, 28, KING STREET, COVENT GARDEN, W.C. every MONDAY, WEDNESDAY, and SATURDAY, during OCTOBER, at Half-past Twelve precisely each day, consignments of **DUTCH BULBS**, arriving weekly from well-known Farms in Holland, in large and small Lots, to suit all buyers.

On view the morning of Sale, and Catalogues had.

Dutch Bulbs.—Sales every Monday.

MESSRS. PROTHEROE and MORRIS will **SELL BY AUCTION**, at the MART, TOKENHOUSE YARD, CITY, E.C., every MONDAY, at Half-past Eleven o'clock precisely, over 800 lots of first-class **HYACINTHS**, Tulips, Crocuses, Narcissus, Snowdrops, and other Roots, from Holland, in lots to suit the Trade and private buyers.

Catalogues at the Mart, and 8, New Broad Street, E.C.

By Order of the Executors of Mr. R. A. Osborn, deceased.—Sunbury, Middlesex.

MESSRS. PROTHEROE and MORRIS are instructed to **SELL BY AUCTION**, on the Premises, OSBORN'S NURSERY, SUNBURY, MIDDLESEX, on TUESDAY and WEDNESDAY, OCTOBER 17 and 18 (unless taken by the purchaser of the Freehold Estate at a valuation), the whole of the Hard-wooded and Greenhouse PLANTS, including the entire collection of strong, short-jointed, and well-ripened Fruiting and Planting Vines; also the beautifully-grown Tea, H. P., and Noisette Roses in pots, several hundreds of splendidly-grown Double Camellias and Azalea indica abundantly set with bloom, a large assortment of Hardy Climbers and Herbaceous Plants.

Catalogues may be had, when ready, on the premises, and of the Auctioneers, 8, New Broad Street, E.C.

N.B.—The first portion of the thriving and luxuriant outdoor Nursery Stock will be Sold by Auction on the premises, on November 14, and following days, unless taken at a valuation by the purchaser of the freehold estate. Definite advertisements will appear next week.

Friday next.—Sale of Camellias, Azaleas, Palms, Dracenas, Ficus, and other plants from Belgium; also a consignment of Hyacinths, Tulips, Crocuses, Narcissus, &c., from Holland.

MESSRS. PROTHEROE and MORRIS will **SELL** the above at the MART, TOKENHOUSE YARD, CITY, E.C., on FRIDAY next, at Twelve o'clock precisely. Catalogues at the Mart, and 8, New Broad Street, E.C.

For Sale.

Fifty Nurseries, Market Gardens, Florist, and Seed Businesses to be disposed of.

MESSRS. PROTHEROE and MORRIS'S HORTICULTURAL REGISTER contains full particulars of the above, and can be obtained gratis at 8, New Broad Street, E.C.

FOR SALE, EUCHARIS AMAZONICA, thirty large, sound, and well-ripened bulbs. Splendid bulbs for Easter blooming. Price 6/6s.—**GARDENER**, Fawsley Villa, Essex Street, Forest Gate.

FOR SALE, Six doz. Gardenia intermedia (clean) in 3-inch pots, 30s., or 6s. per doz. 200 Winter-flowering Tree Carnations (scarlet) in 2-inch pots, 50s., or 4s. per doz.; Miss Jolliffe, 4s. per doz. 200 Old Red Clove, 50 White Clove, 50 Anne Boleyn (fit to pot for forcing), 40s. or 2s. 6d. per doz. A few 100 Large-flowering White Marguerites, 8s. per 100.—**G. GROVER**, Florist, River Court Nursery, Hammer-smith, W.

GERANIUM CUTTINGS FOR SALE, 30s. 1,000, including Tricolors, Bronzes, Silver-edged, &c. Carriage free.—**J. LINCOLN**, Chase Side, Enfield.

GREENHOUSE FOR SALE, 15 feet by 10, span roof, made on new principle.—To be seen at **H. PERKINS'S**, Builder, New End Square, Hampstead.

TO FRUITERERS and GREENGROCERS.—A well-known old-established BUSINESS for DISPOSAL in full trade; main road; fast-improving locality; proprietor retiring; a sure fortune to an industrious man.—Agent, Mr. J. ELLIOT MORRIS, 567, Fulham Road, opposite Waltham Green Station.

TO NURSERYMEN and FLORISTS.—TO BE DISPOSED OF, a bargain, an old-established BUSINESS, well stocked; four Greenhouses, in all about 2,000 feet of glass; good Vinery; Lease 3½ years unexpired; half an acre of ground and every convenience to carry on a large business; coming in £100, or at valuation.—Apply **C. EMERSON**, 1, Commerce Place, Coldharbour Lane, near Loughborough Junction.

To be Let.

CAPITAL BUILDING SITE (adjoining New Inn Strand, and close to the Royal Courts of Justice) BE LET on 60 years' lease, or FREEHOLD TO BE SOLD; area 6,000 sq. feet; suitable for a variety of purposes, but pre-eminently for law offices and chambers.—For particulars apply to Messrs. EDWIN FOX and BOUSFIELD, 99, Gresham Street, Bank. (12,318)

SPRINGFIELD NURSERY, ST. HELIERS, JERSEY.—TO LET on LEASE, that desirable NURSERY, with 350 ft. of glass, part vinery, and heated; with dwelling-house, shop; every convenience; on 1½ acres of ground; stock or part can be taken.

TO LET, a NURSERY, four miles from Covent Garden Market, nearly an acre of land, three long greenhouses, well stocked, fitted with hot water; 28 lights on cold frames; ground well stocked; cottage and large shed on premises; lease 18 years.—Apply **H. CROOK**, Grove Nursery, Brabourne Grove, Hollydale Road, Nunhead.

ORCHID BASKETS.—Superior Octagonal Teak-wood Orchid Baskets, in various designs, with galvanized or copper wire, from 6s. per dozen. Send for Illustrated Price List to **SIDNEY WILLIAMS**, 23, Farringdon Road, E.C. (close to the station).

Wanted.

NURSERY FOREMAN WANTED (Outdoor).—Apply to **THOMAS FROST and SONS**, Maidstone.

TEXAS, N.S.—Splendid openings for practical GARDENERS to take up Land and grow Fruit and Early Vegetables for the Northern Markets. Small capital required. Send for Map and Pamphlet free.—**W. G. KINGSBURY**, 41, Finsbury Pavement, London.

WANTED, at once, HEAD (Working) GARDENER.—Single Man; experienced and trustworthy, understanding his duties thoroughly in forcing; also in rearing Flowers and Vegetables; two other men kept; furnished lodgings found on premises; state age, wages, character, with full particulars, and when disengaged.—**ALPHA**, Pink's Library, Walton-on-Thames.

WANTED, MAN and WIFE, without family, and not over forty years of age; the Man to work in the garden, the Wife as laundress, for which work she must be competent; living rooms, with gas and firing found; good characters indispensable; further particulars on application.—**J. HUDSON**, Gunnersbury House, Acton, W.

WANTED, an active young MAN, who understands the general routine of the Nursery Business.—Must be able to take charge of Houses, and willing to make himself useful.—State age, experience, and wages required to **J. G. I.**, Station Nurseries, Horsham.

WANTED, a SINGLE-HANDED GARDENER.—Married, without family; honest, sober, and tidy; well up in Kitchen Garden, and Flowers, and Greenhouse; no Forcing; wages 21s. per week, with good cottage.—State age, &c., to **G. C.**, Broomfield Hall, Swanley Junction, Kent.

WANTED, a young Man, as JUNIOR ASSISTANT, chiefly in the Seed department; preference given to one who has a knowledge of trees, shrubs, and plants, and their value, as he will be required at times to assist in executing orders, and in carrying on the business of a general nurseryman and seedsman's establishment.—Apply by letter only, stating age, experience, and wages required, to **JOHN FRASER**, The Nurseries, Lea Bridge Road, Leyton, Essex.

WANTED, a STRONG LAD in the Garden.—Must have had some experience; will have an opportunity of improving; wages 4s. per week, with board and lodging on the premises.—Apply by letter to **B. B.**, care of Turners, 151, High Street, Southwark, S.E.

WANTED TO PURCHASE, a number of HOLLY PLANTS, 2 to 3 feet high. State price per 100; also price for variegated.—Address **J. ARCHER**, Florist, Maldon Road, Watford.

Situations Wanted.

A S GARDENER (Single-handed).—No objection to Cow; aged 40; married, no family.—Apply **T. PLUMBRIDGE**, High Street, Egham.

A SECOND or THIRD in a good establishment.—Eleven years' experience; good practical knowledge of Gardening; well up in Stove and Greenhouse Plants; age 25.—Please address **W. H. SMITH**, Rochetts, Brentwood, Essex.

DOWNIE and LAIRD can at present Recommend with every confidence several first-rate SCOTCH GARDENERS, whose character and abilities may be thoroughly depended upon, either for Large Establishments or Single-handed Situations; also FOREMEN, UNDER GARDENERS, and FARM BAILIFFS.—17, Frederick Street, Edinburgh.

FOREMAN.—Age 28; 14 years' experience; thoroughly understands the profession; two years in present situation; character will bear strictest inquiries.—**ROBERT HALE**, Groombridge, Tunbridge Wells.

FOREMAN in a Gentleman's Establishment.—Age 24; understands Vines, Peaches, Melons, Cucumbers, Stove and Greenhouse Plants.—**W. RYE** can recommend a man as above, Sneyd Park, Bristol.

GARDENER (Head).—**F. THOMSON**, Norman Court Dean, Salisbury, can with every confidence recommend his Foreman, **W. J. IRELAND**, who has been with him 3½ years, to any Nobleman or Gentleman requiring the services of a thoroughly trustworthy and energetic man. An Experienced Fruit and Plant Grower, and equally efficient at Flower and Kitchen Gardening, and the requirements of a large establishment.

GARDENER (Head, or as General Foreman) where several are kept.—South of England or near London preferred; understands the general routine of a Private Establishment, indoors and out; good recommendations; age 25; single at present.—**A. STREET**, Woodcote Hall Gardens, Newport, Salop.

GARDENER (Head), or to grow first-class Fruit and Flowers for market.—Has had over 20 years' experience in every branch of the profession; well up in Forcing, and good Grape grower; also Flower and Kitchen Gardener; married, no family; good reference.—**J. D.**, at **H. ROSIER'S**, Ramsbury, Hungerford, Berks.

GARDENER (Head, or Single-handed).—Age 40; good character; understands Vines, Melons, &c., also Kitchen, Flower Garden; one child, nine years; Wife good laundrywoman if required.—**M. A.**, 3, Kent Villas, East Milton, Gravesend.

GARDENER (Head, where two or more are kept).—Married, two sons, 16 and 14; 28 years' experience, 17 head in place now leaving; near London preferred; please state wages and number kept.—**FLORIST**, Balcombe Station, Sussex.

GARDENER (Head, Working).—Age 28; married, one child.—**R. PARKER** is desirous to obtain a situation as above; 12 years' experience in good gardens; reference to Mr. Taylor, head gardener, Duncannon, Weybridge; good previous references.—Present address, Duncannon, Weybridge.

GARDENER.—Wanted, a Situation; understands Vineries, Stove, and Greenhouse, with Flower and Kitchen Gardens; good testimonials.—**N. BARTLEY**, Motcombe, Shaftesbury.

Situations Wanted.

GARDENER (Head, Working).—No family; highly respectable; 25 years' experience in all branches, both indoors and out, also land and stock; Wife can manage small Dairy or take charge of House; six years' good character from last situation.—**S. P.**, Sutton and Sons, Reading.

GARDENER (Head, Working, where more are kept).—Age 46; married, no family; understands Gardening in every branch; now at liberty; good character.—**R. WALKING**, Milton Steventon, Bucks.

GARDENER (Head, Working).—Married; thoroughly understands the profession in all its branches.—Apply, stating wages, **W. E.**, 10, Richmond Street, Edgware Road, London, N.W.

GARDENER (Head, or good Single-handed).—Age 30; one child, age seven; thorough practical knowledge of the profession; good character.—**J. B.**, 1, North End Villa, Crayford Road, Erith.

GARDENER (Single-handed).—Understands Flower and Kitchen Garden, Greenhouses, Vines; understands house work, poultry; can milk; age 33; married, no incumbrance; Wife willing to be useful if required.—Address **W. W.**, 4, Little Ebenezer Place, North End Road, West Kensington, London, S.W.

GARDENER (Single-handed, or otherwise).—Understands Stock; could manage a farm; married, no family; total abstainer; good character.—**G. S.**, 52, High Street, North Finchley.

GARDENER (Working, where two or three are kept).—Well up in Forcing Grapes, Cucumbers, Melons, &c., and a thorough Plantsman; also Kitchen and Flower Garden; can be well recommended by late Employer, and previous good character; age 30; married, one child.—**C. GARDENER**, St. Mary's Cottages, Alverstoke, Hants.

G CHANNING, LILLESSEN GARDENS, HAWK-HURST, KENT, wishes to recommend a young MAN (late of Blenheim) as Journeyman in the Houses in a good establishment.—For testimonials, &c., address as above.

IMPROVER, under a good Gardener, where he could learn Gardening thoroughly.—Age 17; would not object to pay a premium; can have four years' good character from present employer.—**J. B.**, Warren, Finchampstead, Wokingham, Berks.

RICHARD SMITH and CO. beg to announce that they are constantly receiving applications from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—**St. John's Nurseries**, Worcester.

TO NURSERYMEN or GENTLEMEN.—Grower of Herbaceous Plants and Bulbs.—A young Man, having good experience in the best Herbaceous Plant Nurseries, wishes to obtain a SITUATION as above.—**J. W. G. GUTHRIE**, Broxbourne, Herts.

WANTED as GARDENER (Head or Single-handed).—Married, two children; age 31 years; two years' character; understands cows or poultry.—Address **D. SAUNDERS**, the Lodge Cottage, Redhill, Surrey.

WANTED, by a young Man, Situation as SECOND GARDENER; first class character.—Address **W. V.**, Mr. Fulcher, Gardener, 35, Mildmay Road, Chelmsford, Essex.

WANTED, by a young Man, a Situation as UNDER GARDENER, with good character; age 26.—Address **W. LOVER**, Selsdon, Croydon, Surrey.

WANTED, by a young Man, a SITUATION in the Houses; five years' good character from Dowager Lady Buxton; please state wages given.—**W. WHISKERD**, Pettygard's Hall, near Swaffham, Norfolk.

WANTED, by a respectable Youth, age 17, a SITUATION in Nursery or Gentleman's Garden; some experience; strong and industrious; references.—**A. G.**, Latchingdon School, Maldon, Essex.

WANTED, as LAD in the Gardens; age 17; or could manage a Cow or Pony.—Apply **R. COLTEN**, Chobham, Woking Station, Surrey.

BULB CATALOGUE

CONTAINS PRICES of AMERICAN TUBEROSES, extra fine; also PEARL, improved variety. Special low quotations on application. Early ROMAN HYACINTHS, Double ROMAN NARCISS, &c. Double and Single SNOWDROPS, extra fine. LILIAM AURATUM, L. candidum, and many other varieties of choice Lilies, coming from Japan. HEPATICA, Double Crimson or Single Blue; also HYACINTHS, CROCUS, and TULIPS in great variety. Free by post on application.

WATKINS and SIMPSON, SEED AND BULB MERCHANTS, EXETER STREET, STRAND.

Lily of the Valley, extra fine German Crowns or Clumps.

Grape Vines.

H. LANE and SON have a very large stock of well-ripened CANES to offer. Awarded ten first prizes for Vines in pots at the late International Show at Edinburgh, and many first prizes at former Shows. Catalogue on application.

The Nurseries, Berkhamsted, Herts.

Autumn 1882.

IMPORTED DUTCH BULBS.—These are now ready, and as the season ahead has been favourable, the Bulbs are fine, large, and well matured. Prices are lower this year than last. Catalogues will be sent post free on application. Autumn list of Rooted Cuttings post free.

ARTIFICIAL WREATHS.—We have one of the finest stocks of the above in London. Real Flower Wreaths at four hours' notice.

GENUINE SCOTCH OATMEAL.—We have wide-spread reputation for this, and keep it packed ready in three kinds, Fine, Medium, and Extra Course, at 3s. per stone.

FREDERICK BAX, 23, Liverpool Street, E.C.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. Morn.	Sets. After.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	UFG.				
15	S	19th Sunday after Trinity.	6 25	14 10	5 6	9 50	6 35	3 22	3 38	0 30	0 47	51.0	Aster Nova Belgica, H.	Blue.	1962
16	M	Lord Palmerston died, 1865.	6 27	14 21	5 4	10 50	7 19	3 55	4 10	1 3	1 20	50.7	Bouvardia longiflora flammula, G.	Salmon-rose.	288
17	Tu	Elizabetha, Virgin.	6 28	14 35	5 2	11 43	8 12	4 28	4 45	1 35	1 53	50.5	Cypripedium plateycentra, G.	Red.	289
18	W	St. Luke, Evangelist.	6 30	14 47	5 0	After.	9 15	5 3	5 25	2 10	2 28	50.1	Erica gracilis autumnalis, G.	Rose.	290
19	Th	First Quarter, 11h. 55m. after.	6 31	14 58	4 58	1 10	10 24	5 18	6 15	2 50	3 13	49.8	Nerine Plant, G.	Crimson-scarlet.	291
20	F	Sir Christopher Wren born, 1612.	6 32	15 8	4 56	1 45	11 38	6 42	7 15	3 49	4 7	49.5	Passiflora Muroi, G.	Violet.	292
21	S	Battle of Trafalgar, 1805.	6 34	15 18	4 54	2 13	Morn.	7 53	8 33	4 49	5 18	49.2	Primula alba plena, G.	Violet.	293

The Gardeners' Magazine.

SATURDAY, OCTOBER 14, 1882.

THE DOUBLE CHRISTMAS NUMBER OF THE GARDENERS' MAGAZINE will be published as usual in advance of the merry season, to ensure fine weather and promote healthy mirth. It will consist of two sheets filled with Essays, Stories, Songs, Squibs, Crackers, and faithful reports of impossible events for the promotion of Horticulture, Agriculture, and Culiniculture. Amongst the *pièces de résistance* will be found:—

EVOLUTION, REVOLUTION, AND DEVOLUTION, by ALLEN GRANT, Esq.

THE DULCET DOLPHIN AND THE GRAMPUS OF THE CAVE, by ONE OF THE STAR-FISHES.

THE DECORATION OF CHURCHES AND GRAVEYARDS, by MR. C. R. KELLY, of Tarporley.

THE THREE NOBLE DONKEYS, by STULTUS ASINUS.

SELLING THE MOON: a Statement of Facts that can be Sworn to.

A COTTON YARN FROM COTTONOPOLIS, by STRAIGHTORFTHREE.

THE TRUE STORY OF ROBINSON CRUSOE: a Dry Romance of the Every-day Sort.

THE DISAPPEARANCE OF DURHAM: a Sequel to York, you're Wanted!

THE ATHLETE IN A DIFFICULTY, and Showing How he Got Out of It by Running Away.

A WALK ROUND AN OLD HORTICULTURAL SUBURB, by the PILOT OF BALL'S POND.

A gorgeous, transparent, coruscating, dazzling, and most convincing SHEET ALMANACK for the year 1883. As coloured almanacks are scarce at the end of the year, the price of this will be raised when it rises in the market.

*. As the Double Illustrated Christmas Number, while present arrangements continue, can only be published once a year, intending Advertisers must book their places early, for none will be reserved after they are sold, and there will be no extra charge for booking except to those who come too late.

Auction Sales for the Ensuing Week.

MONDAY, OCTOBER 16, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

TUESDAY, OCTOBER 17 AND FOLLOWING DAY, AT 12 NOON.—Messrs. Protheroe and Morris, at Osborn's Old Nursery, Sunbury; Greenhouse Plants, &c.

WEDNESDAY, OCTOBER 18, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

WEDNESDAY, OCTOBER 18, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

THURSDAY, OCTOBER 19, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

FRIDAY, OCTOBER 20, AT 12 NOON.—Messrs. Protheroe and Morris, at the Grove Park Nursery, Lee; Outdoor Nursery Stock.

SATURDAY, OCTOBER 21, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

IVY LAWNS are known to but few amongst the many who are interested in garden economy. They consist, as the name implies, of ivy only, and they offer some peculiar advantages in cases where grass lawns are apt to occasion more trouble than they are worth. An ivy lawn may be well made in one season, and if the primary operation of planting be properly performed, the lawn will make itself; it will want no cutting, no sweeping, no watering, no protection from the birds that eat the grass seeds to-day and to-morrow scratch up the tender plants, as though it was their mission to make grass lawns impossible. And when made, being, as it were self-made, an ivy lawn will take care of itself for any number of years; but if in need of repair or trimming, the knife, the shears, or the spade may be used with good effect by unskilful hands, and with the least imaginable cost of time, for it is not an easy thing to kill, or even to seriously injure, a lawn consisting of ivies solely. Such lawns are unfit for games, and indeed should not be trodden on. They will not, therefore, supersede grass in a country garden, which perhaps is a matter for gratulation; but they will give us the most delightful breadths of verdure in thousands of places where grass is more plague than profit, and, at the very best, tends rather to disgrace than adorn the position. In town gardens generally, where small patches of ill-kept grass tell us but too plainly that a garden is not necessarily an advantage, the ivy lawn would make all the difference between a too evident failure and a complete success. So again in spots shaded by trees, where usually we see bare earth, and it is confidently said that nothing will grow, a surfacing of ivy may be as surely secured as the shade that renders grass impossible. And while with grass for a lawn we have but little choice as to colour, for the good lawn grasses are all green, with ivy we may have a great variety of colours, for there are ivies with creamy tinted leaves and leaves splashed with gold-yellow, as well as dark green leaves and light green leaves. After observations and experiments extending over

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many years, however, we have concluded that the very best of all known ivies for the purpose is the one known as "Hibberd's Emerald," for it is literally always growing and travels fast and far, and the colour of its fresh glossy leafage is a rich blue-tinted green, suggestive of the gem from which it takes its second name. It is in truth a delicious ivy at all seasons; it is the first to begin growing in spring and the last to cease growing in autumn, and while it spreads freely and forms a close felt of rich herbage on the ground, it will climb and cling wherever it touches a perpendicular surface, and thus without being directed it will quickly clothe walls and pillars and trees with its ever fresh and lovely leafage. But the well-known Irish ivy is a valuable carpeting plant, and is at command everywhere for the purpose.

There are various ways of making ivy lawns. Certain most enjoyable sheets of ivy that are before us, as we write, have been three years in course of formation. They were made in this way. Certain compartments were marked out and edged with plank on edge, and the Emerald ivy was planted to form the boundaries. These clumps were planted with hollies and other first-class shrubs; also with crocuses, early tulips, narcissi, hardy primulas, pyrethrums, and other good things in what may be called a respectable style of town gardening. The ivy moved slowly for a time, but it soon crept over the plank edging and formed a beautiful green boundary. To this it was kept by systematic but rather tender clipping, for the less we cut any plant the more vigorous will be its growth. Thus we came to the year 1882, when the ivy edgings were allowed to run over certain compartments, and these they have covered with such a delightful green leafage that we dare not touch it; there are the lovely little ivy lawns dotted with variegated hollies, red-berried skimmias, golden-leaved euonymous, and (at this time) with tufts of the white Japan anemone, and the lively pink Sedum spectabile. And the reader may be inclined to ask, What about the crocuses, and the early tulips, and the narcissi, and the pyrethrums? Well, truth is truth, as we have said often enough. It strikes us that all these things that are at this moment especially inquired about will be some degrees the worse for their sudden dense covering of ivy. We cannot have the cake and eat it too, and when a cat is in question, we cannot have more than the cat and her skin. It follows that if the ivy kills out all the weaker brethren we shall not quarrel with it any more than we should quarrel with grass if it did not permit tulips to thrive in its midst and bear the frequent punishment of the mowing machine. It is not intended by this note to imply that sheets of ivy are better than flower beds; all that now concerns us is to say that ivy lawns are adapted for hundreds of thousands of gardens where a vain struggle is maintained against fate in behalf of grass, which makes, in these cases, a constant vexation, whereas the ivy might be a constant joy.

The course we have followed of giving the ivy time to gather strength, so that in the end it might, as it were, make lawns at a bound, the ground being, in the interim, occupied with various flowering plants, would certainly not suit all cases in which it might be desirable so to employ ivy. But we have choice, if it suits us, of an instantaneous system, for if the ground is well prepared, and young plants are put in at from one to two feet apart over the whole space, there will soon be a perfect surfacing of ivy leafage. Vigorous green-leaved ivies that have been established two or three years will, if allowed, make a growth of quite three feet in one season; therefore, a twelve feet space may be clothed quickly from the opposite boundary lines, and only on the outside edge, for the sake of tidiness, should any cutting or clipping be allowed until it becomes absolutely necessary. The so-called grass plots in town gardens occasion much trouble and but rarely give satisfaction. With the ivy lawn there is simply no trouble and no risk, but it must always be remembered that an ivy lawn exists to gratify the eye only; it must not be trodden on, and is therefore useless where garden games are in vogue.

THE PAMPAS GRASSES that have lost their centres may be renewed in one season if the procedure described by Mr. Douglas in his note on the subject is adopted. He digs out the dead centre and fills in the hole with fresh rich compost, and the roots from the outer parts run into this, and the result is the formation of a new central mass, making the clump complete.

MESSRS. VEITCH AND SONS have purchased the freehold of the celebrated Fulham Nursery, formerly in the occupation of Messrs. Osborn and Son.

GHENT WILL BE BUSY IN APRIL, 1883, as the Quinquennial International Horticultural Exhibition will then be held, and in conjunction with it a general meeting of horticulturists for the especial consideration of commercial matters.

VEGETATION AND DECOMPOSITION.—Amongst the numerous subjects for prize essays proposed by the Dutch Scientific Society of Haarlem, for the year 1883, is the following: Decomposition of Organic Substances in Bare Ground and in Ground Covered with Vegetation.

ABSORPTION OF ODOURS BY FRUIT.—M. Max Cornu has communicated some observations on this subject to the French Academy. Grapes allowed to ripen in a freshly gas-tarred house become utterly uneatable—a not very surprising result, although it must be understood the fruit was untouched by the tar and there was no moisture present to assist absorption. The curious point was, that in the ripest grapes the empyreumatic taste was most concentrated in the pulp immediately around the seeds and in the bulb of the peduncle. In the husks, on which the vapour must have been deposited, the taste was present in but very slight degree when these were carefully separated from the pulp.

DISTRIBUTION OF PLANTS.—We are requested to announce that the Commissioners of Her Majesty's Works and Public Buildings intend to distribute this autumn among the working classes and the poor inhabitants of London the surplus bedding out plants in Battersea, Hyde, Regent's, and Victoria parks, and in the Royal Gardens, Kew, and the pleasure gardens, Hampton Court. If the clergy, school committees, and others interested will make application to the superintendent of the park nearest to their respective parishes, or to the director of the Royal Gardens, Kew, or to the superintendent of Hampton Court Gardens, in the cases of persons residing in those neighbourhoods, they will receive early intimation of the number of plants that can be allotted to each applicant and of the time and manner of their distribution.

LABELS FOR PLANTS.—The council of the Society of Arts offer a prize of five guineas, which has been placed at their disposal for the purpose by Mr. G. F. Wilson, F.R.S., for a wooden plant label, saturated with paraffin, or some other preparation which would preserve the label, and would be likely to keep the writing upon it legible, either with or without the aid of paint, for five years. The award will be made on the recommendation of the committee appointed for the purpose by the council. The labels will be tested by the committee with the view of ascertaining, as far as can be done in a limited time, whether they would be likely to stand prolonged use. It is believed that satisfactory tests can be made in a month or two. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the secretary of the society not later than the 1st June, 1883. The council reserve to themselves the right of withholding the prize offered if, in the opinion of the judges, none of the specimens sent in are deserving.

SEA GROVE HOUSE, DAWLISH,

THE RESIDENCE OF THOMAS LEA, ESQ., M.P.

THIS charming residence is situated close to the sea—so close, in fact, that only a line of railway divides the pleasure grounds from it, the principal boundary wall running parallel with and close to the railway. The name of Sea Grove is peculiarly applicable to this lovely spot, for the grounds are so well furnished with trees, in the most luxuriant health, that it is truly a grove by the sea, and in such close proximity to it that a stranger in the locality could not but feel surprised in finding himself amid such a wealth of vegetation. But, considering all the circumstances of the case, there is not much matter for surprise. The climate is one of the best in South Devon, the soil is rich and deep, and the selection of the trees and the designing of the grounds were done by a master-hand. That hand was the late Mr. Pince, of the Exeter Nurseries, who did so much for the embellishment of the gardens in Devonshire.

In the designing and laying out of the grounds of Sea Grove, the late Mr. Pince made manifest his talent as a landscape gardener; for, although the whole of the grounds—the mansion, kitchen garden, and glass houses included—do not exceed five acres in extent, the pleasure grounds contain such a variety of features that one in walking through them might imagine that the area was of vast extent. The boundary is but rarely visible, although formed with brick or stone walls, and at no point are the walls conspicuous. It has been my good fortune to visit many gardens in my time, both large and small, but I can truthfully say that I have nowhere seen so much made of a small space as is in this instance. The breadth of well-kept lawn, the winding walks, the bold clumps of trees, the long borders of bright flowers, and the well-disposed flower beds which light up the scene, are features that tell most emphatically of the superior taste of the designer. Many years have elapsed since the work was done, but it has suffered nothing by the lapse of time. On the contrary, the effects have been increased, as the permanent occupants have become fully developed, and it is by no means difficult after so many years to trace the views of the designer in all the primary points, and in the end to find that his views have been realized.

It may be well perhaps to mention a few of the features that make up this charming garden, and I shall begin in the order in which I saw them as I was walking round with Mr. Coleman, the courteous gardener. Leaving the kitchen garden, we pass along a walk through a shrubbery to the pleasure grounds. To the left is a small sunken flower garden, the beds well filled with summer flowers, and near at hand are several fine rose beds. There is a low terraced wall in front of this garden, and a broad gravel walk that gives this spot something of the character of an Italian garden. Its somewhat formal character is

not at all displeasing amidst so many naturally-formed objects. Following the course of this walk eastward by many handsome shrubs, we find ourselves close to the boundary wall facing the sea, and as we proceed the walk gradually rises until we find a broad expanse of ocean in full view and obtain a peep of the pretty town of Exmouth lying snugly under the hill across the water. A cosy seat at the extreme end of this walk tempts one to linger, but time presses, and so we leave this part of the grounds with regret, and proceed farther. Another turn of the walk and we obtain a good view between some fine trees of the lawn, the view extending a good distance and terminating in what appears to be a beautiful glade. Round again beneath the shade of trees and passing many belts of shrubs, we come upon a pleasing nook containing a building that may be described as half grotto and half summer house, the roof of the structure completely covered with a luxuriant growth of ivy. Passing onwards beneath a bower of leafy trees, we next come to a rustic fernery, which is made up of large stones and well-planted ferns. Emerging from this quiet retreat and pressing onwards, we obtain another view of the residence and lawn, and here we stop to admire and take note of some of the fine trees with which this place abounds. Considering how close the grounds are to the sea, the examples of *Pinus insignis* and *Cupressus macrocarpa* are very fine, as also are the English elms, the planes, the chestnuts, and the evergreen oaks. The most noteworthy shrubs are *Arbutus unedo*, *Escallonia macrantha*, *Aucuba japonica*, *Laurestinus*, Sweet Bay, *Euonymus*, and *Ligustrums*, but the most surprising of all are the large standard trees of *Magnolia grandiflora*. These occupy a position on the lawn in a double line. The largest of them are between thirty and forty feet high, in perfect health, and flowering grandly.

The kitchen garden and fruit department are not without interest, as all kinds of vegetables do remarkably well, and hardy fruits are grown with much success. On the pyramidal pear trees I noticed good crops of *Beurré Diel*, *Brown Buerre*, and *Gansel's Bergamot*. Nesbit's *Victoria* tomato was bearing wonderfully on the open walls; but all other kinds of the tomato had succumbed to the disease. *Dedham Favourite* tomato was growing in the houses, but does not appear to fruit freely. There are three long lean-to vineries, in one of which there was a nice crop of *Muscat of Alexandria* and other grapes for late use, the *Muscat of Hamburg* being in very good condition.

On each side of the main walk of the kitchen garden are mixed borders, filled chiefly with summer-flowering plants to cut from. The plants are, it may be mentioned, grown in this place expressly to enable Mrs. Lea to send flowers in a cut state to the Bible Flower Mission. Conspicuous in these borders at the time of my visit were numerous examples of the brilliant *Lobelia cardinalis Victoria*, a most useful half-hardy plant for late summer flowering.

J. C. CLARKE.

RECENT SALES OF FREEHOLD ESTATES.

It may be interesting to our readers to know the result of the sales of freehold estates offered by auction at the Mart last week by Messrs. Protheroe and Morris. The sale was well attended, and took place in the large room on the first floor. The first property submitted under the order of sale was the freehold estate known as Osborn's Old Nursery, Sunbury, Middlesex, containing 17a. 0r. 11p., which was offered with the goodwill; also the eight-roomed house, nine greenhouses, heating apparatus, &c. The auctioneer dilated largely upon the property, stating, to purchase land unripe for building, or to hold for many years, producing neither stock nor crops, is often a bad speculation for the purchaser, but when nurserymen acquire the freehold of the land they cultivate, they get good interest for their money, as well as live on the fat of the land for years, while it is changing in value from silver to gold. The first bidding made for this estate was £4,000, and finally the property was bought in for £5,600. The next property offered was the New Hampton Estate, of 1a. 3r. 22p.; £800 was the first offer made, and ultimately the estate was knocked down and sold for £1,500. The last estate was the great attraction of the sale, as was evidenced by the large attendance, as the room was closely packed with people. The estate comprised four acres of freehold land, and was distinguished as Osborn's Nursery, Fulham. It was offered with a detached residence, seed shop, and conservatory, recently erected. The auctioneer opened the sale by remarking that the land was immediately ripe for building, and was specially the class of land that was going off well at the present time, and in dealing with the same there was no loss of interest or capital to be considered, there being no danger of the land hanging fire, as plenty of substantial builders would be ready to go on the land, which in the course of twelve months would probably be covered with shops and houses. The property was put in at £6,000, and after twenty-two subsequent biddings had been made the hammer fell at £10,000, at which sum it was sold to the well-known firm of Messrs. Veitch and Sons, of King's Road, Chelsea.

FRUIT IN MANITOBA.—Hitherto it has been generally supposed that little or no fruit would grow in Manitoba and the North-West Territory; but an official statement declares that this notion is gradually being dispelled. The report of the Department of Agriculture of Manitoba contains some very important matter upon this subject. It is known for an absolute certainty that the prairies were once covered with forests, and there cannot be much doubt that trees will grow again so soon as the march of civilization prevents the occurrence of the prairie fires; but it is the fruit question that is more particularly treated of in the report. It appears that the North-West has rather a long list of indigenous fruits—wild plum or prune (two varieties), black frost grape, service berry, red cherry, chokecherry, blueberry, gooseberry (two varieties, one quite large), red raspberry, strawberry, eyeberry, blackberry, west of mountains; cranberry, marsh, high bush, and sand; musberry, swampberry or orangeberry, elderberry, currants (red and black), and bloodberry. It may be doubted whether red and black currants are indigenous to Manitoba, but they certainly grow easily and yield generously. As to apples, the prevailing opinion seems to be that Manitoba will have to content itself with crabs; a greater mistake could not be made, according to the report. The same idea has prevailed more or less with respect to every now State, territory, or province brought under cultivation on the continent of America. Just as Nova Scotia, Quebec, and Ontario, once thought to be condemned to a perpetual appleless state, are now exporting the fruit by the million barrels, so will hardy varieties be found for the North-West up to at least the latitude corresponding with the northern limit of the apple in Europe. What is wanted in the North-West is for every farmer to experiment in a small way in the raising of seedlings of apples, pears, strawberries, plums, and all other fruits.

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, OCTOBER 10.

DAHLIAS and roses made a bright and attractive display at South Kensington on Tuesday last, and with the miscellaneous subjects brought before the Floral Committee sufficed to fill the Council Room. In the vestibule was a very large and important exhibition of apples and pears formed by the contributions of Messrs. J. Veitch and Sons, Messrs. H. Lane and Son, and other exhibitors. There was a good competition for the prizes offered for potatoes by Messrs. Hooper and Co., and the samples staged were mostly of excellent quality. In the afternoon Mr. Shirley Hibberd delivered a lecture on Plant Labels, a report of which will be found elsewhere.

The exhibitors of dahlias were, Mr. Charles Turner, Slough, Messrs. H. Cannell and Sons, Swanley, Mr. T. S. Ware, Hale Farm Nurseries, Tottenham, and Messrs. Rawlings Brothers, Romford. Mr. Turner contributed several boxes of show dahlias, three boxes of pompones, and a very beautiful stand of single varieties. The flowers represented some of the finest varieties in the respective classes, and were of a remarkably high quality throughout. Messrs. H. Cannell exhibited huge bouquets of Glare of the Garden, a free-blooming variety with bright scarlet flowers and of high value for garden decoration, and a large and splendid collection of singles, amongst which were several novelties of high-class merit. Mr. T. S. Ware also contributed a very large collection of single dahlias, which consisted chiefly of new sorts raised in the Hale Farm Nurseries, and made a splendid display of colour. The contributions of Messrs. Rawlings Brothers comprised several beautiful stands of show flowers and pompones.

The roses consisted of ten or twelve boxes of blooms from Messrs. W. Paul and Son, Waltham Cross, and, arranged to form a broad bank along the front of the council table, produced of themselves an attractive exhibition. The roses included a considerable number of tea varieties, and a large number of the best known of the hybrid perpetuals.

Chief amongst the miscellaneous contributions was a stand of Japanese or tasselled chrysanthemums from Messrs. Dixon and Co., Amhurst Nursery, Hackney, in which were several important novelties. Particularly noteworthy were Francois Delaux, a superb crimson flower; Mr. J. Starling, rosy lilac, large and pleasing in colour; Chinaman, rich purple, large in size, distinct in colour, and of grand quality; Emuraude, salmon-red, and Madame Bouchardet, a beautiful pure white flower of large size. Messrs. Dixon and Co. also staged several capital examples of their beautifully-crested variety of Gymnogramma Lauchean. Begonia semperflorens, a white-flowered species of much value for late autumn and winter decorations, was well shown by Mr. Smith, of Oakfield, Wimbledon. From Chiswick came an interesting group of gesneras, which admirably demonstrated the value of these subjects for decorative purposes at this season of the year.

Messrs. J. Veitch and Sons, King's Road, Chelsea, contributed a group of new and rare plants, on the majority of which certificates of the first class were conferred. Amongst other things deserving of special mention were, Chrysanthemum Mrs. Cullingford, a beautiful white variety of medium size, flowering in October, and of immense value for the embellishment of the conservatory in advance of other large-flowered forms; Impatiens Sultani, a handsome species with large flowers of the richest magenta. Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, contributed a small but very beautiful group of orchids, amongst which were two or three superb varieties of Odontoglossum Alexandrae, and several well-flowered examples of the beautiful Dendrobium bigibulum. Messrs. Heath and Son, Cheltenham, exhibited a group of orchids comprising a good specimen of Vanda cœrulea, and numerous splendidly-flowered examples of Dendrobium formosum giganteum, and the award of a medal was recommended.

From Messrs. J. Carter and Co., High Holborn, came a good specimen of Croton Bealei, a handsome form, the leaves large and of a deep bronzy green, richly variegated with yellow, the leaf stalks bright red. The same firm also sent two large and exceedingly well-bloomed specimens of Pyrethrum uliginosum.

The most important of the contributions before the Fruit Committee was the collection of apples and pears from Messrs. J. Veitch and Sons. These consisted of upwards of one hundred and fifty excellent dishes, and the Silver Knightian Medal was awarded. Messrs. H. Lane and Son, Great Berkhamstead, Herts, staged about one hundred dishes of apples, the samples being particularly good. Mr. G. Goldsmith, Hollenden, Tonbridge, contributed about sixty dishes of pears, all of which were so good that some recognition beyond a vote of thanks was well deserved. Apples were also shown by Mr. A. G. Bridgeman, Thames Bank, Great Marlow, and Messrs. Paul and Son, Cheshunt. Messrs. J. Veitch and Son sent samples of the Curled Kohl Rabi; Mr. Howe, Benham Park, Newbury, several fruits of an excellent cucumber, under the name of Challenger, and Mr. Gilbert, Burghley, good examples of Gros Maroc and Gros Colmar grapes.

In competition for the prizes offered by Messrs. Hooper and Co. for nine tubers of Queen of the Valley potato Mr. J. Hughes, Eydon Hall, Byfield, was first with capital samples, and Mr. T. Hill, gardener to R. Price, Esq., Witham, was second. For the heaviest tuber of the Queen of the Valley Mr. C. W. Howard, Canterbury, was first; and Mr. R. Lloyd, Brookwood Asylum, Woking, second, the tubers weighing about 1½ lb. and 1¼ lb. respectively. For nine tubers of Adirondack Mr. Hughes and Mr. C. W. Howard were first and second respectively.

First-class Certificates were granted as under:—

To Messrs. J. Veitch and Sons for

Mormodes unicolor.—A bold-growing species, producing handsome spikes of deep yellow flowers.

Rhododendron Sir Beauchamp Seymour.—A beautiful variety, with large tubular flowers of a rich yellow buff colour.

R. Sir Garnet Wolseley.—A splendid tubular-flowered variety, the flowers extra large and of rich reddish orange colour; one of the largest of its class.

Cypripedium Arthuri.—A handsome hybrid raised in the nurseries of the firm. The parents are *C. insigne* and *C. Fairieanum*, and the flowers are of a pale green, reticulated and washed with purplish maroon.

Ornithogalum thyrsoides.—A handsome white-flowered species of moderate height.

To Messrs. H. Cannell and Sons for

Pentstemon Mrs. Macfarlane.—A distinct variety; the flowers large and of a bright rose colour with purplish throat.

Dahlia Marguerite.—A beautiful single flower of large size and fine shape, colour bright rose shaded carmine round the disc.

D. Tyro.—A showy single variety; flowers rather small and of a glowing rose colour, bright rose-red near the disc.

D. Yellow Gem.—A superb single flower; large in size, perfect in form stout in substance, and of a rich yellow colour.

D. Constance.—A useful decorative variety with large white flowers.

To Mr. T. S. Ware for

Dahlia Francis Fell.—A handsome single flower of a bright rosy magenta colour.

D. Cherry.—An effective single variety; the flowers bright rose-carmine, and of excellent form.

D. Pantaloon.—A somewhat singular and decidedly attractive single flower, coloured pink, maroon, and white.

D. Mrs. Goldring.—An exquisitely beautiful single variety, the flowers very large, stout in substance, and of a very pleasing shade of light mauve.

D. Mrs. Burbridge.—A distinct single variety; the flowers of medium size, stout in substance, and of a deep maroon colour.

D. White Star.—A fine single flower of medium size, grand form, and of the purest white.

To Mr. Ross, Welford Park, Newbury, for

Croton Eyrei.—A handsome hybrid, with narrow, slightly-twisted, and elegantly drooping leaves, very richly variegated with golden yellow.

To Mr. Davis, Ogles Grove Nursery, Hillsborough, County Down, Ireland, for

Pernettya mucronata carnea nana.—A dwarf-growing form, bearing medium-sized berries of a bright flesh-pink colour.

P. mucronata nigra major.—A very handsome variety, the berries very large and of blackish maroon colour.

P. mucronata macrocarpa.—Distinct and fine, the berries extra large and of the most brilliant crimson.

P. mucronata sanguinea.—Very effective; the berries large, and of a bright scarlet colour.

Cupressus Lawsoni erecta alba.—An erect-growing form of this well-known conifer, differing from the variety known as *Erecta viridis* in its distinct silvery appearance.

To Mr. H. Bennett, Sunbury, for

Rose Earl of Pembroke.—A grand hybrid perpetual: the flowers large, globular, full, and perfect in finish; colour bright crimson; very fragrant, and altogether first-class.

To Mr. Taylor, gardener to J. McIntosh, Esq., Weybridge, for

Apple Laudsberger Reinette.—A handsome and excellent culinary variety.

To Mr. Gilbert, Burghley, Stamford, for

Melon Burghley Pet.—A fine green-fleshed variety, handsome in appearance and rich in flavour; the fruit is of medium size, globular, and has a deep green flesh.

A Botanical Certificate was granted to Mr. B. S. Williams for

Phalenopsis Esmeralda.—A charming species, producing rather small rose-coloured flowers in erect spikes.

THE FALL OF THE LEAF.

THE fall of the leaf is almost accomplished, but before the leaves came down they acquired a richer tone of colour than usual;—in fact, throughout the latter half of September and the whole of October the woods were magnificent in their autumnal livery. There are bits of woodland in various parts of the country that hold their leaves later than others even in the same districts—the result, doubtless, of some accident of shelter, or a soil a little warmer than prevails elsewhere; but the late-lasting leaves are generally on hill-sides, and they form agreeable and sometimes striking features of the winter landscape. A list of these lingering patches of colour might be of some use, but it would have to be compiled by the aid of many observers. One of them we always call to mind with peculiar pleasure. Having business in Bristol almost every year, in December, we have made it a rule to walk over to Clifton on purpose to enjoy the view of the gorge from the suspension bridge, and away thence to the left until the scene is lost amid houses. On the opposite slopes of the ravine the trees are always somewhat leafy even up to Christmas, and their russet and lemon-tinted hues have a most charming effect on a sunny day. Higher up in the Leigh woods the leaves do not continue as they do on the grand slopes above the river. A similar case occurs on the noble eminence crowned by Belvoir Castle, near Grantham. There the trees on the steep slopes hold their leaves far on into the winter, and when seen in full sunshine the picture is one of the most 'splendid in its way these isles can boast. Trees on level land, and especially in open valleys, are for the most part bare now, but on the slopes they hold their own, or somewhat of their own, their tresses being thinned, indeed, but beautified by time, like the locks of the patriarch in the "Cotter's Saturday Night"—"His lyart haffets wearin' thin an' bare."

There is no finer illustration to be found in the whole economy of Nature of the prevailing ignorance of common things than is afforded by a consideration of the philosophy of "The Fall of the Leaf." The occurrence is so familiar that it but rarely occurs to us to ask of Nature what she means by it, and how it is done. Compare a beech with an elm. The beech will, perhaps, hold its leaves like an evergreen, although they be dead and the colour of brown paper, but the elm will shed every one, after they have glittered like millions of gold pieces in the soft autumnal sunshine. Artemus heard his daughter sing, "Why do Summer Roses Fade?" and he said "I don't know, and I don't care." That frame of mind is almost universal; and the worst of it is, there must be a lot of observing and thinking done before one can arrive at any definite conclusion as to any natural phenomenon, however common of the commonplace it may be. Why do leaves fall? Because they are dead. Then why and how does the beech (especially the clipped beech, hornbeam, &c.) hold its leaves, while the lime, the elm, the birch are decisive in shaking down their leaves as soon as they have done with them? One good reason the leaf should fall is that it is dead, and its attachment or articulation is dead with it. But the leaf of the beech that still clings so tight is dead also, and the question will arise—Why the difference? Now there can be no doubt that the swelling of the bud that is to produce the leaf next year helps to push away the dead leaf of this year. And in the separating there must take place

a process of healing over the scar, or hilum, or joint, where the contact was vital, and the highway of the circulation between branch and leaf; for in casting off the leaf there results, hypothetically, a wound, but, practically, there is no wound, because the process of sloughing is accompanied by a process of healing, and thus between the living and the dead, between the living twig and the dead leaf, a proper cuticle or barrier is provided, and we have a hint thus far that the shedding of the leaf is a complicated vital process, primarily provided for in the scheme of the organization of the tree, and in no respect whatever to be regarded as an accident. Now, it must depend wholly, or in part, on the simultaneity of the death of the leaf, the swelling of the bud, and the cicatrization of the point of separation, whether the dead leaf is pushed off at once or holds in its original place for a time, until the conditions requisite to its removal are completed. The curious inquirer into such matters may therefore with advantage compare the several sorts of deciduous trees as to the state of their buds now. The beech, which holds its leaves, should have buds less swollen than the horse-chestnut, which cast off its leaves long ago. Such, indeed, is the fact, but one comparison is not enough to satisfy a philosopher, and he who would attain to the philosophy of the subject must make many comparisons, and must found all his reasoning on observation.

But there is another and not less interesting question deserving to take precedence of the fall of the leaf. By what property, or what life conditions, or by what compliance with outward conditions, do leaves so strangely change in colour ere they fall? The change of colour is obviously an outward sign that they are dying or dead, their term of existence is completed, and their chemical constitution is changing. So we go back another stage and ask—What is a leaf, and what does it do for its living? for as everything has in some way to earn its bread, a leaf must justify itself by doing something useful. It is the breathing machine; it brings the crude sap of the tree into contact with the atmosphere just as, in the lungs of an animal, the dark stale blood constantly pumped from the heart is exposed to the influence of oxygen, and made scarlet and vital. The leaf exhales superfluous water, inhales requisite gases, and so helps to manufacture the fibre, the gum, the sugar, the starch—in fact, it contributes to convert the fluids taken up by the roots into the vital substance of the tree, adding to its bulk and perfecting its secretions. It not only absorbs gases from the atmosphere, but it absorbs light, and converts the imponderable into the ponderable. Out of the red rays of light it manufactures acids; out of the blue rays it produces gums and sugars. It may be that the carbon, which constitutes the main bulk of the tree, is all derived from the atmosphere by the action of the leaves, and that the common daylight affords the necessary stimulus or motive power. Thus we get into further complications, but they lead us distinctly to a proper goal. When the leaf declines in health, its constituent secretions change. The acid of the red ray which should change into sugar is arrested in its organic history, and it throws the red ray out on the surface of the leaf itself, and so the chemical condition of the leaf is made known by its colour. The change of colour, whether to yellow, scarlet, brown, or purple, represents chemical conditions, and in a certain sense the colours correspond with the rays of the spectrum that are by the laws of actinism connected with the constituents and the changes that ensue when the processes of life give place to the dissolutions of death. The changing leaf is in a morbid state, and it must be cut off from the healthy body. Nature, ever frugal and infinite in resources as the Infinite Mind of which she is the outward expression, effects the separation without any shock or the least disturbance of the old cold routine—cold in the sense that it comes of necessity; but the term "cold" jars on the mind that finds delight in beholding the beauty of the dying leaf, and the great work that is involved in its fall. The leaf falls because it is dead; its deadness is accompanied with a shrinking of the vascular tissues; it falls because it is incapable of holding and is in part pushed off by the swelling of the bud and the healing of the cicatrix. Properly speaking, this is not a process of death, but of life; the living tree is the active agent; it is busy preparing its buds for next year, and cannot be hampered with garments it has worn out, or with lungs it can no longer use, or with alembics that have ceased to distil, because the sunshine, which was as the fire needed to render them active, has declined in power, and so has ceased to act as a motive force.

That the fact should inspire gloomy thoughts is perhaps as proper as it is inevitable. We are not to be always steeped in gladness, for a happy and useful life must be one of many moods and often changing. The writer has this day, when walking through London, had a quiet quarrel with the façade of the newest Post Office in St. Martin's-le-Grand, because it is obnoxiously flat, producing no shadows. If shadows are wanted in architecture, how much more are they wanted in life! To be always gay is to be frivolous; to be never sad is to be heartless; to maintain a stolid calmness, so as to seem to change not, is to proclaim a cruel indifference, a studied disregard of the joys and sorrows of human kind, and to earn and deserve to live unpitied, and uncared for, die. It is no wonder the poets have sometimes adorned their harps with garlands of fallen leaves. One might do worse in a quiet hour than meditate upon the poetical aspects of this subject, and perhaps Ebenezer Elliott's "mournful rhyme"—

Drop, drop into thy grave, old leaf,

would furnish the mind with thought enough. But in connexion with the the physiological and chemical philosophy of the subject there is, perhaps, no more impressive poetical exposition than in the last sad introspection of Macbeth when, without one thought of the effete condition of the reddening leaf, he compares himself to it, and makes the most perfect parallel between the moral state of the one and the physical state of the other—

I have liv'd long enough: my way of life
Is fall'n into the sear, the yellow leaf;
And that which should accompany old age,
As honour, love, obedience, troops of friends,
I must not look to have; but, in their stead,
Curses not loud, but deep, mouth honour, breath,
Which the poor heart would fain deny, and dare not.—V. 3.

The sadness of autumn is no doubt as good for us as the joyousness of spring. Do we not search for histories that sadden us, and for pictures that it gives us pain to look upon? and for stage plays that will compel us to weep, even at the risk, if we sit in a manager's box, of letting heavy tears fall loudly upon the big drum? The shadows of human life have in them a charm and a medicine for us, and by contrast make the gleams of sunshine glad some, for moods are moods by comparison only, and if the light excites us, the darkness gives us rest. By their alternations life is made bearable for the short season it will last.

S. II.

OPEN SPACES AND TOWN DWELLINGS.

THE rapid growth of the suburbs of London threatens, remarks the *Building News*, to deprive the occupiers of small houses of the limited areas or open spaces they once possessed, either in front or in the rear of their dwellings. The light and air of a whole row of houses are suddenly extinguished by the erection of another row of higher houses on the opposite side. No one can avoid this obstruction of the prospect and interference with his light; it is not pleasant to have a whole street of windows looking upon you, but it is one of the conditions of living in towns. When, in addition to this invasion upon our enjoyment, we are shut in at the back by high walls, or by the backs of houses within a few arms' length of our own, it is quite time that the law should step in and limit the encroachment. The recent clauses introduced in the Metropolitan Management and Building Acts Amendment Act of this year are intended to prevent encroachment upon open spaces in the rear of dwellings, though the schedule of minimum areas is not altogether a satisfactory one, as the principle seems strangely at variance with the conditions of health in large towns. The principle, as given in the Act, is to make the frontage the measure of the open area, so that in fact the smallest class of tenements will have the least open space in the rear of them. The condition and requirements of the tenants of this class of dwellings are not taken into account, nor the number of tenants inhabiting a house of such frontage. According to the operation of section 14, every new dwelling with a frontage not exceeding 15 ft. is to have an open space at the least of 150 ft. square; in other words, a courtyard of 10 ft. deep by the width of the house. No limit is set with regard to the height of the tenement or the number of tenants. A house not exceeding 20 ft. in frontage, a width at which nine-tenths of the dwellings in London and the suburbs are built, is to have 200 square feet, or the same depth of yard at the back, but a house exceeding 30 ft. frontage is to have 450 square feet at the least. So it practically comes to this, that the smaller the rooms the smaller the open space will be; that, in short, the area for light and air is to bear no proportion to the health of, or the class of, tenants who occupy the rooms. The principle, we venture to say, is not sound, although it may be a convenient one for the builder, as it is easily remembered. It would have been far better to have made the scale of area depend upon the area of house and the number of tenants, or to have laid down arbitrary depths of ground at the backs of houses of certain frontage. A small house from 15 ft. to 20 ft. frontage ought to possess at least double the area scheduled, and the depth ought not be less than 20 ft.

Even the effect of the rule will not, we fear, be towards an improvement. The speculative builder will not object to the schedule, as he can build houses under it quite as close as he wished, and it is not likely to do much to improve the suburbs. We are afraid its tendency will be to make the most of small allotments, and to cut up land for houses of narrow frontage, as they would be more remunerative, both to ground landlord and lessee. The great evil of overcrowding, which we have so much written against, will be undiminished, for there will be a strong inducement to build houses of small frontage. To check the encroachment on open spaces by building, we wanted a rule the very opposite—namely, one giving the greatest depth to houses of small frontage, so that a kind of law of compensation might be brought into operation. If the laws of hygiene had anything to do with the rule, each tenant would be allowed a minimum space, the reduction of breathing space within the house being compensated for by a larger area of open space at the back or rear of the premises. We cannot say, then, we approve the provisions of this enactment, which is open to considerable objection.

In addition to the rule we have referred to, the Metropolitan Board of Works have now power, under section 9, of annexing and enforcing any conditions they may think proper as to the amount of land in front of buildings erected beyond the general line of houses. We consider this a wise provision. By the old section (75) of the Metropolitan Management Amendment Act, 1862) the consent of the Board could be obtained to build beyond the general line of buildings, but they had no power to insist on the amount of land so appropriated, or to require any part of such land to be opened for the use of the public. Many enclosures of garden or vacant spaces between the line of buildings and the highway have been thus made, which practically excludes the right of the public, and in this manner rendered a "general line" of very little effect. Instances of the abuse of this rule may be seen along many of the streets and roads in London and the suburbs. The fronts of many houses are beyond the lines prescribed, and the spaces in front of them are inclosed in a manner which might lead the general observer to believe there was not any regulation in force whatever; and, as our readers are aware, recent cases have shown how very defectively the law has worked. The definition of a "general line" of building is left to the Board, and is constantly a point of litigation. The new provision will enable the Board to deal with the matter in a more independent and authoritative manner, as it will enable them to impose any necessary condition they may think desirable in the interests of the public, and guard against any infraction of the rule.

BILLIARD BALLS MADE OF POTATOES.—According to the *Vienna Agricultural Gazette*, it has recently been discovered that meerscham pipes of excellent quality, susceptible of the highest polish, and even more readily colourable than the genuine froth of the sea, may be made of potatoes. This familiar tuber, it seems, is well qualified to compete with the substance known to commerce as "meerscham clay." Its latent virtues in this direction are developed by the following treatment. Having been carefully peeled and suffered extraction of its "eyes," the potato is boiled uninterruptedly for thirty-six hours in a mixture of sulphuric acid and water, after which it must be squeezed in a press until every drop of natural or acquired moisture is extracted from it. The residuum of this simple process is a hard block of a delicate creamy-white hue, every whit as suitable to the manufacture of ornamental and artistically-executed pipe-heads as the finest clay. The potato, moreover, dealt with in the manner above described, promises to prove a formidable rival to the elephant's tusks. It may be converted into billiard balls as hard, smooth, and enduring as ivory, and can be depended upon for an inexhaustible supply of carved umbrella handles, chessmen, and faus. As potatoes are plentiful all over the world, and likely to remain so, whilst elephants are, comparatively speaking, rarities, mankind at large may fairly be congratulated upon the discovery of a substitute for ivory, which can be produced in unlimited quantity, and at an almost nominal cost, taking into consideration the difference of price between a pound of the best kidney potatoes and a pound of primo elephant's tusk.

BEDDING TULIPS.

It is now generally acknowledged by all classes of cultivators that, taking all points into consideration, the early-flowering tulips are the most valuable of all the bulbous plants available for the decoration of the flower garden during the spring months. They have the important recommendations of being comparatively cheap, quite hardy, not difficult of cultivation, and well able to produce a display of colour of the richest description. Beyond mentioning these points it is not necessary to say much in advocacy of their claims, and the chief object in penning these notes is to point out a few of the most suitable kinds for planting in the flower garden. The selection of varieties is indeed a most important matter, for of the comparatively large number of beautiful varieties included in the trade catalogues a very small proportion are suitable for the embellishment of the flower garden. Not only is it necessary to secure varieties that are effective when massed, but they must be of suitable heights for the position they are to occupy, and bloom simultaneously, or as nearly so as it is possible to have them. That they should all be in bloom at the same time is most important, for the effect is most unsatisfactory when one variety in a bed is past its best before the others are in bloom. Neither is it desirable when the beds forming a geometrical scheme are filled with distinct colours that some of the beds should be destitute of flowers when the others are resplendent with colour. Bearing these points in mind, I shall mention only those which can be depended upon to bloom simultaneously and to produce a good effect.

Although the early-flowering tulips are not particular in the matter of soil, it may be mentioned that they bloom most satisfactorily in one that is rather deep, well drained, and moderately rich. But as they will do well in any ordinary soil there is no necessity for incurring a heavy expense in preparing the beds for them. Soils that are naturally heavy may with advantage receive a liberal addition of river sand, road drift, or other grit, or a dressing of refuse soil from the potting shed. On the other hand, a moderate coat of manure will materially improve soils that are light and poor. The distance at which the bulbs are planted is an important element, and the very general practice of planting them too far apart to produce a thoroughly rich effect must be avoided. A very good distance at which to plant them is six inches each way, but an inch or so more or less is not of much consequence. When it is desired to economize without materially impairing the effect the bulbs may be arranged seven inches apart one way and eight the other, always bearing in mind that the double varieties, in consequence of the more massive flowers, can be planted the farthest apart. From three to five inches, according as the soil may be heavy or light, is a good depth at which to plant the bulbs. This can be done with the dibble or with the hoe, but whatever the shape of the beds may be the bulbs should be planted as regularly as possible.

Tulips are very attractive when planted in beds by themselves, but less so than when the surface is carpeted with spring-flowering plants of dwarf growth. Not only is the effect much enhanced when the tulips are in bloom, but the carpet of greenery has a much more pleasing appearance throughout the winter than the bare soil. The most suitable subjects for associating with the tulips are the white, yellow, and purple violas, and pansies, the red, pink, and white daisies, the blue forget-me-nots, the pink silenes, the white candytufts, and the yellow alyssum, all of which can be bought at a very cheap rate at this season of the year. The carpeting plants should be selected with due regard to the colour of their flowers, and the colours of the tulips to be associated with them, so that when the latter are in bloom there may be a pleasing combination. The yellow alyssum and the yellow pansies and violas are admirably adapted for carpeting beds filled with crimson or scarlet tulips; the white candytufts and daisies are most excellent for the pink, rose, and purple tulips, as for the scarlets and crimsons; the crimson daisies and purple pansies and violas associate well with the yellow tulips, and the blue forget-me-nots form a most pleasing groundwork for white tulips.

In turning to the selection of varieties it is necessary to say that the most expensive are by no means the best for bedding, and it is worthy of note also that the self-coloured flowers are the most desirable. The finest of the single varieties are: *Chrysolora* and *Californica*, two superb varieties with flowers of the richest yellow; *L'Immaculée* and *White Pottebakker*, two of the finest of the white forms; *Commandant* and *Vesuvius*, brilliant scarlet, the first-mentioned of the two shading to yellow at the margin of the petals; *Purple Crown* and *Couleur Ponceau*, two excellent crimson varieties; *Molière* and *Wouverman*, the two best purple forms; *Duchesse de Parme* and *Thomas Moore*, orange-red; *Keizerskroon*, scarlet, with broad yellow margin, is very fine; *Vermilion Brilliant* and *Yellow Pottebakker*, both of which are excellent in pots, are but poor bedders, and not equal to others of the same colour; *Proserpine*, deep rose, and *Joost Van Vondel*, rosy crimson, are both very fine, but as yet too expensive for the flower garden.

Yellow Prince, held in such high repute, is not equal in richness to *Chrysolora*, and it blooms too late to be successfully employed in combination with the other sorts mentioned.

The most valuable of the double tulips for massing are *Gloria Solis*, crimson-scarlet, edged with yellow, as effective as *Tournesol*, and only about half the price; *Imperator Rubrorum*, crimson-scarlet; *La Candeur*, clear white; *Rex Rubrorum*, bright scarlet; *Rose Crown* or *Couronne des Roses*, deep rose-pink, and *Yellow Tournesol*. These are the earliest of the double tulips, and closely follow the single varieties. There are a few other good sorts, but they are later, and the six mentioned are quite sufficient for the majority of gardens. The *Yellow Rose* is cheap and rich in colour, but it is too late in coming into bloom to admit of its being planted elsewhere than the mixed border.

G. S.

MR. SHIRLEY HIBBERD'S LECTURE ON PLANT LABELS.

On Tuesday last, October 10, Mr. Shirley Hibberd gave a lecture in the Council Room of the R.H.S., South Kensington, on plant labels. In January, 1881, Mr. G. F. Wilson arranged with the Society of Arts for a competitive exhibition of plant labels, he offering a prize of five pounds and the society a silver medal for the best plant label combining legibility and durability with cheapness of production.

The labels sent in to compete for these prizes having been handed over to the Royal Horticultural Society, the lecturer made use of them, both to illustrate his own proposals and as the basis of such general considerations as the subject had suggested to him. He did not therefore offer his hearers any prepared speech, as might be the case in treating the history of a particular flower, but made a desultory discourse, descriptive and critical, on the labels exhibited, which, it must be confessed, were sufficiently numerous and various in character to suggest such perplexing questions as, Where will you begin? and, Where will you leave off? It follows that an exact report of the discourse cannot be given, but the following may be regarded as a fair summary of it.

Mr. Hibberd said, as garden labels were intended to convey information, legibility was the first quality required. As for durability, except in certain cases that he would mention, he thought it a matter of the very least importance; certainly in his own experience he had found *perishability* to be a desirable quality in a plant label. However, he would not ask them to agree with him on that or any other point, and there could be no doubt that for public gardens and gardens designed for educative purposes the durability of the plant labels was a matter for serious consideration. As regards cost of production, the less the better always. But we must not, even in the garden, forget that a good article generally costs more than a bad one, and when a handsome, legible, and lasting label is required it will have to be paid for, no matter how many competitions may be promoted.

It must be remembered, however, that the requirements of gardens differ immensely, and therefore we must have a variety of labels. Those that suit the main walks of a great public garden like that at Kew would be quite out of place, or at all events would be scarcely required in an ordinary private garden. As regards nursery grounds, their needs were peculiar, and while cheapness was everything, both legibility and durability were of comparatively small consequence. It was a great advantage sometimes when none but the heads of departments could read the labels. For public, private, and commercial gardens we might need many kinds of labels, and in any case the various needs of these three kinds of gardens would have to be considered.

Before touching any of the sample labels before them, he would propose a code of judging them. He would say that in all possible cases a label should be in one piece. In many cases it was impossible, but the fewer the materials, the fewer the joints and fittings, the better. Here, if anywhere, simplicity of construction is a prime virtue. Some ingenious inventions are seriously prejudiced by the neglect of the inventors to recognize the desirableness of mechanical unity.

Metal, slate, stone, and glass are more lasting than wood, so long as they are not exposed to any kind of concussion. A blow may shatter glass, split slate or stone, and bend metal, but perhaps influence wood least of any. All these materials are employed advantageously, and only one of them, that is glass, requires special consideration. It must be owned there are some admirable labels peculiarly adapted to the needs of public gardens, in which glass is a conspicuous and necessary feature. In the construction of these there are two points to be kept in view—protection from the weather, so that rain may not find its way between the glass and the inscription, and protection from shock, so that a casual blow or kick may not bring the label to ruin in a moment.

A very important point is the employment of materials everywhere available, or to be found in what may be termed the commonplace garden. The plant label of a particular place may be a product of the district, as, for example, where slate abounds waste slate may be turned to good account, and where iron abounds we may properly expect to find that metal in favour because of its cheapness. But there is, said the lecturer, a sound and serious objection to the employment of what may be called patented articles. When we have determined to use any of these we encounter a primary difficulty: we have to order them, and wait for them, and pay for them a fancy price. The chief objection to them is that they do not belong to the natural industry of any particular district; they have to be sought out, and they are subject to the caprice of manufacturers, who, if they find the patented article does not pay, relinquish its production, and leave us to whistle for our patent pencils, paint, and protective materials. It will be said that several special preparations, coming under the general head of patented articles, are of great practical value in the production of plant labels. Now this I will readily grant, but still the general objection remains. The busy man who dwells in or near a great town can obtain whatever he wants. But tens of thousands of persons who would like to have their plants legibly labelled know not how to begin when a special or patented article is required. It seems to me that if the Society of Arts takes the first step of sanctioning any proprietary preparation, it should take the next step and purchase the proprietary rights, and set the manufacture free to all who care to pursue it. I shall not need to be told that the society did not contemplate any such thing when adopting Mr. Wilson's idea of a plant label competition; but many things happen that no one could foresee, and wisdom consists in making the unforeseen subservient to projects we have deliberately projected and laboured for in matters of detail.

The cost of a label must always be taken into account, but legibility and neatness must be taken into account also. Then we must distinguish carefully between labels that may be made at home by persons who have no special training for the work and those that are producible only by the aid of machinery and skilled labour. If proprietary pencils and pigments and fabrics are in the first hypothesis objectionable, then all products of systematic manufacture are objectionable in some degree.

But we shall gain nothing by multiplying objections and distinctions: the label that costs little and is well adapted for its purpose, and that can be produced anywhere from the commonest of materials, and by the exercise of the most ordinary skill, must have a high place in the order of relative merit. But patented and proprietary articles have their uses, and ready-made labels that can be quickly obtained at a reasonable price are immensely convenient, and it may be well to embrace all available advantages according as our needs or circumstances may suggest.

For a general consideration of the subject, plant labels may be divided into two classes, those for Temporary use, and those intended to be Permanent,

or, in other words, to be useful for as long a period as possible. In the first category the nurserymen are greatly interested. Mr. Hibberd produced a bundle of sixty tough paper labels of a light brown colour, received in connexion with a collection of hollies from Messrs. Veitch and Sons in the year 1870. These have been hanging on a nail in a shed, and after twelve years are as legible as when first written, and in every sense perfect, save that dust has made its mark upon them. This simple label illustrates the value of common paper and a common lead pencil. Similar labels from Messrs. Richard Smith and Co. were shown. These bear the name of the plant in pencil on one side, and on the other is printed the name of the firm. This, said Mr. Hibberd, may be regarded as an advance in the commercial consideration of the subject. Some few houses send out trees bearing parchment labels: these are not easily torn, but toughness appears to be the only advantage, for if left on the trees for any length of time they roll up as tight and as hard as clay pipes, and the rain soon washes away the inscription. The cheapest form of white deal, written on with common lead pencil, appears to be the best for labelling-plants sent out from nurseries, because, if the permanent labelling for its some time neglected the original labels do not so quickly disappear as when paper or parchment is employed. Thus, we cannot proceed far in the consideration without coming to the permanent label.

THE SOCIETY OF ARTS' PRIZE LABEL (figured at p. 387) is admirably adapted for gardens where neatness is everything and expense a quite secondary consideration. But here the primary canons appear to be violated in the label of Mr. Alment, by the number of materials employed, wood and metal being of chief importance. A special preparation is employed to preserve the wood, and a special pencil is required for the inscription. The proprietary articles requisite forbid the universal adoption of this label.

MR. MACDONALD'S LABEL is ingenious, and can be made by any one. The top of the standard forms a clasp, in which a wooden tablet is inserted. The tablet may be at any time removed, but while it is attached the whole construction is as firm as if consisting of one substance only.

GLASS TUBE LABELS are easily prepared. A written label is inserted in the tube or phial, and this being attached to a standard, the label is protected for ever, or until a cherry-stone falls on the glass and then, of course, there is an end of the frail structure.

SLIPS OF ZINC WRITTEN UPON WITH BICHLORIDE OF PLATINUM have long been in use, and it will require something remarkably 'good' to supersede them. They may be described as everlasting. Mr. Hibberd had some on the table that have been exposed to all weathers for about thirty years, and are now nearly as fresh in appearance as when first attached.

STAMPED LEAD is much used in nurseries and private gardens, but has no claim to attention for public gardens.

MR. HODGSON, OF QUEENSBURY, BRADFORD, has produced an ingenious form of label in which glass is used advantageously, being backed with zinc and effectually capped. It is figured at page 388.

THE LANEFIELD LABEL, from Mr. Barton, of Lanefield, is on the same plan as Mr. Hodgson's. All such labels are worthy of special attention because they favour the employment of printed papers, which, generally speaking, are the most legible, neat, and lasting, provided they are sufficiently protected. It is time, indeed, that in every garden where labels have to be produced in quantities, and where legibility is of the first importance, that a printing press should be employed in their production.

THE WILLESSEN PATENT WATERPROOF LABEL was described as a somewhat remarkable production. It is made of a stout smooth card pierced for attachment; it may be written on with any kind of ink or pencil and it is what it professes to be, waterproof. This invention should be considered in connexion with another, namely,

THE WATERPROOF INK of Messrs. Fisher, Clark, and Co., Boston, Lincolnshire. Willesden labels written on with the waterproof ink and immersed in water from August 23 to October 9—a period of forty-eight days—were absolutely unhurt. When dried no one unacquainted with their history could have supposed they had been subjected to such a test. Other labels of the same make, but attached to zinc holders, had been exposed to the weather in the open garden during the same forty-eight days were found in perfect condition, but much soiled, and it was impossible to cleanse them. Others again had been written upon with Stevens's black writing fluid and were equally unhurt. The tendency to hold dirt is an objection to this form of label, but its exceeding cheapness makes amends in some degree. Paper is a fragile material, and we can scarcely reckon on the Willesden label as of great value for permanent use.

SWABEY'S PLANT LABELS belong to the same class as the last-mentioned. They are made of calico and buckram and waterproofed with earthy and bituminous preparations. The lecturer had no experience in the use of them, but he had no doubt whatever of their lasting properties. They were certainly deserving of attention where a very cheap waterproof label is required.

THE ACME LABEL of Messrs. Stevens and Pinches possesses much merit. It is made of stout metal with a permanently blackened tablet, on which the inscription appears in relief in bright metal, the effect being a white lettering on a black ground. These do not obtrude themselves on the eye, which is a common fault of plant labels, yet when we wish to read them they are found to be peculiarly legible, and as regards permanency they may be said for all practical purposes to be everlasting.

THE STRATFORD LABEL, made by Mr. John Smith, of Stratford-on-Avon, comes very near to perfection. It is dingy enough to be almost invisible after a few years of exposure to the weather, but it may be regarded as imperishable, and the inscription is always legible, though not conspicuous or in any way attractive. There is some objection to the attachment of tablets to hooks, as in the use of the larger Stratford labels; but some are made with stout metal standards, and are practically all of a piece, realizing one of the conditions the lecturer suggested as very desirable. In respect of cheapness, durability, and usefulness, Mr. Hibberd thought we might search far and wide before finding the equals of the Acme and the Stratford labels.

THE LABELS USED IN THE LONDON PARKS, and in public parks generally, do not greatly differ in character. In many instances a printed paper label is covered with glass on a metal table, and this is mounted on a metal standard. In Hyde Park the paper and the glass are rendered unnecessary by the employment of a terra-cotta label, which has the protection of a metal back or table. Terra-cotta, like glass, does not answer well when it stands alone, but when backed by metal, although a blow may shatter it, is practically imperishable.

THE COPAL LABEL, invented by Mr. Hibberd, and used by him for many years past, was described as one of the best of the home-made labels adapted for large gardens and public parks, as it consists of materials everywhere obtainable. The inscription is printed on sized paper, and is attached to sheet iron,

cut to suitable size and shape, by means of copal varnish. It is then washed over with the same varnish, which produces a hard glassy surface, which may be cleansed at any time by means of soap and water. Some of these Mr. Hibberd had prepared from Bessemer steel, which gives a smoother surface than common sheet iron, and consequently makes a neater label. Several other varnishes had been tried, but all save copal proved worthless. This, if of good quality, is adapted to the production of a label that is nearly perfect, but there is this disadvantage, that some amount of skill and experience are needful to ensure a satisfactory result.

Having described and criticised a number of labels of various kinds, Mr. Hibberd concluded with a few words on the simplest and cheapest. He said: In praise of the common cheap deal label there is much to be said—it might be worthy of a pean by any new Virgil of a horticultural turn. It is cheap and handy, and may be produced and multiplied with the least labour of any. The wood labels sold at the shops in the City are, however, comparatively useless, because they are whitened with materials that the rain removes, taking the inscription also. Cheap deal answers as well as any particular kind of deal, and a common lead pencil is as good as any other pencil, and there is but one rule of any importance to be observed in writing the labels, and that is to write from the top of the label downwards, and not from the lower part upwards: the reason for this rule will be discovered in practice. As the damp of the earth assails the frail fabric, the letters nearest the earth are the first obliterated. Now, between losing the end of an inscription and losing the beginning there is always a difference, but in this case the difference is of vital importance. The very first letter of the name of a plant is often enough for one accustomed to read plant labels, and in any case the generic name is of the first importance, and when written from the top this is the last to disappear. These matters force upon our attention the fact that these cheap handy labels are scarcely to be considered "durable" in the sense of the terms of the Society of Arts' competition. I will therefore at once say that I consider that to be in certain cases a very great advantage. Where there is a collection of plants to which constant attention is given, as a matter of love no less than of duty, the frequent renewal of labels is of immense advantage to the cultivator, for every time he prepares a new one he passes the whole plant through his mind, reflects upon its special characters, its distinctive beauties, its origin, and perhaps the history of his own particular examples. The backs of books do not reveal to us much of the riches of a library, and labels, however good, give us but little information about plants, but having to write a label is, to continue the comparison, like having to open a book. We pass from the mere name to the subject; we go from the door-plate to the man inside the house, and we acquire or renew knowledge by contact with facts. I know of no greater pleasure than for an amateur horticulturist to be perpetually occupied in preparing labels for his plants as circumstances may require. The gardener may plant them and attend to them generally, but the owner should keep the register and take particular pains to be familiar with and to understand the names they bear.

New Plants, Flowers, and Fruits.

PHYTARRHIZA MONADELPHIA (*Belgique Horticole*, 1882, 7).—A bromeliad allied to Tillandsia; scarcely attractive as a garden plant.

KERCHOVEA FLORIBUNDA (*B. H.*, 1882, 8).—A neat-habited plant allied to the cannabis; leafage like that of a ruscus, flowers in a light panicle, colour lively rose.

IMPATIENS SULTANI (*Bot. Mag.*, 6,643).—A beautiful balsam from tropical Africa; the flowers are of a brilliant rosy scarlet colour.

BACULARIA MONOSTACHYA (*B. M.*, 6,644).—One of the smallest palms of the old world, very distinct in all its characters. It is found in humid forests from northern New South Wales to Cape York, where it is known as the "walking stick palm."

PEONIA WITTMANNIANA (*B. M.*, 6,645).—Another species, a native of the Caucasus and Armenia. The flowers are white or pale or yellow. It is quite hardy, flowering in May.

BERBERIS THUNBERGI (*B. M.*, 6,646).—A very interesting species, native of Japan, closely related to *B. cretica*. The flowers are yellow within, red without.

BREDIA HIRSUTA (*B. M.*, 6,647).—A very handsome shrub, with richly-veined leaves and loose panicles of smallish pale pink flowers.

CATASETUM CALLOSUM (*B. M.*, 6,648).—An interesting orchid, native of Venezuela; the flowers fawn coloured.

ALBUCA NELSONI (*B. M.*, 6,649).—The finest species of albuca hitherto made known; native of Natal; flowers white.

LILIUM PARRYI (*B. M.*, 6,650).—A beautiful lily; native of Southern California; flowers yellow.

HABERLEA RHODOPENSIS (*B. M.*, 6,651).—A very interesting plant, as it represents in a single valley in Thrace the important Asiatic and American order of Gesneraceae. It is an elegant herb, with flowers of a pale purple or lilac colour.

OPUNTIA DAVISI (*B. M.*, 6,652).—A small shrubby species, with lustrous bronzy flowers.

CELMISIA SPECTABILIS (*B. M.*, 6,653).—The genus *Celmisia* is one of the most beautiful of the New Zealand flora, and contains nearly thirty species; but this appears to be the only one hitherto introduced to this country. It is a member of the great order of composites, very distinct in leafage. The flowers are white or pale lilac with yellow disc. When in flower in May last in Messrs. Veitch's nursery this plant presented a singular and noble appearance.

AERIDES JAPONICUM (*Illustr. Hort.*, 461).—A pretty plant, said to be a native of Japan, which we think very doubtful. The flowers are white, the labellum blotched with pale purple.

SONERILLA, VARIETIES OF (*I. H.*, 462).—It is enough to record these; they have no special interest.

IXORA SPLENDENS (*I. H.*, 463).—A fine variety with flowers of a rich orange-red colour.

AVAILABLE INCREMENT.—*Old Shoddyworth* (who had retired from business): "What are you a doin' of, 'Awkins?" *His Head Gardener*: "I was thinning the grapes, sir." *Old Shoddyworth*: "Oh, I dessay! That won't do wi' me, y' know! What I don't eat I can sell."—*Punch*.

NOTES ON POTATOES IN 1882.

DURING inspections of potatoes by the committee of the International Potato Exhibition in the gardens of the Royal Horticultural Society at Chiswick, at different times in the past season, notes were made and official judgments recorded, of which the following is a careful abstract. The awards made at the Exhibition of September 21 have necessarily been added to give to these notes their full and proper value.

ALDERMAN DE KEYSER (*Fenn*), C.K.—Growth dwarf, light green, tubers varying from flat to long round or obtuse kidney shape; colour dull pink, like Mr. Bresee or Prizetaker. For cropping two stars (**); for table three stars (***); for exhibition quality three stars (***). A good useful variety. First-class Certificate, International Potato Exhibition.

ALDERMAN (*Dean*), W.K.—Growth medium, leaves large, light green; tubers large, roundish, handsome. A heavy clean crop, three marks (***); good on the table, two marks (**).

BEAUTY OF ABINGDON (*Chambers*), W.R.—Growth medium, tubers flattish round. No crop.

BEAUTY OF THE WEST (*Lye*), C.R.—Growth robust; tubers white with rich purple stain on the crown eyes, handsome and distinct. A very heavy cropper, three marks (***); table quality good, two marks (**).

BROWNELL'S No. 8, W.K.—A heavy cropper; Snowflake style.

CLARK'S No. 2 (*J. Clark, Christchurch*), W.K.—Growth robust, in the style of Magnum Bonum; tubers long and white, all close home, mostly neat in form and of medium size. A very heavy cropper of good table quality. For cropping three stars (***); for table quality two stars (**). Late. First-class Certificate, Fruit and Vegetable Committee of Royal Horticultural Society.

CLARK'S PRIDE OF THE MARKET (*Clark*), W.K.R.—Strong growth, leaves a little rough, dark green, flowers purple and showy. Tubers flattish and angular, mostly of medium size, and plenty of them. For cropping three stars (***); table quality two stars (**). One of the best for general usefulness. Late in ripening.

COLLINS'S KIDNEY, W.K.—A middling crop. It cannot be distinguished from Cleopatra.

COVENT GARDEN PERFECTION, W.K.—This fine variety lifted well. There is nothing in its class can surpass it.

CRIMSON KING (*Lye*), C.K.—This closely resembles Wiltshire Giant of the same raiser, but the tubers have more colour, in which respect they may be likened to Superior. A heavy cropper, very showy, and might with propriety be called Scarlet King. No marks.

CRITERION (*Ross*), W.K.—A middling crop.

EARLY JARGONELLE (*Chambers*), W.K.—In every respect like Early Ashleaf, and a fair cropper.

EARLY OHIO PINK.—In the style of Beauty of Hebron, but better quality. A good crop.

FENN'S No. 1 EARLY (*R. Fenn, Sulhamstead*), W.K.—Growth moderate, leaves large, tubers scarcely handsome, and varying in size. For cropping two stars (**), table quality two stars (**).

FENN'S No. 2 (*Fenn*), W.K.—Dwarf growth, large light green leaves; tubers varying in form, mostly roundish, and in style of Snowflake. For cropping two stars (**), table quality three stars (***). Early and useful.

FENN'S No. 4 (*Fenn*), W.K.R.—The description of Fenn's No. 3 applies to this in all points, and possibly the two stocks might be mixed, or one might be cancelled without harm. However, they are certainly not the same. The growth of this is more upright than that of No. 3, the tubers are whiter, and this we think the best of the two. For cropping three stars (***), for table three stars (***).

FENN'S No. 5 (*Fenn*), W.K.—Growth short and compact, light green; tubers long, neat, smallish. A fair cropper, early, quality middling. For cropping two stars (**), for table two stars (**).

FENN'S No. 7 (*Fenn*), C.R.—Dwarf, not very leafy; tubers not well shaped; the colour tawny white, with a few bands of light rose.

FENN'S No. 8 (*Fenn*), W.K.—Growth tall and strong, flowers purple, much like Magnum. A middling crop; late.

FENN'S No. 9 (*Fenn*), W.R.—Growth dwarf, tubers small, crop middling.

GARNET'S SEEDLING, W.K.—Dwarf, leafy; a poor cropper.

GOLDEN DWARF, W.R.—Dwarf growth, Regent type; not a good cropper.

GRAMPIAN IMPROVED, M.R.—Plenty of colour, very pretty; a heavy crop.

INTERNATIONAL (*Fenn*), W.K.—This made a grand crop in 1882; very clean and handsome.

IRIQUOIS.—A fine crop.

JAMES ABIES (*Fenn*), W.K.R.—Dwarf in growth, very leafy, the top being in style of Early Rose. Tubers long, round, and somewhat flat, very clean and neat, white, with a little pink at the nose end. For cropping three stars (***); table three stars (***); exhibition quality two stars (**). A first rate cropper of the finest quality. Early. First-class Certificate, International Potato Exhibition.

KER'S No 1 (*Ker*), C.K.—Medium top, of Ashleaf type. Tubers very neat, waxy white with pink patches, very pretty in a good sample. A good cropper, two marks (**); first-rate on table, three marks (***).

KER'S No. 2 (*Ker*), C.R.—Top moderate; tubers round or long, white, patched purple. Scarcely handsome.

LATE BEAUTY OF HEBRON.—An immense crop, much grown out, and rather coarse.

LAUDABLE (*C. Ross, Newbury*), W.R.—Growth medium, light green; tubers varying in form, mostly flattish and smallish, but neat, and a good crop. In general character appears to come near to King of Potatoes. A fair cropper.

LAWSON'S, No. 1, W.R.—Not sufficiently distinct and scarcely a cropper.

LEMON KIDNEY, W.K.—This is a fine strain of Ashleaf, lifted well, and amply justified the good character it has long borne.

LORD MAYOR (*Dean*) W.R.—Growth short and compact, leaves much wrinkled, tubers smallish, handsome, ripened early. Has been certificated by R.H.S. and I.P.E., and justifies the awards.

MAGNET (*Ross*) W.K.—Growth moderate; tubers medium to large, elliptical or flattish, brownish white with purple tinge; first-rate on the table. This was certificated by the International Committee in 1881. In 1882 it gave a grand crop of fine quality.

MATCHLESS, R.K.—Lifted well in 1882.

MIDSUMMER KIDNEY (*R. Dean, Ealing*) W.K.—Growth dwarf and scarcely spreading; tubers large to medium, evenly rounded at the end; a fair and clean crop. Early. For cropping two marks (**); for table quality two marks (**).

NEW EARLY PREMIER, W.R.—Dwarf growth, like Climax; tubers large, handsome. For cropping three stars (***). A capital variety for market growing.

PEAKE'S No. 1 (*Rev. J. D. Peake*), W.R.—Dwarf growth, tubers flattish round, small, white. A poor cropper.

PEAKE'S No. 2 (*Rev. J. D. Peake*), W.R.—Dwarf; growth robust, light green, large leaves, top like Snowflake. Various in form, mostly coarse, and in some degree resembling Schoolmaster.

PEAKE'S No. 3 (*Rev. J. D. Peake*), W.K.—Very strong tree-like growth, style of Magnum; requires much room; tubers handsome. A very heavy cropper, three stars (***); table quality fair. Useful in every way.

PETER THE GREAT (*A. Chambers, Abington*), W.K.—Growth medium, leafy, dark; tubers neat, very white, like Waterloo or Lancashire Kidney. For cropping quality two stars (**); for table quality (**).

PRESIDENT, W.R.—A handsome round, white with a pink tinge.

PRIZETAKER (*Fenn*), R.K.—This last year was Fenn's No. 29. It may suit raisers to send their sorts under numbers and name them when they see which way the eat jumps; but it will never do for committees to judge them by numbers, and we no doubt a rule will be framed to meet the case. This variety is of dwarf growth, the tubers are pretty, the colour pink, like Exhibition Kidney. The crop was a good average and the quality excellent.

PURPLE KING (*Lye*), C.R.—This is quite distinct from Clark's of the same name, which is a long half-round. Lye's Purple King has a very strong top, and requires much room. The tubers are large, angular, with deep-set eyes, the colour rosy purple. A heavy cropper, three marks (***). Table quality good, two marks (**).

QUEEN OF THE SOUTH (*Ker*), W.K.—A pretty variety in the style of the old Ashleaf.

RAND'S No. 39½ (*Bliss and Sons*), W.K.—A long kidney of Snowflake type, sent to Chiswick for trial by Messrs. Bliss and Son. It is a heavy cropper, handsome, and of good table quality. First-class Certificate, Fruit and Vegetable Committee of Royal Horticultural Society.

RECORDEE (*R. Dean, Ealing*), W.K.—Dwarf growth; leaves large, curled; tubers large, handsome, clear white like Woodstock kidney. A very heavy crop of good ware size, rather inclining to large. For cropping, three (***); on table excellent, three (***); exhibition quality good, three stars (***). This variety was first-rate every year in the year 1882. First-class Certificate, International Potato Exhibition.

RICHTEE'S IMPERATOR (*Lawson*), W.K.—A long white kidney sent to Chiswick by Messrs. Lawson and Co., Edinburgh. A heavy cropper, possessing excellent qualities for market culture. First-class Certificate by Fruit and Vegetable Committee of Royal Horticultural Society.

RIVAL (*Ross*), W.K.—Growth tall and stout, stems purplish, leaves rough, dark green. Tubers smallish, like Paterson's Victoria.

SIR WALTER RALEIGH (*Ross*), W.R.—Robust growth, leaves light green, tubers roundish, neat, very white. Crop heavy and handsome, three stars (***). On table first-rate in appearance and flavour, three stars (***); exhibition quality, two stars (**). A first-class late variety. First-class Certificate, International Potato Exhibition.

STANDARD, W.R.—Dwarf growth, neat tubers, and a good cropper.

SUPERINTENDENT (*G. Fry, Lewisham*), W.K.—Medium growth, style of King of Potatoes. Crop middling.

THE SCHOLAR (*M. Gilkes, Newbury*), W.K.—Growth robust, leaves very green; tubers not handsome; crop middling.

TROPHY, R.K.—This handsome variety lifted well in 1882.

VEITCH'S COSMOPOLITAN (*Veitch*), R.R.—Growth very robust and leafy, requiring a great space. Crop handsome and heavy.

VERMONT CHAMPION, W.R.—Dwarf growth; tubers handsome; a heavy cropper.

VICAR OF LALEHAM, C.R.—This very handsome potato lifted well.

VICTORINE (*Rev. J. D. Peake*), C.R.—Top smallish, very leafy; flowers dark purple. Tubers handsome, white blotched with purple, like Lady Webster; not a heavy cropper.

WHITE ELEPHANT lifted well; it is a profitable potato for a sandy soil.

WILTSHIRE GIANT (*Lye*), C.K.—Medium top. Tubers large, roundish long, light bright red. A heavy cropper, three marks (***). Not thought good enough to be tried for table.

PROPAGATION OF TILLANDSIAS.

A NOTE by Professor Morren on a class of plants he understands so well will be useful to many of our readers. The offsets or suckers of certain bromeliaceous plants, at least among the Tillandsias, are very slow to strike: *Tillandsia Lindenii* is particularly capricious in this respect, and sometimes appears determined not take root. It is therefore interesting to make known a simple method, which has been found to answer admirably by Mons. Kienast-Zolty, of Zurich.

Having obtained a setting of *Tillandsia Lindenii*, var. *Koutzinskiana*, he put it in a very small-sized pot filled with broken crocks and a very little sphagnum, taking care to keep the plant about a quarter of an inch below the sphagnum, so as not to be in contact with it. Thanks to this precaution, at the end of four weeks the plant had put out a dozen rootlets, and thenceforward thrived rapidly.

Bromeliads imported into Europe direct from America are difficult to establish, and often give rise to grievous disappointment. These plants do not take kindly to exportation; many perish outright on the way, and, as a rule, all are more or less deteriorated by the time they arrive in Europe. Much care is requisite to bring them round, and the right mode of treatment is not always properly understood. Excess of moisture is to be guarded against above all things, and great judgment must be used in giving it, or the plants will rot off altogether.

Mons. L. Kienast-Zolty, of Zurich, has recently communicated to us a method which he has pursued with the best results, and which we lose no time in putting before our readers. He writes:—

"As regards the Bromeliads I lately sent, I should advise you to put them in a mixture of very fibrous turf-mould and wood-charcoal dust, laid on broken crocks set edgewise.

"When once they are planted pour a few drops of water into the centre of each, taking strict care not to water below at all. It is of paramount importance that the buried portion of the stem should receive no moisture whatever until it has made new roots.

"In this way I treated some quite newly-arrived subjects, and they are already breaking and showing their foliage."

THE FRAXINELLA.

THIS exceedingly "common" plant may now be submitted to our readers as a rarity, if we may not offer it as a novelty. It has become rare through sheer neglect, and the fact forces on our attention one of the curiosities of psychology, for the moment you dub a thing "common," however good it may be, a certain number of persons will turn aside from it, and these may even succeed in "setting the fashion" for its entire repudiation. It has not come to that yet with the fraxinella, but one may search for it in many gardens where hardy plants in great variety are cherished without finding it, and therefore a respectable figure of the plant may be useful to many readers.

is a somewhat troublesome plant to raise, whether from seeds or cuttings of the roots; but it is easy to keep when you have secured it, and its sole requirement is a bit of common soil in a position well drained and open to the sun. As regards the propagation of the plant there need be but little said, because it requires no special management; but the young plants, whether from seeds or cuttings, have a way of dying if they are not taken care of.

The fraxinella is the subject of a tradition that is probably founded on fact. It is said that in hot weather the plant emits flashes of fire. Linnæus believed it; and Alphonse Karr, in his delightful "Tour Round My Garden," makes several references to the great Swedish botanist and his descriptions of the fraxinella fireworks. In Turton's "Linné," now before us, we find in vol. v., p. 678, a note on



THE FRAXINELLA, DICTAMNUS FRAXINELLA.

The familiar name of this old friend means a little ash, being the diminutive of *Fraxinus*. The pinnate leaves may be likened to those of an ash, and when not in flower the plant looks like an ash in miniature. Its botanical name, *Dictamnus*, has never been explained: it may relate to a city of the Greeks where the plant enjoyed some local fame, or it may relate to the circumstance that the mode of fruiting is peculiar, the seeds when ripe being ejected with some degree of force. It is *Dictamnus fraxinella* in all the books, and likely so to remain to the end of time.

The fraxinella is an agreeable plant in its way, thoroughly hardy, free in growth, producing a pleasing head of pink flowers, and emitting from both flowers and leaves an agreeable perfume. It

the plant in these words—"emitting inflammable odorous effluvia." Karr records in all seriousness that he many times endeavoured to obtain flashes by passing a lighted candle over the plant, but had no success. In "Maund's Botanic Garden," edited by the late Mr. J. C. Niven, a record to the same effect will be found in vol. ii., p. 103. Mr. Niven says: "Another of the well-known qualities belonging to it is the inflammability of the exhalation from the little resinous glands with which it is covered. In very dry warm weather this will be seen to take fire, on bringing a candle near to it; but the best method of showing this properly is to gather a portion of the plant in dry weather, and hold it near to a small candle, in a room that is otherwise dark. This statement, though tested on many occasions, has never been

verified by us; doubtless the special oil contained in the glands is extremely volatile."

We also can say that though tested on many occasions the statement has never been verified by us. It is but too likely that our summers are never hot enough to develop to their highest possible degree the properties of the plant on which its inflammability depends. It is some satisfaction to know that Karr failed to obtain from it the traditional flashes of fire; or at all events, did not see them.

THE GIANT IXIA.

We are chargeable with the responsibility of labelling this plant the Giant Ixia, and our justification is that the name is truly descriptive;

one of the many fruits of the skill in hybridizing of M. Lemoine, of Nancy. The hybrid is in all its character intermediate between its parents: in the roots, leaves, and general growth it resembles its seed parent, *Montbretia Pottsi*, and in its flowers it resembles its pollen parent, *Tritonia aurea*.

The plant is of elegant and decidedly leafy growth, with the general complexion of a gladiolus, and attains a height of from two to three feet. The leaves are broad, distinctly ribbed, and of a brilliant green colour. The flowers are ixia-like, in colour combining vivid orange-scarlet with orange-yellow.

Being nearly hardy is a great point in favour of this fine hybrid, which will be fully appreciated by cultivators who are familiar with the ixias and their kindred.



THE GIANT IXIA, MONTBRETIA CROCOSMIFLORA.

for an ixia with a difference it is, and the name will suggest to our readers the place of the plant and its possible uses. It is a hybrid of the *Montbretia Pottsi* of Baker (*Gard. Chron.*, October 6, 1877), a close relative of *Tritonia aurea*, which is also known as *Crocosma aurea*, a first-class frame and conservatory plant that under some circumstances may be grown in the open border.

The giant ixia now figured is the *Montbretia crocosmiflora* of *Belgique Horticole*, 1881, pl. 14. The robust-habited *Montbretia Pottsi*, which grows to a height of three to four feet, and the smaller and very fiery-flowered *Tritonia aurea*, are its parents, this hybrid being

TREES AND SHRUBS FOR SEASIDE PLANTING.

By J. C. CLARKE.

INQUIRIES are so often made respecting the best trees and shrubs for planting close by the sea, that I have thought it might be useful to direct attention to some of the most important that I have lately seen doing well on the coast. I have taken some pains in this matter to arrive at something like correct conclusions as to the relative merits of the various subjects met with. In the first place, it seems to me, from what I have learnt from the behaviour of seaside plants, that we must divide

the positions into three classes. The first, those which are so close to the sea that the salt spray beats on them even in a moderate gale of wind; the second, those that are from fifty to one hundred yards away from the beach, and the third, such as are more inland, but sufficiently near to be exposed to the effects of the salt spray during heavy gales of wind.

For positions close to the sea the number of suitable plants is not large, because it is necessary to select those of dwarf habit and that are strong-rooted and not particular as to soil, nor in any degree liable to suffer from the effects of cold winds. Of actual frost there is very little to fear close to the sea, but the cold east winds will soon blow out the life of tender plants. In the most exposed positions I have lately seen the *Tamarisk*, and the *Woolly Willow* (*Salix lanata*), thriving in a very satisfactory manner, and also the *English Furze* or gorse. Where there are ugly banks dipping down to the sea, on which nothing else will grow, these subjects may be planted with every prospect of success. But it is necessary that they should be arranged rather close together, so that the plants shelter each other. They must also be well rooted, and not more than two feet high.

For the second position it is not nearly so difficult to find plants that will thrive within fifty to one hundred yards of the sea, but there must always be a judicious selection of the most hardy subjects planted as a means of shelter for those more tender. The best trees for this purpose are the *Austrian Pine*, *Cluster Pine*, and *Scotch Pine*, *Turkey* and *Evergreen Oaks*, especially the latter, *Horse Chestnuts*, *Poplars*, *Limes*, *Viburnums*, and *Alders*. Of evergreen and deciduous shrubs there are a goodly number that thrive fairly well even in exposed places. Foremost amongst them must be placed the *Green* and *Variegated Euonymus*, which do well even in the full force of the wind; *Eseallonia macrantha*, *Aucuba japonica*, *Laurestinus*, and *Berberis Darwini*. These all succeed on the Devonshire coast when sheltered by larger-growing trees. *Ligustrum coriaceum* is a very popular shrub, as it thrives everywhere, as also do *Weigela rosea* and *W. rosea variegata*. The handsome *Arbutus unedo* grows and produces its fruit in the most luxuriant manner. *Phillyrea ilicifolia* is frequently met with in good condition, as also are the *Sweet Bay*, the *White* and the *Yellow Flowered Brooms*, *Cotoneaster macrophylla*, and *C. Simonsi*. I have omitted to mention *Cupressus macrocarpa*, but it must not be overlooked, for it does well even close to the sea if it is fairly well sheltered with other trees.

We have now to deal with positions that are somewhat more inland, and taking one hundred yards from the seashore as our starting point we shall have no difficulty in giving a long list of trees and shrubs available for what may be called an ordinary position. What I mean by an ordinary position is one where every reasonable precaution has been taken to provide shelter from the wind, as the wind will be sure to bring with it influences less or more destructive to plant life. Where it is necessary to form a garden near the sea, bricks and mortar in some form or other are the only safeguard, and, so far as is consistent with the other surroundings, they should be brought into requisition. But I am well aware that these materials cannot be used beyond a certain point, nor do I advise that they should be; but shelter in the form of a wall or substantial building at the point from which the wind is liable to do the most damage is much to be desired, and it will prove in the end more satisfactory than any attempt to obtain shelter from vegetation.

In proceeding to give the list of suitable plants for this position, I may mention that all the subjects enumerated, may be used with perfect safety. If the list of deciduous trees has to be extended, the *Plane*, the *Elm*, the *Sycamore*, and the *Beech* may be added. The list of deciduous shrubs may be further augmented by the addition of *Ribes* in variety, *Viburnum opulus*, *Thorns* in variety, *Deutzias*, *Golden Elder*, *Lilacs*, *Syringa*, *Spiræas*, and *Rhus cotinus*. Of evergreen shrubs may be mentioned *Garrya elliptica*, *Hollies* in variety, *Common* and *Portugal Laurels*, *Daphne laureola*, *Eleagnus japonica variegata*, and all the *American Plants*. I find, wherever the soil is suitable, the American plants do well by the sea, but in the majority of cases it will no doubt be necessary to provide a suitable soil for them, and when this is done few plants prove more satisfactory.

A selection of plants has been made in accordance with observation and experience, but I desire further to say that this will avail but little if they are not properly prepared. The late Mr. Pinee, of the Exeter Nurseries, used to say—and no man knew better—that anything that had to be planted by the sea required nearly as many roots as branches. He meant that if a newly-planted subject had not a fair quantity of roots to balance itself in the soil its life was not worth much. This is the experience of all that I have consulted on this matter, and the euonymus is gaining favour for the seaside, because of its producing a great number of roots, which not only fix it well in the soil, but they enable the plant to quickly recover itself after a hard winter. Those who are contemplating planting by the sea are advised to secure well-grown examples, and, if they have to be purchased, it should be stipulated that they be taken up with the greatest possible care, so as to preserve all the roots. This may entail a little more expense at first, but in the end it will be more satisfactory than buying the cheapest plants.

In the matter of providing shelter for the more tender subjects, I may say that I have lately had opportunities of seeing how this has been done by one of the most experienced of landscape gardeners, in a garden in Devonshire, divided from the sea by a double line of railway and a wall a few feet above the soil. The most hardy trees were planted as a background facing the sea. These include the *Austrian* and *Cluster Pine*, *Mountain Ash*, *Turkey Oaks*, and *Poplars*. In the front of these *Eseallonia macrantha*, *Euonymus*, *Laurestinus*, *Berberis*, *Sweet Bay*, and *Arbor-vitæ* are planted, and they have suffered but little from so close a contact with the sea. Judging from

this example, it does not seem a difficult matter to create shelter, or in other words, to make the strong-growing trees shelter the others. It has been done in the garden alluded to, and it is none of the most exposed positions on the South Devon coast, for everyone of the plants I have enumerated are growing there in the most luxuriant manner. The object of all those who are interested in this matter should be to do as is done in this particular garden—to create shelter for the more tender plants by making secluded nooks and quiet recesses for them, by using the more hardy plants as protectors, taking care to use judiciously the kinds of trees or shrubs most suitable to the particular locality.

On the South Devon coast there does not appear to be any difficulty in growing fruit trees in gardens protected by walls of moderate height. Peaches and nectarine trees suffer considerably from the salt spray in the early summer, but figs, pears, plums, and apples, and all kinds of bush fruits do exceedingly well. The pear and apple trees are either grown as pyramids or espaliers, and some of the trees this year bore moderate crops of fruit.

LOUGHBOROUGH CELERY SHOW.

For a number of years past a series of small horticultural exhibitions have been held in different places in Loughborough, bearing the general and modest designation of celery shows. Although at these shows celery is the principal vegetable shown, many excellent collections and single specimens of well-grown vegetables and roots are produced, comprising cauliflowers, cabbages, potatoes, onions, &c. These shows have been instituted and are almost entirely sustained by cottagers and artisans, none of whom occupy more than a thousand square yards of ground. As the expenditure is very moderate, the management simple, and the influence for good very widespread, it will be agreed, I hope, that these celery shows are altogether good things in their way. It is really surprising the interest they excite, and the spirited competition that characterizes them, the result being exhibitions that, however humble, abound in interest.

It is a feature of these gatherings that very few money prizes are awarded. The symbols of honour consist of prime cuts of beef, legs of mutton, hares, rabbits, fowls, ducks, blankets, tea and sugar, and the ever-glorious copper kettle. When the prizes are awarded they are attached to the winning stands, and of course there is often a social party made up with the prize celery to bear witness that the leg of mutton is to be eaten on such a day; or that for the first time the copper kettle is to be put into full commission to supply to the guests "the cup that cheers and not inebriates."

The time usually chosen for these happy horticultural meetings is Saturday afternoon, the week's work being then over and the hands and hearts of all at ease. On a sunny Saturday afternoon I went to a show of this kind held at the William the Fourth Inn, where I found a capital display of vegetables set out in a tent, and all things as neat and orderly as could be desired. It was to me a source of satisfaction and pride to see such excellent productions represent the industry and horticultural skill of the district, without aid in any way from the rich man's garden. I had not long enjoyed the entertainment when the conviction came upon me that our Editor ought to see it, and then the question arose, how is this to be done? Speaking to the leading prizetakers, I found them of the same mind as myself, and we appeared for the moment to be realizing the vanity of human wishes. But as you often say there is a way out of every difficulty, as was illustrated ages ago, when somebody said if the mountain will not go to Mahomet, then Mahomet must go to the mountain, it was quickly agreed that as we could not bring our Editor to the show suddenly on a Saturday afternoon, we might on the other hand send the show to him? And we have done so. In a great box, taxing the powers of two men to lift it, we have packed a few samples of what the working men of Loughborough can grow in their little gardens for the comfort of themselves and families at their homely tables, for the entertainment of their friends at the exhibition, and now to regale Mr. Hibberd, who perhaps, in his busy life, does not often find time to drop in on a Saturday afternoon at a celery show in the Midlands.

THOMAS PICKWORTH.

[The consignment reached our office on the 3rd instant. We were unable to look at it until the 6th, and then we found the contents in the most perfect order, as if but just removed from the garden. So much for good stuff to begin with, and good packing to follow. As regards the specimens sent, they are indeed creditable to the producers. Two cauliflowers, marked No. 9, weighed (being closely trimmed) $7\frac{3}{4}$ lbs. and $7\frac{1}{2}$ lbs. respectively, the measurements round the flower being 33 inches and 31 inches. A cauliflower marked No. 12 weighed 7 lbs. and measured 32 inches. These were absolutely destitute of coarseness, being as fine in the curd as the best possible of small samples, and the colour excellent; but No. 12 was the handsomest of the three, and we should place it first in judging, the others being a little piled up in the centre, and therefore too conical. It may be proper to remark that although it requires a large pot and a pair of stout arms to cook such cauliflowers properly, they may, by skilful cutting at the base, be neatly divided, and when served to table look well and taste well, and prove as acceptable as the neatest of the "model collies" that are grown for a gentleman's table. We have seen a broccoli weighing 9 lbs., cut into five parts, to make five handsome dishes, and when strict utility is considered it will be seen that the "big collies" have their uses. The samples of celery sent are perfect in finish and colour. Having removed the green tops from four heads we found their weights to be 3 lbs. 10 ozs., 3 lbs. 14 ozs., 3 lbs. 13 ozs., and 4 lbs. 4 ozs., the total weight of the four being 15 lbs. 9 ozs. Two red cabbages, very compact and handsome, weigh respectively 15 lbs. 1 oz. and 16 lbs. 14 oz. They are almost as neat and round as cannon balls, and certainly more useful. We return our hearty thanks to Mr. Pickworth and his friends for this polite attention and the immense pleasure it has afforded us.—ED. G. M.]

ODOURS AS LOCAL CHARACTERISTICS.—Perceptions of other senses besides those of sight enter very powerfully into our recollections of a locality—for instance, that of smell. There is a smell peculiar to every country. Though usually forgotten by the resident, who lives and breathes in the atmosphere, it nevertheless forms part of our every-day feelings, and it is by its alteration or change, quite as much as by any other single cause, that a man realizes to himself that he has changed his country, and emigrated to a foreign land.—F. GALTON, in *Cambridge Essays*.

The House, Garden, and Poultry Yard.

MY LUTE.

My lute, be as thou wast when thou didst grow
With thy green mother in some shady grove,
When immelodious winds but made thee move,
And birds on thee their ramage did bestow.
Sith that dear voice which did thy sounds approve,
Which used in such harmonious strains to flow,
Is reft from earth to tune those spheres above,
What art thou but a harbinger of woe?
Thy pleasing notes be pleasing notes no more,
But orphan wailings to the fainting ear;
Each stop a sigh, each sound draws forth a tear;
Be therefore silent as in woods before:
Or if that any hand to touch thee doign
Like widowed turtle still her loss complain.

WILLIAM DRUMMOND.

THE HOUSE.

WINDOW and balcony gardens will now need furbishing up in some way or other. A very obvious refresher is the chrysanthemum, but not many manage this flower wisely for the purpose. The earliest-flowering pompones make useful plants and are very gay and cheerful, but the later exhibition kinds do not answer so well, because if a sharp frost occurs it spoils their beauty. Bright yellow and two or three shades of rose are the most useful colours. The whites do not answer well, because they so soon look dirty, and the purple and bronze tinted flowers only show well in the midst of green herbage in the garden. To succeed these have in readiness a lot of potted evergreens, comprising for the most part golden Eucynus, Retinosporas, Lanrestinus, Arbor-vite, Holly, and Osmanthus. The favourites for the purpose are Box and Aucuba, which are rather common, but the small-leaved green female Aucuba when well covered with berries is eminently suitable. So also are two or three berberries, such as Darwini and neat plants of aquifolia and aquifolia undulata. Tastes differ and purses vary in length, and the cheapest of the good things are aucubas, rhododendrons, green and golden eucynus, and box. If reasonably cared for these will all be suitable to plant out in the garden when they have done duty in the window boxes, or they may be kept in their pots, and if regularly watered will be ready for service next winter, and perhaps for two or three winters to follow. It is a good plan to have a series of smallish boxes made to drop into the ornamental receptacles, as these can be planted with bulbs, &c., &c., and be brought forward when wanted to produce a new effect instantaneously.

THE GARDEN.

CHRYSANTHEMUMS to have more moderate supplies of liquid manure as they show colour, and to be discontinued (using plain water only) as soon as a few of the first flowers are open. Thin the flowers on plants from which blooms are to be cut. Large-flowering varieties out of doors are liable to suffer from high winds and drenching rains; give them some rough sort of shelter, to prevent the spoiling of the best blooms.

CUCUMBERS to fruit during winter will now be showing signs of fertility, in which they must not be too much encouraged, unless the plants are strong. If allowed to bear too early they will soon cease to be productive, and the fruit will be small and inferior. Keep them carefully trained; take the leaders up their full length before stopping, then stop every side shoot at the second joint. Pinch off the young fruit till the plants are in a robust state, with plenty of large healthy leaves; if fit to begin bearing, thin the crop moderately.

EVERGREEN SHRUBS will move now better than in spring: the earth is warm and the air moist, and they will make fresh roots at once. This is the best time of the whole year to form beds of American plants, and to make alterations in shrubberies and wildernesses. Hollies will move now with safety, as will Aucubas, Laurels, Thujas, and all kinds of Conifers.

LEeks.—When of good size earth them up to blanch: the result will be large tender leeks for stewing, a mode of cooking which produces one of the most acceptable of winter dishes. Large vegetables are not generally desirable, but the largest leeks are always the best.

MIGNONETTE sown now in pots of rich light soil, started with a little bottom heat, as on a bed of leaves or nearly worn-out dung, and kept in a pit all winter, will bloom early next spring, and a few may be forced. It requires but little skill, indeed, to flower mignonette at any period of the year; but at this season one important caution must be given, and that is, to grow the winter stock in pots extra well drained, and not to wet the leaves of the plants.

PINES to have less moisture both to fruiting and growing plants. Give air every day if possible, and keep the beds in a sweet and sound condition. Fruits ripening should have a temperature of 60 deg. at night; day temperature to depend on the amount of light—on dull days, 70 deg.; bright days, 80 deg.

SALSIFY.—Take up a portion of the crop shortly, and store in the same way as carrots. Those left in the ground will throw up flower-stems in spring, and these, if cooked before they become stringy, will make an excellent table vegetable. When boiled in a very small quantity of milk, and then mashed and fried in butter, the salsify is considered by many an extremely choice dish, and is designated, because of its peculiar flavour, the "Vegetable Oyster." It may also be cooked in the same way as the parsnip, and is as hardy as that root.

VINES.—Where grapes are to hang some time, all decaying berries must be cut out from time to time, and the atmosphere kept dry. Cut away all the sappy and softer ends of the rods, without respect to the system of pruning adopted: this will cause the remaining buds on the rods to swell nicely, and promote their ripening.

THE POULTRY YARD.

To make the most of the stubbles before they are ploughed is every husbandman's care, and best of all the many pickers, after the children have done gleaning, are the pigs and the geese, which are turning into money now, and will further improve as they may be spared to continue picking. In fact, the chill that has gone down one's back in a draughty room, or has touched the

fingers and toes at dawn on the heavily-dewed grass, compels one to think of food, and it is an unspeakable comfort to see lots of fine stuff in the yard, and to know that they make fat at something less cost than they will be worth when the business is completed. This is the right time to begin to keep geese, because you can buy an ordinary breed cheap, and a bite of grass will almost suffice them, and you may reckon on a good supply of eggs in February; and in advance of that harvest you must feed well, and while it continues you must feed well, and if you remove the eggs as fast as they are laid you may reckon on forty-five eggs from every bird. It should be known that although a goose egg is a coarse thing on the breakfast table, it is first-rate in the kitchen. In making choice of a breed of geese there is really not much room for judgment, but of course there is any amount of room for the gratification of fancy. Our own taste inclines to the pure white, and of these the Embden is the best, but it makes more offal in proportion to dead weight than any other breed. The Toulouse is a fine breed, never becoming grossly fat, and being compact in form, and laying early; but they are not good mothers. The common grey goose of the common is only a shade less worthy than the pure white, though many degrees less attractive. In buying a lot take note of their form, and value them accordingly. The compact birds are the best, for even a long neck is a fault. But the chief point is to note the size of the abdominal pouch, for the larger it is the less is the value, because the greater is the age of the goose. Geese are fatted for the Christmas market on indescribable muck. If we could be sure that tallow greaves were their principal meat we might be content to eat and be thankful, for there is not a sweeter or wholesomer food in the world of its kind. But there is nothing so nice in its way as a goose fattened on the stubbles, and hence it is that the epicure who can condescend to goose eats it now, and abjures it at Christmas.

Literature.

The Fireside continues its peaceable and pleasant career, and no doubt is as welcome as ever to the many thoughtful young people who like a little substance in their light reading.

The Ladies' Treasury (edited by Mrs. WARREN) for this month opens with a beautiful picture entitled "Waiting for the Lost," and contains some excellent essays on household management.

Gibbon's Decline and Fall of the Roman Empire, with Notes by Dean MILMAN, is in course of publication in a cheap edition by Messrs. Ward and Lock, to rank with their cheap reprints of Rollin's *Ancient History*, the works of the elder D'Israeli, and Hallam's *Literature of Europe*. In placing such a work as Gibbon's within reach of the many thousands who now read good books, and can rarely purchase all they would have, Messrs. Ward and Lock are doing the State some service, and we heartily wish that they may be well rewarded. Considering the price, which is one penny per sheet, each sixpenny part containing six sheets, we are bound to say the mechanical part of the work is admirably managed.

The Works of Shakespeare, edited by SAMUEL PHELPS, with illustrations by HAELOT K. BROWN, is another of the new undertakings of Messrs. Ward and Lock, at a cost which will enable those who are now compelled to content themselves with editions produced by printers solely, with none of the watchful care of a scholar, to ensure the purest text possible. The late eminent tragedian Mr. Samuel Phelps based his text on the folio of 1623, and then brought to bear on doubtful passages his own experiences as a reader, as a thinker, and as a player, and the result was a good readable text, and a body of most valuable notes and comments. Here again we have six sheets for sixpence, and a number of illustrations that are in their way useful.

Great Thoughts on Great Truths. By Rev. E. DAVIES. (Ward and Lock.)—Part I of this work shows that it will consist of some thousands of extracts in poetry and prose from various authors, arranged alphabetically. There are many uses for such books in addition to the daily use that may be found in taking them up for the refreshment of a spare five minutes. The new work will be produced in uniformity with "Holy Thoughts on Holy Things," just completed.

From Messrs. Ward and Lock we have also received continuing parts of their useful serials, namely: *Household Medicine*, *Universal Instructor*, *D'Israeli's Miscellanies of Literature, Land, Sea, and Sky*, *Illustrated History of the World*, *Rollin's Ancient History*, *Beeton's Dictionary of Science, Art, and Literature*, *Haydn's Dictionary of Dates* (nearly completed, having reached "Tithing"), *Episodes of History*, *Hallam's Literature of Europe*, *Arabian Nights*, illustrated by Millais, Tenniel, and others; *Dr. Adam Clarke's Commentary on the Holy Bible*, *Amateur Work*, and *Sylvia's Home Journal*.

THE SUNFLOWER AS AN INDUSTRIAL PLANT.

It may not be generally known that the sunflower (*Helianthus annuus*), which has lately been brought into such notoriety by the "aesthetic" school, has considerable claims to attention from an industrial point of view. Its somewhat nut-like seeds—or, as Baron Ferdinand von Müller describes them "seed-like nutlets"—afford an excellent oil, which is not only useful as a lubricant for machinery, but is one of the best of table oils. The seeds, again, afford admirable food for poultry, the stalks furnish a good textile fibre, and the blossoms yield a brilliant lasting yellow dye. So highly does Baron von Müller think of the virtues of the plant that he includes it in his list of selected plants suitable for acclimatization and industrial cultivation in the Colony of Victoria. As much as fifty bushels of seedlings have been obtained from an acre of ground under favourable conditions, and as much as fifty gallons of oil can be pressed from such a crop. When he states that about six pounds of seeds are required to sow an acre, from which such an enormous return is possible, it is scarcely surprising to be told that "the return from a sunflower field is attained within a few months." The plants, the same authority states, prefer calcareous soil. Baron von Müller, however, has not by any means exhausted the list of virtues which the plant possesses. The Chinese, who have so far appreciated its properties as to use its fibre in adulterating and dyeing their silk fabrics, and its oil not only as a lubricant but as an illuminant, state that its flowers supply the best bee food, and that the "cake" left after expressing the oil is superior to linseed cake as a food for cattle. The leaves are also employed as a substitute for or for mixing with tobacco, and as an ingredient in soap manufacture the oil is highly prized. In face of such testimony to its good qualities, it is interesting to know that several acres of land are to be sown with sunflowers in the Thames valley next year. Will the "aesthetes" discard the flower as a symbol of their faith when they find it is actually turned to commercial purposes?—*Colonies and India*.

Notes of Observation.

SPECIMEN LILY OF THE VALLEY.

WITHOUT wishing to prejudice the readers of the Magazine against the lily of the valley grown in the usual way, I would like to briefly describe a way of growing these flowers which is at once novel and attractive. For small examples there is no better way than to put the clumps or crowns in five or six inch pots, in accordance with the practice that has prevailed for many years past, but in building up specimens the usual practice admits of some variation, if not improvement. The innovation I should recommend is the formation of pyramidal specimens. They are not difficult of production, as a few words will suffice to show; but it will be well in the first instance to be content with pyramids of a moderate height. The materials required will be shallow pans, those ranging from twelve to fifteen inches being the most suitable, pyramidal frames, of wood or wire or a combination, moss and sandy soil, and selected crowns. The frames should be of the same diameter at the base as the diameter of the pans, and be about fifteen inches high, terminating in a sharp point. The frames can be readily made by a handy man with a few osiers or with hazel rods and wire netting. The most easily made are the latter. In constructing them with rods and wire netting, you first form a hoop with a hazel rod split in half, and then five rods half an inch in diameter and fifteen inches in length are fastened to it by their lower ends at equal distances apart, the upper ends being brought together and fastened with strong string or wire. When this has been done, wire netting an inch or so in diameter is wrapped round it and secured to the uprights. To fill a frame with crowns, invert it in a pot of a suitable size, and line it with a good thickness of moss, the tougher the better, but whether alive or dead is of no consequence. When the frame has been well lined put three or four crowns rather close together in the bottom of the frame as it is inverted, with their points in the moss; then cover with an inch or so of soil and put a ring of crowns round at a distance of an inch apart, the points to be in the moss and project downwards. These crowns are to have a covering of two inches of soil, and when this has been applied put a second ring of crowns at the same distance as before, and repeat the two in layers of soil and series of crowns until the frame has been filled. The soil should be pressed moderately firm, and when sufficient has been put in the frame place an inch layer of crocks over it with one large piece in the centre and turn a pan over it, and as dexterously as possible turn the pyramid point upwards and remove the pot in which it has been inverted. The space between the frame and the sides of the pan should be filled with soil. I have been careful to explain the whole of the details, and if the instructions given are carefully followed it will be impossible to go wrong. The pans can be placed in a dark position in a cool house until their removal to the forcing pit, but it is not desirable to force them very early. When growth commences the foliage and flower spikes will push freely through the framework, and have a most pleasing appearance. It is necessary to employ strong selected crowns, and in watering to be careful to moisten the whole of the soil.

LILY GROWER.

THE PRESENT COLOUR OF RHUS COTINUS.

The so-called Wild Olive, *Rhus cotinus*, is always included in lists of ornamental hardy shrubs of the most select character because of its peculiarly neat leafage and very curious flowers, that may be sometimes likened to purple foam. But its present appearance surpasses all its previous attractions, for the leaves are of a brilliant orange-scarlet colour on the upper side and on the under side a pale buff-yellow. When the sun shines upon it we may say that we have now found the burning bush, and if the wind stirs it at the same time we may call it a flaming bush, for the under sides of the leaves are shown, and they flicker like yellow flames amid the glowing red.

S. H.

A FEW GOOD WALL TREES.

By this time all the ends of the earth have heard of the wall that divides the lawn from the trial grounds at Chiswick, and it may interest some of our readers to have a full list of the plants that adorn it. The best way to give the names will be in alphabetical order, for it is impossible to classify them satisfactorily. *Ampelopsis hederacea* is the common Virginian creeper, which grows luxuriantly, and on the second of October was as green as in August: in London at the same date it was in a fiery state and shedding its leaves. *Ampelopsis japonica*, now dying off a rich yellow colour. *Aristolochia sipho*, a very noble large-leaved plant, somewhat common, has made a remarkably fine growth, the leaves being much larger than we are accustomed to see them. *Abutilons* in variety; one with pale yellow flowers very beautiful. *Berberis dulcis* makes a good wall shrub, although it does not need the shelter of a wall. *Caprifolium grutum*, a red-flowered evergreen honeysuckle. *Ceanothus* in variety; very showy in the autumn. *Cissus stans* made note of lately as the pepper vine. *Chimonanthus fragrans grandiflora*, valuable for its richly-scented flowers in early spring. *Clematis Fortunei* and several others. *Crataegus pyracantha* is one of the best things on the wall at the present time. The tree is about twelve feet in width as trained out, and is loaded with fiery fruit, which of course the birds will taste when frost quickens their appetites. *Deutzia crenata*, a free-flowering and robust-habited shrub, used to fill gaps. *Forsythia Fortunei*, a vigorous shrub bearing brilliant yellow flowers in spring. *Glycine sinensis alba*, the white-flowered wistaria. *Hedera* in variety, two of the most conspicuous being the thick-leaved *Rœgnieriana* and *Hibberd's Emerald*. *Jasminum nudiflorum*, *J. affine*, *J. revolutum*, *J. officinale*, *Kerria japonica*, the well-known double variety. *Lonicera fragrantissima*; this honeysuckle is useful to cut from in spring; it makes no show. *Lonicera xylostemon*, a British species with yellow flowers. *Magnolia grandiflora*; not having seen this in flower, I cannot say if it thoroughly prospers at Chiswick. *Osmanthus ilicifolius* makes a capital sheet of rich dark glossy leafage to fill up gaps on a wall. *Pyrus japonica* one would look for, but *Pyrus Malaei*, which one might not look for, is here, and with a few ripe fruit on it. *Raphiolepis ovata* grows slowly, but is doing well; it is a very distinct evergreen shrub. *Rubus biflorus* and *Rubus leucodermis* are agreeably distinct, the last named being white-washed by Dame Nature to avoid the waste of some surplus colour. *Spiraea prunifolia*, a very pretty willow-wand sort of shrub bearing myriads of white flowers in early summer. *Viburnum plicatum* and *V. macrocephalum*. At this time the plants conspicuous for beauty are the *Cissus*, the *Pyracantha*, the *Emerald Ivy*, and the Golden-leaved variety of the common *Jasmino*. There are several robust-habited tea roses, such as *Gloire de Dijon* and *Cheshunt Hybrid*, and in the openings are fine masses of *Euonymus radicans variegata* that really glitter when the sun shines.

S. H.

FURNISHING THE ORCHARD HOUSE.

It has long been in my mind that in the furnishing of peach and orchard houses too small a number of varieties is, as a rule, employed. I am not prepared to dispute the merits of the Royal George peach or the Elruge nectarine. On the contrary, I am prepared to admit that they are of the highest merit; but like other varieties they do not afford supplies extending over more than three or four weeks, and consequently the season is a very short one when these two varieties are almost exclusively employed, unless there are successional houses from which to draw supplies. My experience in the cultivation of peaches and nectarines has convinced me that by a proper selection of varieties it is possible to obtain from one house a supply extending over as long a period as from any two houses planted in accordance with the orthodox practice. There is also the advantage of the fruit attaining maturity in sufficient quantities for the table without there being a great glut at any one time, as is the case when several trees of any one variety occupy a place in the same house. For most tables a dozen good fruits a day will suffice; and as they will not keep for even a few days in good condition, a considerable proportion of the crop has to be given away or sold, so that the owner of the garden does not derive the fullest possible advantage from it, or the gardener obtain so much credit as he otherwise would do. I have recognized this for some years, and have shaped my practice accordingly. The other day I was consulted by an amateur who has recently built himself a span-roof orchard house forty feet in length and fifteen feet in width, and it has occurred to me that the advice I gave my friend might be useful to some of the readers of the GARDENERS' MAGAZINE. The house is heated so that the trees can be assisted with a little artificial warmth during periods of cold weather in the spring, but it is not intended to force them. The house is, in my opinion, large enough to afford accommodation for ten trees, five on each side. As my friend, in common with most people, has a preference for peaches I recommended him to plant seven peach and three nectarine trees, which in the majority of cases will be found a good proportion. The peaches I advised my friend to plant were Alexander, Hale's Early, Early Grosse Mignonne, Royal George, Noblesse, Barrington, and Princess of Wales, which ripen in the order in which they are here placed, and are of a high degree of excellence. The nectarines I advised were Lord Napier, Elruge, and Victoria, which also attain maturity in the order in which they are arranged. With these varieties a supply of fruit may be had for nearly if not quite two months, and not a word can be said against one of them, either as regards their cropping, appearance, or quality.

G. S.

THE GRAPE VINES AT CHISWICK.

Amongst the many things that are well managed at Chiswick special mention must be made of the grape vines. In the lean-to houses the vines have made a very vigorous growth, and it would be well if greater length of rafter could now be provided for them. In the great vinery there is room enough, but every inch of that space is well covered, and the appearance of the house at the present time is magnificent. There is a great crop of grapes, and they are full ripe, and the leaves are colouring, and the cutting of the crop will depend on the movement of prices in the market. Those who can find time to see them will ensure a good day's work. I have made a list of all the vines in the house, and they are as follow:—4 Alicante, 1 Aramon, 7 Black Hamburgh, 1 Black Monukka, 1 Black Prince, 3 Black Tokay, 1 Buckland Sweetwater, 1 Chasselas de Fontainebleau, 1 Gros Guillaume, 1 Golden Hamburgh, 1 Gros Coleman, 20 Frankenthal, 1 Mill Hill Hamburgh, 1 Muscat Hamburgh, 1 Madresfield Court, 4 Muscat of Alexandria, 1 Muscat Noir de Jura, 1 Mrs. Pince's Muscat, 2 Dutch Hamburgh, 2 Raisin de Calabre, 1 Oldaker's West's Peter's, 2 Lady Downes, 2 Royal Muscadine. All the white grapes in this house appear to me to be intrusive, for they weaken the picture, and here, as elsewhere, the temperature that suits Black Hamburgh and Frankenthal does not suit the muscats.

S. H.

THE TYSON PEAR.

Amongst the many excellent varieties of pears in the Royal Horticultural Society's Garden at Chiswick, the one known as *Tyson* was conspicuous in the past season for its heavy crop and handsome appearance. A small goblet-shaped tree near to the rockery, on the way forward towards the fruit room, was noticed by many visitors as bearing a crop remarkably heavy for the size of the tree, and the large size and peculiar colour of the fruits also attracted attention. This pear originated in the United States, and was introduced to Europe about 1858. It was described by Mr. Hovey in his "Fruits of America" (1847). It is figured in Leroy's "Dictionnaire de Pomologie" (tome ii., p. 741) correctly as to form, but the fruits grown in the past season at Chiswick were quite double the size of Leroy's figure. The *Tyson Pear* may be described as in size medium to large, in form turbinate, bossed at the summit, the stalk long and slender, inserted at the apex without any or with a very slight depression, and in a line with the axis. The eye is of medium size, half closed; the skin is of an ochreous yellow or orange-buff colour spotted with green, with a wash of vermilion on the side exposed to the sun. The flesh is white, fine in texture, juicy, very sweet and agreeable. Its season is August and September.

S. H.

WHERE ARE THE PAMPAS GRASSES?

We have five or six large masses at Loxford Hall. Some of them are twenty years old, and they are now flowering freely. One large specimen suffered severely in the winter of 1880-1. We thought it was dead, but by treating it on the let-alone system it has grown out freely all round the outside of the clump; but the centre died out, and the plant looked rather seedy last year, producing only six spikes. This year it has twenty-four; the decayed matter was dug out from the centre of the plant and some good rich loam put into its place. The plant is now spreading into this fresh compost and growing famously. The other plants are not so old, and did not suffer so much as this venerable specimen.

J. DOUGLAS.

THE CORAL TREE.

I was pleased to see mention of this made at page 541. It is not grown so much as it ought to be; why I do not know, as few things are more hardy. We have grown a plant in our orchard house for the last fifteen years. It may have been potted thrice in that time, and yet it never fails to send up about half-a-dozen strong growths, clothed with brilliant red flowers. Visitors to the nurseries of Messrs. Veitch and Sons, King's Road, Chelsea, may have observed a plant growing against a wall outside one of their greenhouses. I have noticed it in the same place for twenty years, and I do not know if any one can say how many years it has been there. It has an immense old stump, but has not a fair chance to grow, or it would flower better than it does.

J. DOUGLAS.

THE LORD MAYOR AND THE FRUITERERS.

"POMONA loves the orchard : and Liber loves the vine," might very properly have been the answer of Sir John Whittaker Ellis, our reigning and excellent Lord Mayor, when, within the walls of the hospitable Mansion House the other evening, he welcomed Dr. Potherby, the master of the Fruiterers' Company, bearing, according to custom, a most seasonable gift. There are still some customs existent amongst us so full of kindness and courtesy that not even the wildest reformers of a utilitarian and reforming age would willingly consign them to the oblivion of neglect and the dust of time. True to an ancient tradition, there appeared recently at the gates of the Lord Mayor's civic residence a goodly assemblage from the Fruiterers' Company—master, warden, and court of assistants—all bearing with them a token of their allegiance, and sufficient evidence of the glorious bounty of nature. It must have made many months water when the baskets were uncovered containing the gift designed for the acceptance of London's first magistrate. Grapes there were, large and luscious, not with hard dry skins as from the grocer's shop, but covered with bloom and bursting with ripeness, grapes with the same sweet-scented flavour of muscatel that we find in Moselle wine and the best products of [the Chateau Yquem. Pine-apples glowed by the side of the grapes more rich in flavour than any which Jamaica can export; apples by the score, golden and russet, smooth and rough, newly gathered from the autumn orchards of Old England; pears of monster growth, and just at the moment of ripeness that a pear should be, the short-lived pear that has only one hour of perfection and no more; and though so late in the season these, thanks to hothouses, were accompanied by a largesse of melons, peaches, plums, apricots, and raspberries. Such, if not the first [fruits of the season, were, at any rate, representative specimens of England's unrivalled fruit cultivation, and the gift stands good as an abiding memorial of old times, when the Lord Mayor claimed as his right of feudality by way of toll a sample of all the new fruit that entered the City of London. The antiquarians tell us—and of course they must be right—that the gift of fruits as it stands now is only a pleasant compromise in the matter of a still older order. Formerly the fruit consisted of apples alone—twelve bushels of them of various kinds—and they were borne to the Mansion House by the porters of Farringdon Market preceded by the beadle, in laced coat, knobbed staff, and cocked hat. As is usual with so many customary gifts of the kind, the receiver obtained far more than the recipient, for the Lady Mayoress of the time being was in the habit of slipping a bottle of wine into the fair white linen basket which had served as the bed of the apples. The consequence was that a free fight between the Lord Mayor's servants and the porters was of no unusual occurrence, and the scandal became so great that the present offering by the City company was substituted for the rough and informal ceremony. The Lord Mayor Ellis, who is remarkable for his sound common sense, expressed a hope that this at least might be preserved amongst some of the good old customs of the past, which in truth it would be difficult to find any intelligible reason for altering, save that itch of change which vexes many idle heads. In point of fact, the Fruiterers' Company thus collects, apart from the courtesy of the act, some very valuable representative specimens of what England can do in the way of fruit culture. One of the most mistaken notions connected with fruit and flowers is that we in these isles are far behind our neighbours in cultivation and produce. Never was a greater fallacy permitted to exist. We will venture to assert, without fear of contradiction, that no other market in the world can produce such fruit and flowers as London, or can distribute them at so cheap a rate to the general public. By this we do not specially point to Covent Garden, which is exceptional in its wealth, or to the best recognized shops, but are content to make our stand on the much-despised but thoroughly well supplied barrows and baskets of the industrious costermonger and his tribe. A glance round the streets will be sufficient to prove the case. Look at the grapes festooned fantastically at this time of the year by the itinerant vendor; the apples and pears that are sold at ridiculously low prices to the poor; the walnuts as they lie in tempting rows, ready cracked for eating. Whatever happens to be in the market, all classes seem to get the pick of the basket. And then the flowers! There is no excuse for any household being without flowers in London from that first bright hopeful day in March, when the primroses come in and the streets are scented with violets, down to the drearier hours of chill October, when the basket-women, conscious of the so-called eccentricity, which is in reality a strong and growing love for colour and design, sell in abundance the much-ridiculed sunflower, and contribute plenty of gold and orange tints for the ladies' dresses. When, we may ask, in any Continental market or in the streets of what capital are seen such flowers and fruit as London can give her customers any day in the week the whole year round? The theory is that we go abroad, as it is called, to revel in fruit, but what after all is the fact? The majority of the fruit is unripe, and the rest is diminutive and insignificant. At Constantinople they sell peaches and serve them at the dinner-table as hard as unboiled potatoes. They are sliced with a knife as if they were apples, and there appears to be no taste in the East for what we call ripe fruit. The grapes are sweet to be sure, but very small, and not to be compared with such fruit as Londoners not only expect, but get. As to the pears, they are as hard and obstinate as the turnip-like peaches so beloved by the Eastern palate. The water-melon is, no doubt, an institution wherever turbans abound and women have their faces covered; but chiefly, it may be supposed, on account of its refreshing qualities and there being a great deal of it to devour. This feeble-fleshed, pinky-white, many-pipped gourd allays intolerable thirst in hot weather, but cannot be compared to its golden brother as seen in the Parisian restaurants and not infrequently on London barrows. As for figs, you may visit Smyrna and afterwards get better specimens of this delicious fruit in Fleet Street, and with the exception of actual exotics—many consignments of which arrive safely in London—there is no fruit at railway stations, markets, and restaurants between London and Naples which does not make a better show between the Bank and Charing Cross.

Then in flowers, London is incomparably better served than the much-vaunted capitals of summer climes. Elsewhere they have prettier customs, but here we have more beautiful blooms. We have no coquettish flower-girls who, as in Naples or in Milan, wander among the lounging pedestrians, bonnetless, hatless, and neatly attired, to adorn the buttonhole of the unsuspecting stranger. But if we had they would have something better to give than the wretched, formless, colourless posies which are the poetical conceit for indiscriminate begging. Our irrepressible and much-maligned 'Arry, who rejoices in a penny flower when he visits the music hall or walks out on Sundays, would be ashamed to be seen wearing the cheap bouquets which pass muster in the theatres and refreshment gardens of Austria and Italy. As to flowers

more beautiful in form and intense in odour, their votaries may thank their stars that they do not live even in Paris, which is supposed to be the home of luxury, for they would have to pay dearer for their button-holes, and not get flowers half so good for the money. It is the custom, as may have been observed amongst conspicuously over-dressed young men, to adorn their coat-facings with flowers which increase in size each season. Giant gardenias and swelling stephanotis, carnations double and treble sized, and camellias as large as cheese-plates, are now the badge of ostentatious fops. These adornments cost money; but in other capitals they would be simply unattainable, because, however great the demand, there would be no supply. How it is done amateur gardeners have never been able to know, but still it is a fact that a prettily-arranged gardenia, a tuberose, or a carnation can be obtained for sixpence in London, and at dozens of shops. In Paris more than that would be asked for a slender bunch of violets, with an undergrown rose and a bit of mignonette stuck into the middle of it. Where, again, can a pretty and cheap basket of flowers or a bouquet be more readily obtained for birthday present or kindly thank-offering than in this despised London of ours, where the summer is so short and the sun is never supposed to shine? Let our citizens, at any rate, be thankful for small mercies, amongst which are the flowers which delight, refresh, and humanize the masses, brighten every home, and solace the sick and weary; and in no slight measure, too, the healthful and delicious fruit which was so typically represented on the Lord Mayor's sideboard, thanks to the Fruiterers' Company.—*Daily Telegraph*.

Correspondence.

THE PROPOSED PINK SHOW.

It is quite true "that there is likely to be a Pink Show," or at any rate a show of pinks held in London next year. But it is not true that I am taking "an active part in the matter." The inception of it is due to the restless Editor of the GARDENERS' MAGAZINE. It is very likely that when he mooted the matter to me I threw cold water over the scheme—at least, I should have been somewhat glad to have thrown cold water over the Editor, who seems to delight in work himself, and fancies everybody is as fond of it as he is. It may be as well to state that the idea, or fancy, struck Mr. Hibberd that it would be a grand thing to have an exhibition of pinks in conjunction with the show of the Pelargonium Society, which is usually held about the time that pinks are in their glory. The first step, of course, was to send round the hat for subscriptions; the modest sum of five shillings each was all Mr. Hibberd asked for, but I fancy he did not get all he wanted right off, and if any pink fanciers would like to take part in the promotion of a pink exhibition, Mr. Hibberd would be glad if they would send in their names to him; his address is 15, Brownwood Park, London, N.

I quite agree with Mr. Thurstan that the medium full flowers are the best, and one of the principal points is that they should have well-formed petals. The nearer they could be had to that of Mr. Simmonds's fine picotee "Mary" the better; and why should not the pinks be as large and well formed as the picotees? Large full flowers formed of a mass of small petals are best designated as "mops," and should be rejected whether they are pinks, carnations, or picotees. If Mr. Thurstan will become an exhibitor, I have no doubt but that he will have full justice done to himself and his flowers. If the show could be held about the end of June we might get exhibitors from Scotland as well as from the Midland counties, and we might have an exhibition of pinks such as creation has never seen yet. It will give growers a chance to exhibit their seedlings, and it will show the world what a very choice flower the pink is—full of sweetness and beauty. Whatever help I can render will be done cheerfully to promote the success of the show. J. DOUGLAS.

[I thought it best to insert Mr. Thurstan's letter as it came to hand, without note or comment. The simple state of the case before us is this. I have proposed to a few friends the holding of a Pink show in connexion with the Pelargonium show next year, and without a single exception they agreed that it is most desirable that the pink should be once more brought before the public in London in proper exhibition style. Having seen the way clear thus far, I have requested the Council of the Royal Horticultural Society to permit the exhibition to be held as proposed. When the requisite consent has been given will be the time to "send round the hat," for we shall have before us a matter of business instead of a mere proposal. As a matter of fact, I have received one subscription of 5s. from Mr. Cullingford, of Kensington, but as I have not asked any one for money as yet, I am not at all troubled on that subject. Moreover, I shall not be troubled, for when the hat does go round the crowns will drop into it, and we shall easily secure the modest total that will be required.—SHIRLEY HIBBERD, 15, Brownwood Park, London, N.]

Obituary.

It is our painful duty to record the death by drowning of Mr. SIM, of the Nurseries, Fooks Cray, Kent, an establishment well known as having taken a leading part in the scientific culture of ferns, by which the horticulture of recent years has been distinguished. The father of the gentleman whose death we now record was the founder of the Foot's Cray Nurseries, but the admirable catalogues by which the business was represented were the work of our late friend the son, with whom for many years we have corresponded, and of whose gentleness and generosity we can testify from agreeable experience. He was in his 55th year.

TRADE CATALOGUES.

G. J. ALBERTS AND CO., BOSKOOP, HOLLAND.—*Trade Catalogue of Nursery Stock*.

JOSEPH SCHWARTZ, LYON, FRANCE.—*Grande Culture Speciale de Rosiers; a General Catalogue of Roses*.

GEORGE RUDD, UNDERCLIFFE, NEAR BRADFORD.—*Catalogue of Auriculas, Carnations, and Picotees*.

WILLIAM FARREN, HOW HOUSE, CAMBRIDGE.—*List of the Best Roses in Cultivation, &c.*

AUTUMN DANGERS.—Pestilential fogs and vapours always follow excessive summer rainfall, and infectious diseases are at no time more prevalent than in the autumn. Every household should be on his guard, and provide in every bed-room, bath-room, and nursery WRIGHT'S COAL TAR SOAP. It is a simple but efficacious preventive of infectious disease. Purchase only Wright's "Sapo Carbonis Detergens," as prescribed by the medical profession, and see these words on every wrapper and tablet.—[ADVT.]

Replies to Queries.

Weight of Apples.—H. H., Brislington.—The weight of half a sieve of apples ranges from 20 lbs. to 26 lbs., according to the variety, and 23 lbs. may be regarded as a fair average.

Names of Fruits.—Subscriber.—The grapes are, No. 1, Lady Downes; 2 and 5, Black Hamburg; 3, Calabrian Raisin; 4, Frankenthal; 6, Buckland Sweetwater. Old Subscriber.—The pear is Beurré d'Amanlis.

Azaleas.—M. R.—Azaleas are not particular as to the position they occupy when taken indoors, but it is a good rule to place them in a light position near the glass, and to ventilate the house freely on all favourable occasions. They must be watered with great care during the next three or four months.

Fruit Tree Borders.—Young Gardener.—The inside borders of the peach house must be maintained in a moderately moist condition throughout the winter. If the borders of the house referred to in your communication have become dry we would advise you to give them a good soaking at once. It is not of course necessary to keep the soil in so moist a state when the trees are at rest as during the growing season, but if the trees suffer severely from drought at any time between now and March next you will lose a considerable proportion of the buds as soon as new growth commences. In many cases the losses are so great that not more than half a crop is obtained.

Lobelias.—M.—Lobelias lifted from the beds require the greatest care during the winter because of their liability to damp off. It is very much better to raise a sufficient number of plants in the autumn to furnish supplies of cuttings in spring, as young stock can be wintered safely with the smallest possible amount of trouble. If you determine on lifting any of the old plants, select the smallest examples of those furnished with young growth, and as far as possible from the outside of the bed. Put them singly in three-inch pots, with soil containing a large proportion of sand, and throughout the winter keep them as dry as possible.

Late Grapes.—R.W.—A cool dry atmosphere is the most favourable to keeping the grapes in the best possible condition. Therefore you must ventilate the house freely, but not excessively during dry weather, and when the weather is dull and damp for any considerable period a little fire heat will be necessary for preventing injury to the grapes from an excess of atmospheric humidity. It is essential that the fire heat be employed with great care, for if sufficient to materially increase the temperature the berries will shrivel and the crop be deteriorated. The bunches should be examined at frequent intervals, and berries showing signs of decay be carefully clipped out.

Planting Vinery.—B. S.—The two most useful grapes for supplying the table during the summer season are the Black Hamburg and Buckland Sweetwater, and in a general way one cane of the last-mentioned to four of the Black Hamburg will be a suitable proportion. For late autumn and winter use the two most desirable varieties are Alicante and Lady Downes. Alnwick Seedling, Gros Colmar, and Gros Maroc are also good late kinds, but they require more skilful management than the two first mentioned. We would not advise you to grow any white grapes for winter use unless you are able to set apart a small structure for the Muscat of Alexandria. The Trebbiano and other coarse kinds which obtained so much attention at the recent Edinburgh International are of but little use on the table. The border should be made at once and the vines planted with as little delay as possible.

Camellias.—S. M.—Although camellias are hardy enough to withstand the effects of a severe frost, those grown in pots for conservatory decoration should be taken indoors at the end of September or early in October. Many first-class growers make a point of housing their camellias about Michaelmas Day (September 29), and there is a general concurrence of opinion that they cannot be left out long after that date without considerable risk. Previous to taking them indoors well wash the pots and remove any moss that may have made its appearance upon the surface of the soil. They should be kept as cool as possible during the first two or three weeks of their being indoors, as a sudden change of any kind is most injurious in its effects upon the buds. The watering must also have careful attention, and those plants which have been allowed to become dust dry or have the lower part of their balls dry should be placed in a vessel of water for twenty or thirty minutes to ensure the whole of the soil about the roots being thoroughly moistened.

Heating Small Greenhouse.—J. M. R.—As we have repeatedly stated in these pages, there is no more efficient or economical system of heating plant-houses of moderate dimensions than by hot water. It is, of course, necessary that the boilers and pipes should be proportionate. A greenhouse ranging from nine to twelve feet wide should have two rows of four-inch pipes all round it, and the boiler should be powerful enough to heat the water in the pipes without driving the fire hard, for when that is done there is waste of fuel. The heating capacities of boilers are, for practical purposes, over-stated, and it is a good rule to select boilers which are reputed equal to about one-third more work than is required of them. That is to say, if the house contains one hundred feet of four-inch piping, a boiler reputed equal to one hundred and fifty feet will be the most suitable. For small houses the Loughborough and the slow combustion cylinder boilers are the most suitable, as they are inexpensive in the first instance, and require but little setting, a point of some importance.

Bedding Pelargoniums.—W. S.—As the stock raised from cuttings during August and September is likely to be insufficient, enough plants to make good the deficiency may be lifted from the beds, provided it is done before they are injured by frost. The most dwarf plants of the respective kinds should be selected and put into pots as small as can be conveniently used; generally three-inch pots will be the most suitable, but for some of the more bushy examples five-inch pots will be required. If the space available is limited the plants may be put rather close together in boxes of moderate size for the winter. A few of the larger leaves may be removed and the tender tops cut off, but the pruning back necessary to ensure bushy examples ought to be deferred until February. As soon as they begin to grow freely after they have been pruned rather hard back, turn them out of the pots, shake most of the soil from about the roots and repot, potting those in three-inch pots on to size larger and return those in five-inch pots into the same size. For the February repotting use a substantial compost of fibrous loam and well-rotted manure, but any light sandy soil will suffice for present use.

Snowdrops in Pots.—Amateur.—Snowdrops have a pleasing appearance when grown in pots, and as they may be had in bloom very early in the year with the aid of a cold frame, you might with advantage supplement your other bulbs with from one to two dozen pots of them. The double-flowering form is the best for pot culture, and the "extra large" bulbs of the catalogues should be purchased. The difference in the cost will not be great, and they will flower more satisfactorily. Use five-inch pots and a light rich soil, and pack the bulbs rather closely together, covering them to a depth of about one inch. Place them in a cold frame, and as it is desirable that they should be available for decorative purposes as early in the year as possible without the aid of fire-heat, cover the frame sufficiently in severe weather to keep out the frost. Return to the frame as they go out of bloom, and supply with water until the foliage dies down. In the autumn the old bulbs can be planted along the front of shrubbery and other borders.

Bulbs for Midwinter.—Amateur.—The earliest of the bulbs suitable for winter decorations are the Roman hyacinths, the Van Thol tulips, and the Paper-White narcissi, all of which are inexpensive, as will be seen by referring to the trade catalogues. The White Roman hyacinth is preferable to the Blue Roman, as it is more useful for bouquets and decorative purposes generally, and it has also the great advantage of flowering a fortnight or so earlier. When required for conservatory decoration it should be grown in five-inch pots, four bulbs in each; but when intended for the supply of cut flowers the bulbs may be planted rather thickly in pans or shallow boxes. The Van Thol tulips include scarlet, scarlet margined with yellow, pale rose, yellow, and pure white. All the colours are good, and may be selected according to requirements. The pure white is as yet comparatively costly, and it is a matter of some importance to cultivators to know that the flowers of the pale rose form are almost pure white when developed in the forcing pit. They are indeed white enough for all decorative purposes, and the white tulips seen in the markets at Christmas are the rose-coloured Van Thol. The tulips should be put rather closely together in boxes, in which they should remain until they are in bloom, when they can be put in pots or ornamental receptacles, as may be desired. The Paper-White and Roman Narcissi, which are single and double white respectively, are both most valuable, and can be grown in the same way as the hyacinths or as the tulips. The earliest of the hyacinths, other than the White and the Blue Roman, are, Emilius, pink; Homerus, red; Grande Vedette, pure white, and Emilius, blue. It will be necessary to specify in the order which of the two colours of Emilius you require.

Markets.

COVENT GARDEN.				CORN.—MARK LANE.			
FRUIT.				Wheat, Red			
Apples	per sieve	3s. 0d. to 4s. 6d.		Wheat, White	per qr.	35s. to 40s.	
Cob Nuts	per lb.	0s. 6d. to 0s. 9d.		Flour, London nom. top price,	per sack of 280lbs.	—s., 43s.	
Grapes	per lb.	1s. 6d. to 2s. 6d.		Flour, town-made whites		37s. to 39s.	
Lemons	per 100	5s. 0d. to 8s. 0d.		Flour, households		34s. to 35s.	
Pears		1s. 0d. to 2s. 6d.		Flour, country households, best	makes	35s. to 37s.	
Pine-apples, Eng. ..	per lb.	3s. 0d. to 4s. 0d.		Flour, Norfolk and other seconds		30s. to 35s.	
VEGETABLES.				Barley, Malt	per qr.	35s. to 47s.	
Artichokes, Globe, per dz.		3s. 0d. to 5s. 0d.		Barley, Grinding		24s. to 30s.	
Beans, French	per lb.	0s. 6d. to 0s. 9d.		Malt, English		32s. to 38s.	
Beet	per doz.	1s. 0d. to 1s. 6d.		Malt, Scotch		33s. to 43s.	
Cabbages		1s. 0d. to 1s. 6d.		Malt, English, old		28s. to 35s.	
Carrots	per bunch	0s. 4d. to 0s. 6d.		Malt, brown		28s. to 32s.	
Cauliflowers, Eng., per dz.		2s. 0d. to 4s. 0d.		Oats, English		22s. to 30s.	
Cucumbers	each	0s. 8d. to 1s. 0d.		Oats, Irish		22s. to 26s.	
Endive	per doz.	1s. 6d. to 2s. 6d.		Oats, Scotch		22s. to 30s.	
Garlic	per lb.	0s. 10d. to 1s. 0d.		Rye		40s. to 42s.	
Herbs	per bunch	0s. 2d. to 0s. 4d.		Tares		52s. to 62s.	
Horse-radish, per bundle		3s. 0d. to 4s. 0d.		Beans, English, Mazagan ..		36s. to 40s.	
Lettuces	per doz.	1s. 0d. to 2s. 0d.		Beans, Tick		39s. to 41s.	
Mushrooms	per basket	1s. 0d. to 3s. 0d.		Beans, Winter		37s. to 40s.	
Onions	per bushel	3s. 0d. to 5s. 0d.		Peas, Grey		30s. to 38s.	
Onion Spring	per bunch	0s. 4d. to 0s. 6d.		Peas, Marple		42s. to 46s.	
Parsley		0s. 4d. to 0s. 6d.		Peas, White		40s. to 44s.	
Radishes	per bunch	0s. 1d. to 0s. 3d.		METROPOLITAN MEAT MARKET.			
Small Salading	per pun.	0s. 3d. to 0s. 4d.		Beef, prime	per 8 lbs.	4s. 8d. to 5s. 2d.	
Spinach	per bushel	2s. 6d. to 3s. 6d.		Beef, choice		0s. 0d. to 5s. 4d.	
Tomatoes	per lb.	0s. 6d. to 1s. 0d.		Beef, middling ..		3s. 8d. to 4s. 0d.	
Turnips	per bunch	0s. 4d. to 0s. 6d.		Beef, inferior ..		3s. 0d. to 3s. 4d.	
FLOWERS.				American killed,			
Abutilons, per doz. blooms		0s. 2d. to 0s. 4d.		hind-quarters ..		3s. 8d. to 4s. 2d.	
Bouvardias	per bunch	0s. 9d. to 1s. 6d.		fore-quarters ..		0s. 0d. to 2s. 4d.	
Calceolarias, per doz. bun.		5s. 0d. to 8s. 0d.		Mutton, prime ..		6s. 0d. to 6s. 4d.	
Camellias	per doz.	3s. 0d. to 6s. 0d.		Mutton, middling ..		4s. 8d. to 5s. 0d.	
Chrysanthemums, per doz.				Mutton, inferior ..		3s. 4d. to 4s. 0d.	
bunches		4s. 0d. to 8s. 0d.		New Zealand killed ..		3s. 4d. to 4s. 0d.	
Eucharis	per doz.	3s. 6d. to 6s. 6d.		Lamb		5s. 0d. to 6s. 4d.	
Gardenias, per doz. blooms		2s. 6d. to 6s. 0d.		Veal, prime		5s. 0d. to 5s. 4d.	
Gladioli	per doz. bun.	7s. 6d. to 10s. 0d.		Veal, middling ..		4s. 0d. to 4s. 4d.	
Heliotropiums	sprays	0s. 6d. to 1s. 6d.		Veal, inferior		3s. 4d. to 3s. 8d.	
Lapagerias, per doz. blms.		1s. 6d. to 5s. 0d.		Pork, prime		5s. 0d. to 5s. 4d.	
Liliums	per doz. blooms	2s. 6d. to 5s. 0d.		Pork, middling ..		4s. 4d. to 4s. 8d.	
Marguerites, per doz. bun.		3s. 0d. to 5s. 0d.		Pork, inferior		3s. 4d. to 4s. 0d.	
Mignonette ..		2s. 0d. to 4s. 6d.		GAME AND POULTRY.			
Pelargoniums, Zonal, per				Pigeons	each	0s. 8d. to 0s. 9d.	
doz. trusses		0s. 4d. to 0s. 8d.		Pheasants		2s. 0d. to 3s. 3d.	
Primulas, double, per bun.		1s. 0d. to 2s. 0d.		Partridges		1s. 6d. to 2s. 2d.	
Roses	per doz.	1s. 6d. to 4s. 6d.		Grouse		3s. 0d. to 3s. 6d.	
Roses, Tea		1s. 6d. to 3s. 6d.		Black Game		2s. 9d. to 3s. 4d.	
Stephanotis, per dz. sprays		3s. 0d. to 6s. 0d.		Fowls (Irish)		1s. 6d. to 2s. 0d.	
Sunflowers, per doz. blms.		1s. 0d. to 2s. 6d.		Fowls (Essex)		1s. 0d. to 2s. 3d.	
Tropaeolum, per dz. sprays		1s. 0d. to 2s. 6d.		Fowls (Sussex)		2s. 6d. to 3s. 0d.	
Violets	per doz. bun.	1s. 0d. to 1s. 6d.		Fowls (Surrey)		5s. 0d. to 6s. 6d.	
				Fowls (Hive)		1s. 9d. to 2s. 6d.	
				Hares		3s. 0d. to 4s. 0d.	
POTATO MARKETS.				COAL MARKET.			
BOROUGH AND SPITALFIELDS.				Bebside West Hartley	per ton	15s. 6d.	
Kent Regents		00s. 0d. to 100s. 0d.		East Wylam		17s. 0d.	
" Champions		0s. 0d. to 80s. 0d.		Wallend Hutton		20s. 0d.	
" Victorias		00s. 0d. to 100s. 0d.		" Hutton Lyons		17s. 6d.	
Magnum Bonums		90s. 0d. to 100s. 0d.		" Lambton		19s. 6d.	
Essex ditto		80s. 0d. to 90s. 0d.		" Wear		17s. 6d.	
" Victorias		80s. 0d. to 90s. 0d.		" South Hartlepool		18s. 0d.	
" Champions		70s. 0d. to 80s. 0d.		" Thornley		19s. 0d.	
" Regents		80s. 0d. to 90s. 0d.		" Tees		20s. 0d.	
HAY MARKET.				MONEY MARKET.			
WHITECHAPEL.				Consols	100l to 101		
Prime Clover	per load	100s. to 133s.		Reduced 3 per cent.		99l to 99½	
Inferior do		60s. to 95s.					
Prime Meadow Hay ..		100s. to 110s.					
Inferior do		50s. to 90s.					
Straw		30s. to 44s.					

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sunths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.				
			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DFG.		
1882														1882
22	S	20th Sunday after Trinity.	6 36	15 27	4 52	2 41	0 56	9 15	9 58	6 54	6 40	43.8	Begonia ascotiensis, G.	Red. 295
23	M	Earl of Derby died, 1809.	6 38	15 35	4 50	3 6	2 18	10 35	11 10	7 23	8 0	43.4	Begonia semperflorens, G.	White. 296
24	Tu	Chaucer died, 1400.	6 40	15 43	4 47	3 34	3 41	11 40	—	8 35	9 5	43.0	Bouvardia Dazzler, G.	Scarlet. 297
25	W	St. Crispin.	6 42	15 50	4 45	4 1	5 3	0 8	0 35	9 33	10 0	47.3	Encholirion corallinum, S.	Scarlet. 298
26	Th	Full Moon, 2h. 34m. afternoon.	6 44	15 56	4 43	4 34	6 25	0 55	1 20	10 20	10 45	47.3	Habrothamnus fascicularis, G.	Crimson. 299
27	F	Captain Cook born, 1728.	6 46	16 2	4 41	5 12	7 47	1 40	2 5	11 5	11 30	47.0	Hedychium Gardnerianum, S.	Orange. 300
28	S	St. Simon and St. Jude.	6 48	16 7	4 39	5 59	9 1	2 27	2 50	11 52	—	46.6	Libonia floribunda, S.	Red and Yellow. 301

The Gardeners' Magazine.

SATURDAY, OCTOBER 21, 1882.

THE GARDEN ORACLE AND FLORICULTURAL YEAR BOOK for the year 1883 is in preparation and will be published shortly. It will contain descriptive lists of the New Plants, New Flowers, and New Fruits of the past year, with references to authentic figures and other sources of information respecting them.

A Catalogue of Garden Peas will constitute a distinct and important feature, such a catalogue having long been needed.

The Selections of Plants, Flowers, Fruits, Seeds, &c., for the year 1883 will include only the most useful varieties obtainable at current rates, the merits of which have been established by many trials and comparisons.

A List of the principal Horticultural Exhibitions to be held in the year 1883 will be serviceable to all who are interested in such matters, as events of more than ordinary importance are in preparation for next year.

All the information on business matters that may be properly looked for in an Almanac will be found in the "Garden Oracle" for 1883, which will be published, price 1s., at the "Gardeners' Magazine" Office, 4, Ave Maria Lane, London, E.C.

Auction Sales for the Ensuing Week.

MONDAY, OCTOBER 23, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

TUESDAY, OCTOBER 24, AT 12.30 P.M.—Mr. J. C. Stevens, at 33, King Street, Covent Garden, W.C.; Imported Bulbs.

WEDNESDAY, OCTOBER 25, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

WEDNESDAY, OCTOBER 25, AT 12 NOON.—Messrs. Protheroe and Morris, at the Vale Nursery, King's Road, Chelsea; Nursery Stock.

SATURDAY, OCTOBER 28, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

THE ACCIDENTS OF THE VINERY furnish a larger number of problems for editorial consideration than any other group of subjects within the range of our labours. Our contemporaries of the horticultural press appear to have experiences similar to our own; and, so far as we have observed, they deal with cases as they arise on their separate and several merits. It is reasonable to conclude, therefore, that the cultivation of the grape vine occasions anxiety and perplexity to a very considerable proportion of the vast total who are directly and practically interested in it. Were we to ignore facts that are patent, and arrive at an estimate of the state of grape culture in these islands on the consideration solely of the inquiries that reach us, we should be bound to conclude that we have failed entirely, and that there are no grapes fit for a decent table or a cultivated palate grown anywhere within the British islands. The inductive process is useful when all the facts are at command; but when the facts are few and represent only one phase of the subject we must not attempt to establish general conclusions upon them. We are often told of our shortcomings in respect of fruit culture, and no doubt we have much to learn, but we may fearlessly challenge the world or any part of it to surpass us in the production of table grapes. The vineyard grapes we cannot grow, because the climate is unsuitable. In days when men made merry with the aid of wines from British grapes the much better wines made from foreign grapes were not so readily obtainable as now. The British vineyards have ceased to exist for the sufficient reason that they were no longer wanted; but there are speculative folk now to be met with who predict that as the phylloxera obliterates the Continental vineyards we shall again take to outdoor grape culture and the manufacture of British hock, chablis, sherry, and claret. For such a bad time coming we can afford to wait; and in the meantime we may take note that the reason for the decline of the home-made wine is the reason also for the frequent failures in grape culture under glass. Only in exceptionally warm seasons does the British vineyard produce grapes worth gathering; in an ordinary season, or a particularly cool season, the grapes are small and sour, and of the bulk it may be said they come to nothing. The people who have accidents in the management of vineries are for the most part chargeable with forgetfulness of the fact that the grape vine is not a native of Britain and requires a warmer climate than ours, and consequently when grown under glass deficiency of solar heat must be judiciously compensated by consumption of fuel. The past season has been characterized by an abnormally low temperature during the greater part of the growing time of all our more important crops. Considering the coldness of June and August, it is

like a miracle that there is a sound potato in the land; and it is not at all surprising that many crops of grapes have behaved badly, because when they wanted warmth the sun refused it and the cultivator refused it, and the grapes went to the bad. In a bright sunny season the samples of spoilt grapes sent to us are comparatively few in number; but in a cold season we see many and hear of many more, and we are compelled to assume that in very many instances promising crops are sacrificed to a false economy in respect of fuel.

One case that we inquired into may be cited as an example of many. It is the rule of the garden to cease firing at a certain date, and allow the Hamburgs and other grapes of that class to ripen off by sun heat. It is a good rule if there happens to be a sun in the heavens, but when there is none, or but half of one, the rule must be relaxed, and the half sun must be made a whole one by the aid of coals. But the gardener, in this particular case, evaded the difficulty by keeping the house close, and thus accumulated heat in a way fairly satisfactory to the thermometer, which showed a nearly normal figure; but this in the end proved the ruin of the grapes, for they wanted not only warmth and light, but air also, and so they went to the bad, like people who on a cold night suffocate themselves with a charcoal fire. The husbanding of sun heat is a delicate business. It pays well when wisely managed, but if ventilation is neglected and the atmosphere managed with a view to the thermometer only, as it has been in many grape houses in the past season, damage must ensue, and ruin may be expected. There comes a time in the history of the grape crop when, if the needful sun-heat declines, the fires must be started and kept going, or the work of the whole season will be lost. We have had a series of cool summers, and grape growing has been disadvantageously influenced; for artificial heat, however wisely applied, will not accomplish all that is wanted while the sky is like lead and the atmosphere laden with chilly moisture. We are inclined to think that about one-third of the whole number of difficulties in grape culture that we have to advise upon may be traced to false economy in respect of firing, and, coincidentally, bad management in respect of ventilation.

The grape vine needs not only warmth and light and air, but water at the root, and a warm well-drained border. Many cases of shanking, as well as cracking, where the borders are within the house, may be traced to insufficiency of moisture at the roots at a time when the crop is swelling and needs abundant feeding. The great advantage of inside borders is the complete control they afford over the roots of the vines; and the great disadvantage is that we cannot always ensure the skill and judgment requisite to meet the responsibilities control brings with it. Men who have had but limited experience with vines, and come suddenly to the management of houses where the roots are under cover, are likely to go wrong for a season through failing to apprehend how immensely thirsty is the grape vine when full of activity and forming a crop. Where they put on gallons of water they might with propriety put hogs-heads, and where they soak the borders once in a month they might do it once or even twice in a week and be free from care. As for outdoor borders, they are often too rich, too deep, and too damp, and encourage root action too late in the season to be useful. Here, as elsewhere, the happy medium is consistent with safety; all extremes are to be feared, and to gorge the vine with food it cannot assimilate is to ensure the ruin of the crop, and perhaps of the plant also. Considering the many matters that have to be kept in mind in the management of grape vines, the general state of the cultivation in this country, whether tested by the exhibition, the market, or the dinner table, is something to be proud of, and may be kept in mind agreeably when we are bored by the people who believe that everything is better done in Jericho, and who ought to be sent there to relieve them of the sad spectacle of British imperfections.

THE DESTRUCTION BY FIRE OF INGESTRE HALL on the 12th inst. must be regarded as a public calamity, on account of its representative character as a grand specimen of Elizabethan architecture and its rich collections of works of art. It was the principal seat of the Earl of Shrewsbury and Talbot, who was at Alton Towers at the time the fire occurred. It seems to be pretty clearly ascertained that the immediate cause of the fire was the overheating of a beam beneath the hearthstone in the great state room. Many fires have resulted from the accumulated heat of walls and hearthstones where fires have been kept up for an unreasonable length of time, and this appears to belong to the catalogue.

NATIONAL ROSE SOCIETY will hold two exhibitions in 1883, one at South Kensington, July 3, and one at Sheffield, July 12.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Twenty pensioners will be added to the fund at the next annual meeting. The total of the collection for the Augmentation Fund amounts to £304l. 12s. 6d.

A GRAND LONDON FOG occurred on the night of Wednesday last, which to many suggested the probability of a frost to follow. The gardens have kept their good looks unusually well until the present time, but cold and damp are now telling upon them disadvantageously. In many places, however, dahlias are scarcely less gay than they were in August.

Kew Gardens.—A few days since a deputation waited upon Mr. Shaw-Lefevre with reference to the restricted facilities for entrance to Kew Gardens. The deputation complained that not only were the public excluded from the gardens every day until after one o'clock, but the temperate house gate, close to the very handsome picture gallery recently presented by Miss North, was being bricked up, and another entrance being made 350 yards further down the road towards Richmond. It was pointed out that a large number of houses, ranging in value from £100 to £300 per annum, had been erected near the temperate house gate, and a new road made leading from the railway station to it, in the hope that it would be opened to the public; but the new gate would be at a spot where there was no population, and would give access to the least interesting part of the gardens. Mr. Shaw-Lefevre informed the deputation that the work was being carried out on the recommendation of Sir Joseph Hooker, the director, who had represented to the Department that it was for the public advantage. It was not desirable to multiply entrances to the gardens. It was intended not only to brick up the temperate house gate, which had never been open to the public, but also to close the entrance now available for the public near Richmond, opening instead the new gate, which would be very ornamental, between the two. He would consider whether railings could be substituted for bricking up the temperate house gate, so as not to shut out the view from the road.

FURNISHING THE ORCHARD HOUSE.

By JAMES DOUGLAS.

AFTER reading the remarks by "G. S.," at page 556, I was prompted to add a little of my own seventeen years' experience with the orchard house. During that period I have grown all the best varieties in cultivation, and most of the worst. Many gardeners of great experience do not favour the cultivation of peach and nectarine trees in pots. The fact is, if you are to be successful in the cultivation of orchard-house trees you must be intensely earnest, and take a personal interest in each individual specimen. The trees require a very great deal of attention during the summer months, and if they are neglected at that time the fruit will only be second or third rate in quality. I can truly say that our orchard house, which is but 54 ft. by 24 ft., is one of the most interesting structures we have. At present all the trees have been turned out of doors, and plunged in cocoa-nut refuse, but before doing this we take care that the young wood is well ripened and smothered with flower buds. But this is not enough; the roots must be right as well as the tops, and to this end all the trees that we think ought to be repotted are seen to as soon as the fruit is gathered from them, and those that are not repotted are surface dressed or top dressed, because at this time we do more than merely apply a dressing to the surface. A considerable portion of the old worn-out soil is removed, and replaced with good clayey loam and rotten stable manure in about equal proportions. It is rammed in quite firmly; so it is in the potting. The compost, which does not contain more than a fourth part of rotten dung, is pressed in quite firm with a wooden rammer. Fruit trees will submit to a good deal of root mutilation at potting time. I have repeatedly turned them out of the pots and chopped the compact ball of roots all round the sides and base, removing an inch from the sides and three inches from the bottom, and this when they are in full leaf. To prevent flagging, the trees are syringed two or three times a day, and the house is kept rather close until fresh roots push into the new potting material, and this they will do in the course of a week or ten days. Some persons make a mistake in not looking after the trees when the fruit is gathered; this is a serious error. The wood is not ripened, nor are the blossom buds matured at that time. When the fruit begins to ripen syringing has to be discontinued, and during the ripening period red spider takes advantage of the warmer, drier atmosphere, causing the inexperienced to exclaim, "I wonder where they all come from?"

They certainly do increase amazingly, and would speedily cause the leaves to fall before their time. The syringe or garden engine must at once be brought into play, and a warm atmosphere must be kept up until the first week in October. We never allow a single root to run outside the pots. Nor do they ever receive any manure water. Each tree receives a few handfuls of rich surface dressings between the middle of June and the end of July. Malt or kiln dust, loam and stable manure in equal proportions, make an excellent dressing. I did not obtain the kiln dust this year, but used a little of Clay's Fertilizer, with the loam and manure with most excellent results. The list of peaches given by "G. S." is a very good one, but he leaves out two of the best nectarines, viz., Pine-apple and Stanwick Elruge. Peach Bellegarde or Violette Hative and Goshawk ought also to be grown. If there was room for ten only, I would omit Early Grosse Mignonne, Noblesse,

and Barrington peaches, and Elruge nectarines. In our house we can find room for 500 six-inch pots of strawberries, which are placed on the shelves in December.

At present the house is quite filled with chrysanthemums, and as there are few other plants in it, we can treat the flowers in any way we like. Indeed, I think that is one of the great advantages of growing the trees in pots, they can be so conveniently removed, and the space is entirely left to the flowers. Some persons may say, But what sort of fruit do you get? I can truly make answer to this question, that I have grown as good fruit in pots in our orchard house as I ever saw grown under any other treatment. It has taken first prizes at South Kensington and at the Crystal Palace. I remember gathering six peaches from a three-year-old tree in an eleven-inch pot, which gained first prize at the Crystal Palace against fifty-six dishes. I do not remember how many dishes of nectarines were competing, but I gathered six fruits of Pine-apple from a tree of the same size, and they also gained the first prize. We have had fruit 10½ inches in circumference, and, with the perfect control over the roots it is usually of excellent flavour.

AUTUMN-PLANTED POTATOES.

THE following letters on this subject have appeared in the *Times* newspaper.—

"Last year you were good enough to open your columns to allow correspondents to record their testimony as to the comparative results of autumn and spring sown potatoes. My experience that year being different from many others, in that it showed a slight advantage to the spring-sown, I have again this season tried as follows:—Last November I planted 24 sets of Sutton's Magnum Bonum 9 in. deep, 2 ft. apart in the row, and one yard distance between the rows; in March last I planted 24 other sets close by the others, at the usual depth, but otherwise under exactly similar conditions; and now that I have dug them up I have 110 lbs. of potatoes from the autumn-sown, as against 116 lbs. from the spring-sown, so that now, for the second year, I have found a slight advantage in the later sown, and in this district, at any rate, it will not be worth while to attempt autumn sowing again.

"I should add that many of the autumn-sown potatoes turned out to be very rough and awkward shaped, whereas the spring-sown were all evenly formed and smooth.

"F. H. CURGENVEN.

"Byfield Rectory, Oct. 6."

"In the middle of October last year I planted in my garden a quarter of a peck of the "Magnum Bonum," depositing the sets 8 in. below the surface of the soil with a ridge of soil about 10 in. on each side, which, no doubt, acted as a shelter. The manure used was common farmyard. It was at a protracted period in the spring that the shoots appeared, but they showed most vigorously.

"In the last week of August I took up the potatoes with the following remarkable return, viz.:—Two bushels and one peck; the tubers being large and entirely free from disease.

"The winter of 1881-2 was one of exceptional mildness, and, on that account, this test of autumn planting, though satisfactory as regards results, must not be considered as conclusive in its favour.

"The potatoes were not quite matured, and I regret that I did not leave them in the ground a fortnight longer.

"W. JONES THOMAS.

"Llan Thomas, Hay, Oct. 9."

THE PARROT IN ENGLISH POETRY.

GAY finds a simile for Frenchmen in the cockato, and for courtiers in macaws. The parrots, poor wretches! "curst with a postulating resemblance to man," have found no friend or even apologist. But Sir William Jones—he knew the bird's delightful Oriental associations—has a word of admiration for it—

Nor absent he, who leaves the human sound,
With wavy gold and moving emeralds crown'd,
Whose head and breast with polish'd sapphires glow,
And on whose wings the gems of Ind do grow.

And again, in the ode to Camdeo, the Cupid of Hindostan—

O thou for ages born, yet ever young,
For ages may thy Brahmin's lay be sung,
And when thy lory spreads his emerald wings,
To waft thee high above the towers of kings.

For the parrot is a notable bird in the East, and above all, as the bird of love and the steed of the god of the blossom-headed snows, exacts the reverence of the Hindoo millions. But in English poetry it is only the ape among birds; an "odious libel on the human voice." Cowper especially went out of his way to affront the parrot, simply because it can be taught to imitate human speech, and because it can only say as much as it is taught. To base a reproach against the poet for such a display of ill-nature may seem trivial and whimsical enough, but if many such instances of unnecessary and commonplace prejudice are accumulated, it is difficult to avoid the suspicion that the poet's perpetually-vaunted "sympathy with nature" really did not exist. The parrot is a bird of extraordinary beauty and astonishing intelligence. Few feathered things rival it in brilliance and variety of plumage, and none in size of brain. Moreover, it is emphatically a creature of freedom and space, and requires for its proper setting a background with, at the least, a grove of trees, or a great sweep of open sky, or an old ruin with its battlement fretted by age with crevices and loopholes; and, above all, it is a creature of sunlight. Those who have heard them gossiping together in pleasant soft undertones, as they swing like blossoms on the trees, or have seen them, as if a swift gust of wind had taken colour, sweep across an open space, never think of parrots as old maid's pots. Indeed, for one to do so shows a lack of tenderness towards Nature which is neither attractive nor poetical. It is we, the men and women of a sunless country, that cage up parrots in our small rooms, and it is scarcely worthy of the poet of the "Idiot Lad" to sneer at the captive stranger—

Fraught with antics as the Indian bird,
That writhes and chatters in her wiry cage.

Nor, seeing that it is human beings who teach parrots the use and abuse of words, does it seem to me fair of the poet to hang so much prejudice against the bird upon such a peg.

PHIL. ROBINSON, in *Contemporary Review*.

CULTIVATION OF AZALEA INDICA.

By A. McKENZIE, Warriston Nursery, Edinburgh, read before the Scottish Horticultural Association.

Of the many trees and shrubs that come to us from the sunny East to adorn our gardens and greenhouses, the subject of the following remarks has over since the period of its introduction occupied a foremost place in the estimation of all lovers of flowers. Practical men have taken to its cultivation with an enthusiasm which has only been bestowed on the choicest subjects. The marked success that attended their labours is abundantly manifested by the honourable position assigned by universal consent to their best specimens at all our flower shows, and not only in this country, but in all lands where exhibitions of cultural skill have been instituted.

HISTORY.—Those of us who witnessed the first great International Exhibition held in London in 1866 will never forget the magnificent pyramids of colour which graced its grassy slopes. Even in that gathering of horticultural trophies it was its wonderful azaleas that attracted the greatest amount of attention, and that will live the longest in the memory of the generation of gardeners that looked upon them. Nor should the splendid examples of skill and perseverance which are annually placed on the tables of the Royal Caledonian Horticultural Exhibition by esteemed members of this association be mentioned but with pride and admiration; and I am proud to acknowledge that in no other locality in the United Kingdom are azaleas better handled, nor their cultivation better understood, than by many of the brethren I see before me, even with all the drawbacks which our cold and often, unless summers impose upon them.

The progenitors of the present race of azaleas which we cultivate grow in their pristine glory on the cool, moist, hilly regions of India and China, and are well known to be the pride of their native woods, as their progeny are of our greenhouses. The azalea belongs to a family remarkable for the interest, beauty, and the great number of beautiful subjects it furnishes to the cultivator. The andromedas, the gaultherias, the ledums, and the kalmias of North America; the arbutus and the menziesias of Erin, the heather and the blackberry of our Highland hills as well as the heaths of the Cape, which, by the way, were once the test of a gardener's capacity, but are now, alas! most sadly neglected; the lowly pyrola, as well as the magnificent rhododendron of Asia and America, are all classed by botanists in the same family group—the heathworts, and whose geographical distribution are, as you well know, world-wide.

The Chinese gardeners have cultivated their azaleas with the same assiduity and success as we now do, very likely for centuries before the Christian era, and some of our best known sorts came to us direct from the hands of the Celestials. The Dutch have also infused their native perseverance into this plant, and have grown it now for nearly two centuries. To them we are also indebted for some of our most esteemed varieties. Its introduction to this country dates only some seventy years back. However, if other nations have been ahead of us in appreciating the native beauty of the azalea, and turn this happy accident to account, yet we may fairly claim for ourselves the credit of having made fully longer strides in bringing its cultivation to its present state of perfection. We have availed ourselves, moreover, of the experience of our neighbours in adding to our knowledge and our treasures. The great number of foreign names that obtain among the sorts we grow bear witness to the cosmopolitan character of our growers, as well as to the extent to which we avail ourselves of the "resources of civilization," wherever they originate; while this same fact bears equally impressive witness to what I may call the power of adaptation possessed by our plant, as also to its greater power of gaining the affections and gratifying the purer tastes of widely different races of mankind.

PROPAGATION BY SEEDS.—The azalea is increased by almost every method known to the propagator—from seeds, from cuttings, by layers and by grafting. Those who may wish to pursue the subject as a source of healthy recreation, and wish to increase the already large number of excellent sorts, must have recourse to seed, which should be sown as soon as it is gathered in well-drained shallow pans, in a compost composed of equal portions of peat and silver sand. A layer of the fibry portions of the peat should be spread over the drainage, and filled up to the depth of two inches. A layer of the compost, finely sifted, should be spread over the surface, pressed rather firmly and smoothly, and watered with a fine rose. On the bed thus prepared the seeds should be sown; sprinkle them over with a dusting of silver sand, water again with the same fine rose, cover the pans over with a sheet of glass, and place them in the propagating house or on the shelf of a warm greenhouse, where they will be subjected by the careful cultivator to the same careful treatment usually bestowed upon the most delicate seedlings. Raising azaleas from seed is at best a process that will tax the patience of the grower more than any other method of increase, and should only be taken up by those who have plenty of time to devote to this work. For the hybridist and the raiser of new sorts, however, it is the only available plan, and has a charm about it that cannot be claimed for any other method.

PROPAGATION BY CUTTINGS.—The next mode of propagating that I adverted to is from cuttings. These should be selected from the half-ripened wood any time in summer or early autumn that wood can be got in condition, and planted in pots or pans prepared much as I described for seeds, with this difference, that the pots or pans intended for cuttings should have a layer of silver sand three-quarters of an inch thickness spread over the surface before they are inserted. The preparation of azalea cuttings does not differ materially from that required in the case of verbenas, and certainly requires the nicety of handling necessary for the preparation of heath cuttings; all that I will say on this head is, that when the cuttings are made, planted, and watered, cover them over with a bell-glass, and stand them in a shady corner in a cool house for a month or six weeks. I do not consider it advisable to plunge them at once in a bottom heat, as I have often seen done. This should be delayed until the cuttings have callused; during the interval they should receive every attention in the way of watering, shading, daily removal of bell-glasses, and wiping the same dry before they are replaced. After the interval which I have stated they should be subjected to a brisk bottom heat of about 80 deg., when in a few weeks they will show signs of growth. The bell-glasses may now be kept off for longer periods, avoiding, however, too sudden an exposure to air or strong sunshine until the roots have taken a strong enough hold to sustain any demands that may come upon them. When the behaviour of our cuttings indicates that this desirable state has been attained, they should be raised out of the plunging material and left to stand on the surface of the bed, and after a few days raised still nearer the light, in order to strengthen their constitution for an independent career of their own by being potted off.

This is an operation that demands, and should always receive, careful preparation beforehand, such as compost of the proper sort, and pots and drainage material scrupulously clean. The size of pots should be that known in the trade as large and small sixties (2 and 2½ inches in diameter). The soil should be composed of two-thirds good fibry peat, with the other third of silver sand; these should be mixed together and manipulated by the operator into the condition suited for the young and delicate roots without the aid of riddles, for I may observe by the way that I do not look with favour on the use of the riddle as an agent in the preparation of composts for any sort of plant, and would only have recourse to it when the materials are too stubborn to yield to a moderate expenditure of time and labour to the operation of hand-picking and tearing. It will be quite unnecessary for me to go into the details of potting off, as it is termed. This, like the preparations, has been so frequently described that it would appear like a flagrant waste of time to go over it again. This only will I say in passing, drain well and pot firmly. If a corner can be spared for them in the propagating bed, where they can get a slight bottom heat, so much the better; but this is not absolutely necessary. Still I would strongly advise that they be plunged in some material, even though it has no bottom heat. It will keep the delicate roots in a more equal temperature, as well as a more uniform condition as to moisture, two very essential points to secure what will be the aim of the grower to obtain at this stage.

Although I have gone so far into the details of raising azaleas from cuttings, I must say that there is only one kind of azalea that I would recommend to be grown permanently from cuttings, and that is *amœna* and its varieties. I have gone into this matter so fully merely by way of introduction to the next method of increase, viz., grafting. This is the plan that obtains most favour with experts both at home and abroad for the propagation of greenhouse azaleas, and most deservedly so, for it is by this method that the best results are obtainable. I would not say that good results have not been obtained from plants grown from cuttings—with the original and earlier sorts this was the only method practised; but with the highly-developed race of azaleas that are now grown I will be bold enough to assert that grafting is the best method of increase. Of course the reason why opens up a wider field for discussion than I propose in this paper; but I take it that the same physiological and cultural reasons which induce the gardener to graft his choice apples, pears, plums, and peaches on other apples, pears and plums of a hardier constitution are exactly of the same nature as those which induce the propagator to graft his azaleas and camellias on other azaleas and camellias of a more robust constitution. And yet it is not robustness of constitution that decides the matter, for many azaleas grow quite as freely on their own roots as when they are subjected to the operation of grafting. But whether we can explain all the hidden causes that rule our practice in this and kindred operations, certain it is that grafting brings azaleas and camellias, quite as much as apples and pears, more immediately under the control of the cultivator, and the primary objects of cultivation are more readily and uniformly produced. But this grafting presupposes stocks, and stocks are mainly produced from cuttings. Before I pass from this part of my subject I may say for the benefit of those who may wish to raise stocks for grafting purposes that the sorts which are best adapted for this work are *Indica alba* as a stock for whites, and *Carminata* or *Sir Robert Napier* as a stock for the coloured varieties.

PROPAGATION BY GRAFTING.—I will now advert very shortly to the *modus operandi* of grafting. One would suppose that a method of increase which required two operations, such as first raising our plants from cuttings, and then reducing them to the condition of stocks for grafting, was not only a cumbrous but also a tardy method of propagation. But experience has abundantly shown that we arrive sooner at the object of our wishes by the double process than by the single, and that, instead of losing, we, in fact, gain time very considerably. Stocks fit for the grafter's use will take from eighteen months to two years, according to the facilities at the command of the propagator to produce them, and should be kept steadily growing from the day they are potted off until they are grafted. Professional men perform this operation at any season of the year, when they happen to have both stocks and grafts in proper condition for working. Speaking generally, however, early spring is the most suitable time, and the operation in itself is simple enough. I will assume that the stocks have been kept growing in a temperature of 60 degs. or 65 degs., and that you have also the azaleas you wish to increase in a growing state. The stocks should be cut over at about a foot from the pot, the top stripped of its leaves for nearly two inches, and a clean slice cut from the side upwards about an inch in length. The scion or graft should be selected of a medium strength, eschewing the very strong and the very weak shoots, the leaves stripped off its base, and a corresponding slice cut off its side; fit the two neatly together, taking special care that the inner bark of both stock and scion are placed in close contact on both sides if possible, and bind with soft cotton or worsted yarn. When the operation is finished the subjects should be placed immediately in the propagating case, and come under the daily routine of airing, shading, watering, &c.—technicalities the experienced understand by a sort of instinct, but which no amount of verbal description can make clear to the novice.

If all goes well in about three weeks you will have the gratification of seeing the grafts beginning to push out fresh leaves, and you will see through the interstices of the binding, the cambium, or uniting matter, forming along the edges of the incision in a manner sufficiently clear to indicate that a union has taken place. The ligature may soon be removed, and the young plant gradually inured to light and air, and so soon as they can bear it with impunity they will be taken out of the propagating case, but still kept in a steady growing temperature. When the scion is pushing vigorously the point should be nipped out to encourage the lateral buds to break; these may be two, three, or more according to strength and sorts, which should again in turn be stopped, so as to obtain as many primary shoots as possible, for upon the frame thus produced the future specimen is to be built. Keep them in a growing temperature until after midsummer, when they may be gradually removed to the greenhouse to take their place among their established brethren.

FORCING.—I have thus far detailed the career of our young azaleas, from the cutting up to what I may call the finished production, upon which you will in years to come bestow many an anxious look and wistful pinch before they arrive at the stage of beauty and admiration I sketched in the opening remarks of this paper, or win for their possessors a high place in the annals of our profession. From this short sketch of the subject it is evident that the getting up of a lot of azaleas is both an exacting and a tedious process, demanding from the gardener much precious time and no small perseverance. Only in establishments where propagation in all its branches is extensively carried on can azaleas or any other plants of a like nature be multiplied, so that the results may be commensurate with the outlay bestowed upon them; but however they are acquired, whether

by home production or by purchase, I will suppose the grower who wishes to produce early flowers to be in the possession of a lot of healthy young plants suited to his requirements, and of the right selection of sorts for this special work. The plants need not be large to begin with—say, three years grafted, and growing in 5 or 6-inch pots. Plants of this age will have a sprinkling of flower buds ready to open in March, which month, by the way, we will suppose ourselves to have arrived at. They should be placed in a moist temperature of 65 deg., where they will soon open their buds. If flowers are in great request I would allow them to flower, but would cut them as little as possible. I would prefer, however, to nip off the flower buds, and concentrate the energies of the plant on the produce for the following winter. Supposing them to be permitted to remain in heat, they should be encouraged to grow vigorously by every art that can be brought to bear upon them. The syringe should be kept at work morning and evening, watered with weak guano-water, or the surface of the pots sprinkled over with a pinch of Standen's manure, or the preparation of our worthy friend Mr. McAdam. As they are not intended to be shifted this season, such a stimulative regimen will be of use to prepare them for the debilitating process of forcing, for, depend upon it, however carefully we conduct this work of forcing, it impairs the strength of plants such as those we are now considering very much, and the art of the grower will consist in averting this as much as possible. If any shoot threatens to grow beyond the general outline it should be pinched, but this pinching should be indulged in but sparingly, nor prolonged beyond the first week in May, else the result will be disappointing. The drainage must be kept right, and any green matter growing on the surface of the ball picked off; but, above all, see that the water penetrates through it evenly and thoroughly. They should be moreover kept fully exposed to the sun on all sides, and towards midsummer removed to a cooler temperature—say, the front stage of a greenhouse or an airy pit. The pots will be quite full of the most delicate roots, in fact pot-bound. To preserve their activity to the full it will be necessary to protect them from the sun. I place the pots at this stage in empty pots a size larger than those in which they are growing. This cool jacket will benefit our plants in more ways than one. It will protect the delicate fibres, whose welfare we have at heart, from the enervating influence of excessive evaporation, which must take place with pot-bound plants fully exposed to the rays of the sun. It will, moreover, save them from the fluctuations of temperature which this same evaporation and its necessary consequent heavy watering; which evils, if not obviated by some means or other, will assuredly lead to more frequent visits from their insect enemies than will be conducive to their well-being, or agreeable to the grower.

An idea is prevalent—or rather, I should say, used to be prevalent, for the chief purpose of our association is to dispel illusions, and that of all sorts—that azaleas and such plants, in process of maturation, should receive a reduced supply of water at the roots, the more surely to attain the object in view. I have been under this delusion myself at one time, and its victim as well, but happily I have come to see the evil of my ways. The best and earliest azaleas I am able to produce are growing all summer in an old greenhouse, where they bask in the summer's sun, and breathe the freest of fresh air night and day, the pot protected as I have described, and copiously supplied with water.

There are two cardinal points, as I take it, wherein the culture of the azalea differs from that of camellias, and they are comprised in these—water and shade. The camellia during its growing period delights in moderate shade; indeed, as our greenhouses and conservatories are at present constructed, with thin large panes of glass and closed laps, it is well-nigh impossible to preserve their smooth glossy leaves from burns and scalds without a certain amount of shade. Here our azalea has the advantage; its smaller foliage, covered with innumerable tiny bristles, enables it to rise above the defective manufacture of our glass merchants, and leaves the rays of the sun to play as harmlessly on their surface as does the lightning around our electrically-protected spires and turrets. Again, when our camellias have finished their growth it is necessary, not only to dry the atmosphere by which they are surrounded, but we must also reduce the supplies at the root. These points are well enough understood by the experienced cultivator, and I refer to them mainly for the benefit of my younger brethren, and the well-known fact that principles are best illustrated by comparison.

But to return to our azaleas. We will fancy ourselves to have arrived at the middle of September with a batch of plants, hard as ebony, with buds palpable to the touch, if not to the eye. Those of us who require the better class of flowers to work up with the regular supplies available at this season must now see to their first crop of azaleas being forthcoming when they are wanted. The stock of plants will be carefully looked over. Those sorts most easily excited, and with the most prominent buds, selected and placed in a structure where they will receive an airy temperature of 65 deg. or thereabouts, and as near the glass as it is possible to place them, so that a ray of light will not be lost to them. Here they will slowly and surely open their buds. In direct proportion as the process of ripening has been perfected in course of the summer will be the ease or difficulty with which they force. And as with the opening of the buds, so does the relative size, and substance, and colouring, depend on the same beneficial influence. The cry of the dying philosopher, "Light!—more light!" was never more devoutly uttered, nor more full of meaning, than on the lips of the anxious and careful azalea forcer.

We have now travelled in company over another stage in the career of our plants, and have arrived at the point at which we reap as we have sown, so to speak. But there are several points of importance to be considered, to which I have as yet made no reference—the most suitable compost in which to grow them; the shifting, and the right time at which this operation should be performed; the training, without which our azaleas are among the most scrubby of plants; and the insects which infest them, with the best means to rid them of these pests. The compost I use is composed of three parts sound fibry peat, two parts sound yellow loam, and two parts gritty river sand. These are mixed together and chopped up roughly with the spade. It is important to have it in the proper condition as to moisture, with that satiny elastic feel about it that the practical man knows so well, but has no words accurately to describe. With all the composts I prepare, whether for azaleas or any other plant, I like to have them spread out to the sun and frequently turned over, not so much to dry them as to enrich them by exposure to the action of the atmosphere.

The chemists tell us that our cultivated lands have the power of absorbing from the air we breathe some of the finer and most subtle elements that enter into the composition of plant life, and which we inadequately attempt to supply through the agency of chemical compounds. In some feeble sort we can do something for the soils we prepare for our plants.

I can say for myself that the more I expose my soils to the atmosphere the better am I pleased with the plants I grow on them. When it has gone through this aerating process to my satisfaction, it is taken to the potting bench, and finally prepared for the pots by hand-picking and tearing. If the shift is to be liberal the compost is left rougher than for small shifts. The crocks used in the drainage should be clean, as well the pots, and the drainage made as perfect as the most experienced can devise. The soil should be pressed as firmly in the pots as possible; in short, azaleas, as well as others of a similarly rooting character, cannot be kept in health with loose potting, and if the soil is of the proper texture there is little fear of the plant suffering from over-compression.

TRAINING.—This is a favourite work with young gardeners, and some of them are really experts at the work. The outline of the plants can be made into any shape the fancy of the trainer may wish them to bear. I prefer the pyramid to any other, though in large collections it will be best to have all shapes—pyramids, standards, bushes, &c. Some men, by the use of stakes, perpendicular, horizontal, and diagonal, with wire laid on to match, rig out the framework of their azaleas with as much care and precision as naval architects bestow on their men-of-war fitted out for active service; and I confess that they turn out very precise work thereby. For my own part, however, I am no admirer of this excessive training. One good firm stake and a few shorter ones placed at intervals round the edge of the pot are all the adjuncts really necessary. Upon these the plants may be tied-in to assume any shape you may wish; bearing in mind all the while that, if the plants are grown principally for the supply of cut flowers, very much of this work will be useless, if not wasted.

The period of azalea life at which insects are most troublesome is when they have finished growing, or, in other words, when they have been withdrawn from the moist atmosphere, and from the subduing influences of the syringe. Happily their number is not great. The black thrips is the most common, as it is the most virulent, and once it obtains a firm footing is not so easy to dislodge. If they are only appearing, a good smoking of tobacco paper, repeated until they are subdued, is a remedy easily applied. A sprinkling of cayenne pepper will increase its pungency. Dipping in a bath made up with two ounces of soft-soap to the gallon of water, one gallon of tobacco liquor to every six gallons of soapy water will prove an effective remedy. All azaleas previous to introducing them into heat, and again at the approach of winter, should be examined with this view, and bathed if there is the least appearance of thrips. Red-spider can only be troublesome with plants that are insufficiently supplied with water. Whenever it appears I would have something not very sweet to say to the bottle-holder. The most expeditious remedy is the garden engine, one person holding the plant in a horizontal position, while another applies the water to the under-side of the foliage with sufficient force to dislodge the enemy, but not to lacerate or strip the leaves, else the cure will be as bad as the disease.

SELECTION OF VARIETIES.—The following sorts are among the most useful for early work, as also for general purposes. I may observe, by the way, that I have a preference for the semi-double sorts. The flowers are more persistent and stand longer when cut, either in bouquets or glasses.

Of whites I will note narcissiflora. This is, in my estimation, the most useful white azalea in existence. If Mr. Fortune had done no other work for British gardens than introduce this azalea from the Flowery Land, it would be enough to make us hold his memory in loving remembrance. Where white flowers are wanted in quantity for Christmas decorations this azalea should be grown by the hundred. I put this at the head of the race in point of utility, as its flowers can be culled over a period of eight months. Borsig is the next white in point of merit. The individual flowers are larger than narcissiflora, but it does not produce them quite so abundantly; but the pearly purity and size of its flowers will make up for any deficiency in this respect. Princess Stephanie Clothilde is another very fine sort, with semi-double flowers, rather smaller than either the two sorts named; but with the lovers of fine form this variety will be precious. Bernard Andreas alba is another fine sort that will come to be much esteemed where white flowers of snowy whiteness and good substance are in request. Crispiflora alba, another good white, with flowers crimped at the edges, as the name indicates—a very good forcer, but as yet rather scarce. Imbricata, new semi-double sort, would be a most desirable addition to our stock of white flowers if it had stamina to grow freely; with those who can refrain from cutting this will be an acquisition, and will repay any little trouble bestowed upon it. Then we have Flag of Truce, Fielder's White, Etendard du Flandre, Mont Blanc, Snowflake, Vesta, Purity, Flower of the Day, Princess Alice, and Reine de Portugal; and last, though the oldest of them all, is Indica alba. This sort is too well known to require any recommendation at this time of day. I had a plant of this sort in the open quarter, with rhododendrons, for upwards of ten years, and it annually supplied me with azalea flowers when they were over indoors, but unfortunately it succumbed to the rigours of last winter. There are many favoured spots in the country where this plant would make a most desirable addition to our shrubberies, and would help to open up a new pleasure to their owners.

Of coloured azaleas the name is Legion. The difficulty is where to draw the line, but this invidious sort of work must be done sometimes, even with azaleas. The following are well-known sorts, and will disappoint none:—Bernard Andreas, Beauté Suprême, Brilliant, Ceres, of exquisite form though small; Charmer, the bold Duc de Nassau, with his very effective rosy scarlet; Duchesse, Fascination, Iveryana, with the charming Mrs. Turner, Princess Mary of Cambridge, Purpurea plena, Pic-turata, the useful, though plain and unpretentious, Roi de Hollande; Roi des Beautés, Sigismund Rücker, with the double Souvenir de Prince Albert. The raiser of this variety had without doubt a keen sense of the fitness of things. There is no azalea known to me more worthy to bear the name of that illustrious man, the late Prince Consort, than this one. It is one of the few azaleas that I should like to possess by the thousand. Then we have Sparkler, and Stella, and Queen of Roses; and, last of all, we have Amona, with its progeny, which will soon oust the parent from the post of honour it held so long.

GILPIN'S "FOREST SCENERY."—Messrs. Sampson Low, Marston, and Co. are about to publish a cheap edition of the illustrated reissue of Gilpin's "Forest Scenery," edited, with notes bringing it up to date, by Mr. F. G. Heath, author of "Autumnal Leaves." It is a curious fact that the third edition of "Forest Scenery," which was revised by Gilpin himself, and forms the text of Mr. Heath's reprint, is not in the British Museum.

Calls at Nurseries.

THE WALTHAM CROSS NURSERIES.

MESSRS. PAUL AND SONS' extensive nurseries at Waltham Cross are scarcely less interesting now than in the height of summer. The rose trees are not over-weighted with flowers, the fruit trees are not groaning under honourable burdens, and the flower beds do not dazzle one by their brightness. But as the autumn removed the roses and the ruddy fruits, and made the bedding plants a little pulpy, she passed her "fiery fingers o'er the leaves." At this time, therefore, studies of trees may be made in their autumnal colours—the scarlet oaks, the orange-hued sunachs, the amber-tinted birches and elms, and the rich russets of maples, alders, amelanchiers, and thorns, contrasting boldly with the deep green of the poplars and planes, which have scarcely made a change as yet; and the grey green of the willows, reluctant to own that the days are damp and the nights chilly. Perhaps in nurseries of this class, where large stuff abounds, and hardy fruits obtain special attention, one of the best amusements for a true amateur horticulturist on a sunny day at this time of year would be to make note of the colours of the fruit trees, many of which are beautiful beyond compare when their leaves begin to fall. The rich scarlet of the deciduous azaleas, a feature of interest in the promenade garden, is equalled by many of the finest varieties of pears, and the several hues of the species of ampelopsis, can all be matched in trees that are mountains of snow in spring, mountains of gold in summer, and mountains of fire in autumn. There are some tasteful and fruit-loving persons who plant pyramid pears on extensive lawns and in noble walks, and are not ashamed to bring them into the foreground in the dressed garden, where they combine with leafage as handsome as that of the camellia a most welcome display of spring flowers and a serviceable supply of fruit. It is a matter of no small interest that for such a purpose we may easily select varieties that afford fruit of the finest quality, and that make a splendid display in the colours of their leafage in the autumn; for it is a great compensation, now that the days are short and dull, to see in the gardens and woods a rich variety of autumnal colours.

But the visitor to the Waltham Cross Nurseries need not lack amusement even on a dreary day when Jupiter Pluvius is busy with his water cart, for the houses are many and they are well filled. Although these are "general" nurseries, and shelter zonals and grape vines, herbaceous plants, bulbous flowers, forest trees, and peas and potatoes, one soon makes the discovery that the lines lead in a very special manner towards camellias and roses and hardy fruits. The great camellia house is unique for its collection, as well as for the health of the plants and their present crop of buds that in due time will become flowers. Messrs. Paul and Son have been careful, through all the years of change in floriculture, and especially in the days when the human eye could find delight in double flowers only—during all this time they have been careful to keep all the best of the old single camellias. Now that these are in demand once more, the human eye is capable of discerning beauty in them, and this grand collection therefore has peculiar interest, for in it we find sorts that in many other places have been discarded, while we have with them the best of the doubles that have for some time past enjoyed somewhat of a monopoly of admiration. All the camellias are in pots; all are well proportioned, and in rich rude health with bloom enough and to spare. The treatment is of the simplest kind. The least possible amount of fire heat is employed until the bloom is over, when the heat is increased to promote new growth, this being completed and the new crop of buds set by the middle of June. Being then hardened by free ventilation, they are towards the end of the month removed to a border where the shade of large trees secures to them the subdued green daylight they so evidently enjoy, combined with the free summer air and the nourishing night dew. In the early days of October, they are housed again, and as time permits afterwards they are put in order for their winter work.

Pot roses are grown in vast numbers for forcing, for planting out, for conservatories, and for export. There are some remarkable growths of *Maréchal Niel* to be seen on the manetti stock, rods of fifteen feet and proportionate substance being in great plenty, and ensuring to purchasers flowering trees at the first start. The *Maréchals* on their own roots grow slowly at first, and therefore are not made in such quantities as those on manetti. All the houses containing roses are kept a little warm, the object being, not to promote growth, but to prevent mildew; and a cleaner lot one could not wish to see. Many of the teas are flowering, but this is not encouraged, and therefore the lovely blooms of *Madame Falcot*, *Safrano*, &c., that delight one, are to be regarded as accidents rather than as any proper results of the system of treatment, the chief aim of which at this time is to encourage rest rather than activity.

An interesting feature here is a newly-planted house of *Lapagerias*, including, of course, the red and the white. The plants are in a bed about four feet wide and about the same depth, supported by a brick wall, and consists of good sandy peat well broken up, but firm and somewhat lumpy. The plants are trained up next the side lights, and will be taken up the rafters in the course of next year, by the aid of which the roof will be wholly clothed with this very best of our cool-house climbers. The bed will be occasionally flooded with water in the summer when the plants are in full growth, and this house will doubtless constitute a special attraction in the Waltham Cross Nurseries.

In the houses devoted to chrysanthemums the ground between the pots is now black with soot, which is sprinkled between the pots (but never on the plants), in order to benefit the leafage by its odour. To the writer of this hasty note the smell of the soot was by no means pleasant; but Mr. William Paul declares that observation has taught him that many kinds of plants, particularly chrysanthemums and grape vines, derive benefit from the sooty exhalations, although it does not benefit them to let the black stuff touch their leaves. Seeing how men and women thrive in many stinking places, and that chrysanthemums delight in sniffing at soot, may suggest that sweetness and light comprise only two out of many necessities of happy existence. Does a Bermondsey tanner thrive when removed from that region of multiplied steches? Do gasmen die early or live long? Is it good to live in Vauxhall and inhale the sickening smell of simmering cat's meat? But we will forbear to put any more such questions. Any of our friends who doubt the policy of sprinkling soot amongst chrysanthemums may learn this much by a visit to the Waltham Cross Nurseries—that it does them no harm, for they are as healthy and robust as any in the land.

IVIES IN A LONDON GARDEN.

It is a fact of some importance in respect of town gardens generally, that very few who are interested in the subject know anything whatever of the uses of the ivy as a town plant. In all the cities of Europe, save a few in the extreme north, we see the ivy used profusely, and often with a fine artistic taste, and in a large majority of instances the examples of training and general management are far in advance of the best that may be seen in London. But here, there, everywhere, there is but one sort of ivy employed, and there is but one mode of using it made manifest. We see the Irish ivy, *Hedera canariensis* of the books, trained to walls, trellises, arbours, palisades, and tree trunks, these being but several examples of one idea wrought out with the same material. All these modes of employing the plant are worthy of encouragement; indeed, some very beautiful scenes in Continental cities owe much of their attractiveness to the rich green drapery secured, where there might otherwise be but grim walls or ugly fences or dry repetitions of rigid lines. But, just because so much is accomplished in one way with one material, it seems proper to lament that the many other ways in which the plant may be grown have hitherto obtained but scant attention; while, as to the numerous beautiful varieties of ivies at command, it is certainly a matter for regret that those to whom they might prove especially useful have hitherto renounced them altogether.

The Irish ivy that may be seen on every hand is beyond doubt one of the noblest plants of its class, and for clothing spacious walls invaluable. But there are not only other sorts of ivies that afford variety of leafage, and therefore are to be desired for that reason, but certain of these other varieties are better than the common sort that is everywhere planted, because brighter in colour, neater in habit, more continuous in growth, and therefore keeping their best summer colour for a longer period, while, to make an end of the catalogue of their virtues, they train themselves firmly to any holding surface, needing no aid from nails and shreds, this quality being but partially developed in our good old friend the Irish ivy.

As regards the other ways and the other sorts, to put the capabilities of the plant to a test, we will lay out an ivy garden. It must comprise lawns or carpets of delicious verdure. These can be made quickly by planting the ivies where required and allowing them to run. In many places, where grass does not thrive, or where the incessant care that grass requires cannot be given, the ivy comes to our aid and makes a quick end of all difficulty. There is no ivy so suitable for this purpose as the *Emerald*, because of the exceeding richness of its bluish green colour, its early growth in spring, its late growth in autumn, and the smallness and smoothness of leaves, which do not hold the dirt in winter as do the leaves of the Irish ivy. But there are at least half a-dozen sorts suitable for carpeting, and the common *Helix* of the woods is one of them. However, for this purpose, the *Emerald* ivy stands alone, and it is a folly to use any other when there is nothing so good as the best.

The edging of flower beds and compartments filled with shrubs may be more quickly and effectually accomplished by means of ivy than with any other plant whatever. In a town garden a box edging is often a sorry affair. The green *euonymus* may often take the place of the box with advantage, but ivy is better than either. Here, again, the *emerald* ivy comes in well, making a rich, solid, and easily-managed edging in a very short space of time. Occasionally we see in spacious forecourts a large circular or oval-bed raised one to two feet above the gravel, supported with burrs and planted with Irish ivy, and the work so far is thoroughly satisfactory, for the large dark-leaved plant, having space enough for full display of its fine characters, contributes a tasteful and satisfactory element that confers dignity on the position. But the variegated ivies, on which I shall make a special note presently, offer themselves for this purpose, and are of some value. I have a series of edgings of the variety known as *Minor marmorata*, also as *Discolor*. This is a small-leaved ivy of a dull green colour, much blotched with grey or white. It is not effective in the usual sense of the term, but where ivies are grown in variety, as they are here, to the extent of some sixty sorts, this has its uses, and makes a change for edging purposes. There is available for this purpose the golden-tinted ivy known by some eight or ten different names, such as *Aurea*, *Chrysophylla*, &c.: this has leaves of medium size, much blotched and patched with dull orange-coloured variegation. On a spacious wall it is a grand plant, as an edging to beds it is middling, and would be very good if we were not compelled to clip it. The truth is the clipping promotes a green growth, and therefore as many as possible of the long shoots should be saved, and trained along the line to ensure plenty of colour. In the country, more especially in the kindly west, the lovely silver-leaved ivies forming the series of *Marginatas* are available; but those who employ them in a London garden incur a certain degree of risk, and if I may advise at all, I must say that, when all is said and done, the green ivies are the best for the purpose now before us.

The next stage in the furnishing of our garden will be to plant shrubs, and a very large proportion of the most beautiful sorts, whether tree ivies or climbing ivies, are at our command for this purpose. Many a one who has struggled in vain to make a nice garden in some smoky district would have nothing but good luck if the labour wasted on things that refused to grow had been bestowed upon ivies. Let us, to make the cheapest and simplest beginning, take a nice plant of Irish ivy from a pot, and plant it in the border. It is, we will say, three feet high, with a fair proportion of shoots, all rich with dark leafage. Having planted it, drive in a stout stake a little taller than the plant, and train it to

the stake rather loosely, so as to form an upright bush, and you will have as nice an ornament of a certain kind at the cost of about eighteen pence as you might fail to obtain in other ways at three or four times the cost. All the climbing ivies may be converted into handsome pyramids by this very simple method of treatment. I have many such that are from ten to thirty years old, and they present a noble appearance. To the reader who has not had experience in this department of gardening it will seem that the plants must need much support; but the truth is they need but little, for in most cases one stout oak stake will support a tree half a yard wide, and a few stout ties on a rough lurching system answers, because the side shoots that are thrown out freely take away all rigidity of outline, and completely hide the rough supports.

Thus far with our one sort of ivy as a pyramid or distaff. When we look for varieties suitable for similar treatment to make an ivy garden there appears to be no end of them. But I will name a few that are particularly suitable for this purpose:—The *Emerald* once more, and its near relative *Poetica*, which has larger leaves, a more yellowish tone of green, and becomes more deeply bronzed in winter. *Heterophylla* is a bold climbing ivy, with leaves that vary from three blunt lobes to a perfectly smooth outline, the colour a rich deep green. *Digitata* has a fine colour and is elegantly lobed. *Gracilis* is very slender, but makes a pretty pole when it has acquired some age. *Lobata major*, *Tortuosa*, *Pedata*, common *Helix*, and *Deltoidea* form a series that make the best poles, because free growing and bold in character. But we may have also the *Clouded Gold* and *Chrysophylla* with advantage, for their colours are good and they thrive in town.

There remain, however, all the true tree ivies, and these are grand things. There is a tree form of the Irish ivy, a tree form of the English ivy, a tree form of the great leathery-leaved *Rægnieriana* or *Coriacea*, and several *Golden Tree* and *Silver Tree* ivies, the catalogue names of which need not be given, for as they vary they are of very little use. These need no support, they grow freely, they assume beautiful proportions without needing any training, and they are beautiful in all seasons.

When we look at the walls and fences we return to the old story that ivy is a capital clothing for them. But where there are walls that need clothing there is a grand opportunity for the display of a collection of ivies, and I would that I could convey to the uninitiated some idea of the delight a good collection is likely to confer on its happy possessor. It is a common tradition that ivy grows slowly, but it is true only in part, for although in the first season, and perhaps in the second, ivy does not make much growth, still it does progress from its earliest stages. But in the third year what will it do? Almost anything, for the robust green-leaved sorts will grow a yard in one season when in a good position, and it does not take long to climb to the top of a house at that rate. I brought with me to my present abode a collection of ivies in pots, all newly struck for the purpose, and planted them round walls and palisades, and in the course of four years their growth ranges from five to ten feet, and my walls are grandly furnished, at practically no cost whatever save the exercise of a little patience, while, as to the merit of the clothing, I might search through the wide world and fail to find anything better or half so good.

As regards the sorts adapted for walls, there are at least fifty that are worth growing. But I will name a few that may be regarded as forming a nice little collection. We will begin with our old friend the Irish Ivy, which we will call *Canariensis*. The less of this the better where there is a collection, but one piece four or five feet wide may be allowed. *Dentata* produces immense leaves of a bright grass-green colour, and requires abundant room. *Gracilis* is lovely on a wall because of its light pencilling and pretty little leaves. *Pedata* and *Himalaica* (also known as *Cinerea*) make a pretty pair, very distinct. *Heterophylla*, *Palmata*, *Deltoidea* (also known as *Rhomboides*), *Sagittifolia*, *Emerald*, and *Algeriensis* may take the lead for green varieties. Amongst the variegated the best will be *Canariensis variegata*, *Canariensis maculata*, *Palmata aurea*, *Chrysophylla*, and *Angularis aurea*. The small-leaved Silver Ivies are not well adapted for a London garden, but whoever has become reasonably enamoured of these plants will be likely to plant a few, and may have—as he or she will deserve—good fortune with them.

It now remains to be said that all kinds of ivies have succeeded perfectly, in many cases surprisingly, with the exception of the small silver-leaved class, the *Marginatas*, in their half-dozen forms. When I brought my stock here there were some hundreds of nice young plants of these lovely silver ivies amongst them, and one lot I planted to form a band between two rings of emerald ivy to enclose a group of cotoneasters and berberis. Another lot I planted to form an edging to a bed of hollies, on the outer margin of which were planted crocuses, tulips, &c., to which the creamy-leaved ivy was intended to form the finishing boundary. It was a grave mistake; but the experience enables me now to advise the Londoner to be cautious before embarking largely in the small-leaved silver ivies, for mine are gone. They made such poor progress that after the first season I lifted one lot and planted it to enrich the other. The next year I allowed the emerald ivy to run over the miserable silver ivies, and thus they were soon obliterated. Two conspicuous failures have occurred in my most recent practice in London gardening. The silver climbing ivies and the golden broad-leaved euonymuses have been more plague than profit, for the winters of 1879-80 and 1880-81 killed them by dozens, and crippled those that escaped. On the other hand, the large-leaved variegated climbing ivies, and the narrow-leaved golden euonymuses (of the old-fashioned type) have scarcely suffered, and their appearance at this time is delightful—it is no exaggeration to say that in growth and colour they are splendid.

There remains, however, a curious counterpoise to this uncomfortable fact. Let me repeat, that I may be clearly understood, that I cannot recommend any of the small silver-leaved trailing or climbing ivies for a London garden. They are too delicate, and the winters kill or cripple them. But I can recommend all the *silver-leaved* and *golden-leaved tree ivies*; they all grow freely, no frost or fog hurts them, and they make most beautiful little sparkling bushes. Seeing that in this section there are several beautiful varieties, I recommend a free use of them where such things are wanted, and they are prime necessities of a proper ivy garden.

Thus it will be seen that our precious pet will stand a test of some severity. The ivies and the hollies are the finest of all town plants for giving a comfortable warmth to the garden in the winter, and those who are wise will secure a sufficiency at the first start to form the foundation of a good garden, which may be enriched with colour to any extent afterwards. As regards their relative cost in the first instance, the difference is perhaps not great, but there is a difference in the end of very considerable importance. Amateurs who are not well versed in garden mysteries can do but little in multiplying hollies, but anybody can multiply ivies, for the cuttings may be made anyhow, and at almost any time, and if fairly fixed in the ground anywhere will be almost certain to grow. But the month of August is the best time to strike ivy cuttings, and they should be about six inches long, and cut from the young shoots of the year. Remove a few of the lowest leaves and plant them firmly in a somewhat shady place, and they will make root in time without any further care. But a better way, and one that should be adopted in striking cuttings of delicate variegated sorts, consists in preparing a bed, about a foot deep, of sandy loam or peat in a frame, and planting the cuttings in this, and keeping them thereafter covered with glass, giving a little air occasionally until the next summer returns, when they may be removed and planted where they are to remain. In the absence of a frame a common handlight or bell glass may be made useful in getting up a little stock of any delicate ivy.

MOSES.

EFFECTS OF WEATHER ON INSECT LIFE.

On the 12th inst., at the Royal Agricultural College, Cirencester, Miss E. A. Ormerod, F.M.S., the consulting entomologist to the Royal Agricultural Society of England, delivered a lecture on the above subject. At the outset the lecturer protested against the current opinion that weather affected all insect life alike; this was far from being the case. The golden chafer, or turnip flea beetle, thrived in very hot sunshine, while the daddy longlegs or crane fly liked the cool dampness of overshadowed meadow grass. What one species of insect thrived on in its fully-developed state might be precisely what would not have suited it as a caterpillar or a grub. We also required to distinguish the meaning of the word "weather," for differences in the amount of heat or cold acted very differently, according to the amount of rainfall or of moisture accompanying them. Many grubs, such as those called surface caterpillars, would stand severe cold so long as they were in their own specially-prepared wintering-places, but if thrown out so as to be exposed to wet also, would die. A sudden downfall of cold rain in summer would clear off caterpillars, but with regard to some kinds of eggs, though heavy rain might destroy them, yet they would not hatch as well in drought or heat as when there was a certain amount of moisture in the air. Insect life was also affected, not only by the state of the weather for the time being, or shortly before any given time, but the effects of weather might be traced for one or two years or more, sometimes directly in the condition of the insects themselves, sometimes by promoting the growth of special weeds, which might be the food plant of some plant pest (the charlock for example), and also by so affecting the state of the ground that regular measures of cultivation by which plant and insect vermin were usually cleared out could not be carried on. If they considered the condition of their common farm insects during autumn and winter, the time when the farm operations of the year commenced, they would see some of the reasons why they were uninjured even by severe cold. The winter state which they called hibernation was not simply a torpidity caused by the cold, for it was found, in cases where the regular time for hibernation had not arrived, that insects had carried on their occupation quite undisturbed by a drop in the temperature of some degrees lower than the warmth of some weeks later, when they were retiring in due course to their winter quarters. Hibernation appeared to be quite a distinct condition from mere effect of cold; rather a constitutional seasonal influence, in which insects, while they had still all their instinctive faculties in good order, prepared a shelter for the time of coming cold and want of food. They did not just pass into a state of torpor indifferently wherever they might be, but selected some special locality under leaves and stones, or some safe protection, or formed a cell, or in some way supplied themselves with shelter; and here they—or such of them as hibernated—passed into a quiet motionless state, the animal functions decreasing in power with the increase of cold. Still, if even totally frozen so that they could be broken like sticks, many kinds of caterpillars were not injured so long as the freezing took place in the shelters they had made for themselves. The true remedy here was for farmers to cultivate the land in the autumn, and throw them out of their cells and lay them open to drying winds and frost and thaw and wet. This would effectually kill them. So far as the egg-laying is concerned, Miss Ormerod pointed out that the laying places—rank grasses and weeds—should be destroyed. Liming and chemical manures and sheep-folding were all sure means of destroying the eggs. In conclusion, she asked for further information from farmers to help us, by better knowledge in destroying these pests to our farm crops.

THE CHRYSANTHEMUMS IN FINSBURY PARK are coming finely into bloom, and the large exhibition house will be opened to the public to-day (Saturday). The plants will not be in full bloom for at least three weeks, but in consequence of the immense number of visitors in previous years, more especially on Sundays, it has been considered desirable to extend the exhibition over as long a period as possible. About fifteen hundred plants have been grown this year, and from their condition at the present moment a display of the most splendid description may be safely anticipated.

PULHAMITE ROCKERY FOR A TEMPERATE PLANT HOUSE.

THE wood engraving faithfully represents in black and white the rockery by Messrs. Pulham that made so conspicuously beautiful a feature of the Horticultural Exhibition in the Agricultural Hall in July last. Rockeries of this kind, while conforming to the requirements of taste, because modelled according to the suggestions of nature, are peculiarly adapted to the requirements of the horticulturist, because they can be so easily adapted to conjoin with or even to support boundary walls, to conceal hot-water pipes, and to afford positions where suitable plants may be placed to ensure pictorial effect. In the laying out of a range of houses or of a single house, if it is intended to introduce rockery, it would be well in all cases to construct the walls and the rockeries at the same time, as this would be true economy, and would ensure a more complete effect, whether from the geological or picturesque point of view. When the rockwork is considered at the same time as the general design of the structures to be embellished, the doors as well as the walls can be provided for, and rustic arches may be constructed, both to afford entrance to the ferny caves and also

THE CONSTRUCTION OF ROCKERIES.

INQUIRIES reach us from time to time from beginners in gardening, who propose to construct rockeries, and are prudently anxious to avoid mistakes. It must be owned that mistakes are very likely to occur when the designers or constructors have not in the first instance clear ideas of what is possible, allowable, or desirable. The tendency of beginners is generally towards the construction of fantastic garish piles of "rocks" that, when finished, belong inevitably to the peep-show class of entertainments. They have this peculiarity in common, that no plant can grow in or upon them. A knowledge of the requirements of plants is perhaps of more importance than a knowledge of rocks, for when a rockery is richly closed with vegetation the nature of the substructure is of comparatively little consequence. Nature has a way of hiding the bones of the world with garlands of flowers; and a mere heap of nameless rubbish may become a mountain of beauty if plants will kindly take to it and hide its ugly nakedness with their own fabrics, produced without either toiling or spinning.

But the teachings of Nature must be heeded both in the rocks and their arrangement, as well as in the selection and disposition of the plants upon them. And thus at the first start we have at least to recognize what may be termed the geology of the subject. In some



PULHAMITE ROCKERY FOR A TEMPERATE PLANT HOUSE.

to conceal the junctions of pipes, which are often very much in the way when the engineering work is all completed before the geological artist is called in. However, this after all is a comparatively small matter. If rocks can be formed at all, they can be formed to fit anything, and so when the structures are covered in Messrs. Pulham may be trusted to bring in the mountains, the fountains, the glens, the dripping wells, the mysterious pools, the knoll for the cyathea, and the paradise for the osmunda. It seems easy to provide waterworks for these under-cover ferneries, but the water must come in and it must go out; and these two requirements may cause occasional difficulty. It is, however, a matter of some practical importance that a minute drip of water, if constant, may be made immensely serviceable in the growth of filmy ferns, and the plants that are usually associated with them, and for its provision will require but the slenderest, the most trivial arrangements. As regards foundations, stokeholes, and the like, the most perfect protection may be secured against damp from sunken fern-houses by a judicious employment of cement. If the foundations of a lighthouse can be made proof against the ever-active assaults of the waves, there should be no particular trouble arising out of the intended presence anywhere in a garden of water below the general level.

cases this is of the utmost importance, in others it has only a general importance; and a most effective and tasteful rockery may be made by a man who has never travelled, and has never seen what is termed "live rock" even once in his life. Taking the extreme case of a proper geological rockery, it may properly be one on which very few plants can be advantageously located. But in proportion to the intended or inevitable sterility of the structure must be its picturesqueness and accuracy as representing some distinct formation. Rockeries of this kind are perfectly allowable, and may prove most welcome amongst the "rustic adornments" of a garden. As a matter of course, rocks of this class must be modelled from nature, and if we model them ever so perfectly they may be so placed as to surroundings as to look very ridiculous after all. A mass of trap bursting forth on a bed of London clay or a pile of mountain limestone on a tract of East-Anglian drift, would be unbearable unless skilfully "led up" to by the accompaniments. The first step would be to seclude it and separate it, and then prepare the mind for it, so that the incongruity of its location would be obliterated by the agreeable sensations its intrinsic merits might inspire. Real rocks *in situ* derive much of their charm from their real attachments, for they belong to the spot and the surroundings are in harmony with them. That noble pile of "Stennis" beside the Peak

Railway near Cromford may be regarded as a grand model for a gritstone rockery, and whoever would be an artist in such works must visit such scenes. The High Rocks at Tunbridge Wells, and, better still, the Eridge Rocks in the same district, afford suggestions of the highest value to the artist in works of this kind. An example familiar to many of our readers is the rockery in the little lake in the grounds of Manley Hall, Manchester, where some huge blocks of gritstone of a rich deep red colour show themselves in the natural way of an "outcrop," and are in that sense not incongruous, because Manchester is on the same formation as Buxton, and the mighty gritstone masses of Axe-Edge will suggest just such work as Mr. Milner adopted in the rockery at Manley Hall.

Amongst the men who have given special attention to what are termed "natural" rockeries, but perhaps might with more propriety be termed geological rockeries, none have had greater success than Messrs. Pullham and Son, of Broxbourne. At the Horticultural Exhibition held in the Agricultural Hall in July last there were two rockeries shown by this firm, one of which was selected for the illustration that accompanies this paper, and which, it will be seen, is intended to represent real rocks without a shadow of superadded ornament. Such a scene, or one that might suggest such a structure, may often be met with in disused quarries in mountain limestone and Longmynd formations. There is a great gaping quarry near to Matlock Bath, as you turn round from the village to the road that leads to Matlock Bridge. It would make a superb garden rockery if that end of Masson could be enclosed for the purpose, for it only needs to have the chinks filled with good earth and planted to become as richly romantic as it is now sublime in its unclothed angularity. Perhaps the best examples in the country of planted quarries, and, as may now properly be said, "natural" garden rockeries are those in the grounds of Stancliffe Hall in Darley Dale, the residence of Sir Joseph Whitworth. Messrs. Pullham construct rockeries of this kind on any scale, and with definite principles to guide them, and thus it is they ensure for their employers constructions that geologists may criticise and all men must admire.

In the construction of a rockery we may have in view to combine with a beautiful scene a great variety of interesting vegetation. Then a strict geological study is not of paramount importance, and we are free to use a variety of materials. The first thing to consider in most cases is the best way of employing the cheapest material at command in the district. A method by which I once made use of cheap rubbish from the levelling of old houses is shown at page 343 of the last edition of "Rustic Adornments." In this case a frowning pile of stratified rocks overhanging a dark pool, or tarn, was produced in precisely the same way as one might build a house, for the materials were cemented into the needful forms, and then faced with cement to produce surface and stratification. A very successful rockery constructed in the garden at Stoke Newington, to serve as a screen, was brought before our readers many years ago, but may with advantage be again presented, because, as contrasted with Messrs. Pullham's rockery, it illustrates a quite different style in a work intended for different uses.

For the Londoner who cannot command unlimited money stone is too costly for the purpose now under consideration. The "burrs," as they are called at the brick kiln, answer admirably, for when in large masses it is easy to work them into any plan, and usually the best plan is to form banks varying in height, but nowhere to be carried particularly high, and nowhere to be broader than assort with convenience of management. They may look hard and ugly when first made, but clothe them well and the vegetation will make all the difference. Two points should be kept in view; one is, to ensure a great body of earth, for dry rocks with small "pockets" will simply kill and not keep the plants entrusted to them. Any common garden soil that is available on the spot will serve the purpose perfectly, because where special soils are required holes must be dug for the purpose and filled with prepared compost for choice plants. But about ninety per cent. of the best rockery plants will thrive in common garden soil without any preparation whatever, and for the remainder, generally speaking, sandy peat will be required. The introduction of shells, or corals, or any masses of glaring colour, must be condemned as paltry; and fanciful notions generally must be entertained with caution, lest we establish a sad burlesque where we intended to have an interesting rockery.

There are now two good rockeries that Londoners may inspect and take lessons from, and at this moment they are beautiful and in the midst of beautiful surroundings. The nearest to Cockneydom is that in the gardens of the Royal Horticultural Society at Chiswick. It consists of a series of low banks, in the general form of a horseshoe, in front of the great vinery. It is formed in great part of burrs helped out with blocks of stone at points where the grey rock is needed to give a touch of reality and to enhance by contrast the beauty of the vegetation. The other rockery conveniently situated for Londoners is in the Royal Gardens, Kew. It has been but recently formed, and is not as yet wholly planted. It is within a few yards of the Cumberland Gate entrance, which is distant only half a mile from the Kew Gardens Station on the South-Western Railway, one hour from Broad Street or Ludgate Hill. This rockery consists of a winding walk slightly below the general level. The earth removed in forming the walk has been piled upon either side to form enclosing banks, and these banks are faced with blocks of stone of many sorts and sizes. It may be called a gorge, or defile, but it is not needful to apply any such name to it; let it be called The Rockery, and let it be admired for its vegetation, which could not be so well grown or so well displayed in any other way, and which therefore constitutes its proper vindication.

The best "natural" rockeries that have been seen by the present generation were undoubtedly those in the garden of the Trocadéro

Palace, at Paris, in the year 1878. As picturesque models of stratified rocks, with rills of water, miniature chasms, and pinnacles and headlands all in harmony with the general scheme, there was but one weak point discernible, and that was the newness of the entire affair—a weakness that every rockery must display, and that time alone can remove. It is a great folly to attempt to give the colouring of age by artificial means; you go right away to Cremorne Gardens and the paint-pot the moment you touch the material to subdue the staring evidence of recent construction. The colouring that nature will soon bestow will be delicious, and it cannot be forestalled. Nor does the proper ripening of a rockery require any great length of time. In the course of the first winter it will become richly stained, and brick burrs (if such are employed) will soon be clothed with lovely mosses, and many most welcome weeds will appear amongst the ferns and alpine to augment the reward of your labours. Perhaps the very best of elaborately-constructed rockeries is that in the Bois de Boulogne, where we have romantic walks under cliffs, a mountain tarn, and a cascade. In the gardens of the palace of Laeken, near Brussels, is a good rockery on a similar plan, and one that has the most natural appearance of anything of the kind that I have seen. This kind of construction is illustrated in the respectable rockery in Battersea Park, which is now well ripened and richly clothed, and affords much delight to ruralizing Londoners. But rockeries of this class are not to be thought of in private gardens of moderate dimensions; they are costly and require much room. This brings us back to the brick burrs and the Chiswick style, for if the growing of rockery plants is the matter of first importance there are not many difficulties to encounter.

S. H.

STINGS.

In the sting of the bee, wasp, hornet, &c., a minute drop of a transparent liquid may be observed on the sting, and is called "bee poison" (formic acid). It penetrates into the wound produced by the sting, and causes the well-known effects. It would, however, be a great mistake to assume that the only object of this is to increase the effect of the sting, that is, that it serves only to injure. It has a far more important purpose, namely, to prevent fermentation and decay. The celebrated bee cultivator, Holz, reports that in his long experience with honey that which came from what are called "rancorous swarms" (*boshafte*) had peculiar properties. It always had a bitter harsh taste, and its smell was sharp too. How can the character of the swarm affect the smell and taste of the honey they gather? We know that bees, when they are disturbed, run out their stings, on the end of which may be seen a tiny drop. This little drop, as we have already said, is bee poison, or formic acid. When the disturbance is at an end they draw in their stings again, but the little drop of liquid does not go back with it, being wiped off on the comb, and sooner or later getting mixed up with the honey. This explains how honey from such excited bees must taste and smell sharper than from peaceable bees. Excitable bees will rub off this little drop of formic acid more frequently than other bees; perhaps a larger drop is formed by nervous bees than by those that are not nervous, and hence the honey is richer in formic acid. This acid is never absent from genuine honey, but the amount differs. This contamination is not only uninjurious but very useful, in fact, necessary, for it keeps the honey from spoiling; we know, indeed, that purified honey, from which the formic acid has been removed, very soon ferments, while unpurified honey will keep unchanged for years. Nature furnishes the bees with this knowledge instinctively, and therefore they do not carry this drop of formic acid away out of the hive. Bee connoisseurs assure me that the bees add it to the nectar which they collect that is free from it so as to make it keep, and they do this in places where they are not disturbed too.

Bee stings are often spoken of in agricultural and popular papers as a remedy for rheumatic affections, and numerous cures are adduced to prove it. If the formic acid that accompanies the sting can be looked upon as the principal agent in the cure, it would be worth while to try the experiment of rubbing the spot with this acid, or injecting it under the skin, so as to avoid the somewhat inconvenient method of applying live bees.

Two hundred years ago formic acid was made from the brown wood ants, by triturating them with water and distilling it. The acid liquid was used to irritate the skin. The reddening of the skin, by using baths of pine leaves, is also due to the action of the formic acid. The anti-fermentative action of formic acid has also long been recognized.

As regards the irritative action of stinging nettles and other similar vegetables, it depends, as already stated, on formic acid. The point of the nettles is brittle as glass, and by the slightest touch penetrates the skin and breaks off, pouring out its acid, and causing the burning sensation.

PROFESSOR A. VOGEL.

SERICULTURE IN HUNGARY.—The report recently published by the Government Commission for the development of silk-growing in Hungary is of a very satisfactory character. During the last year there were 2,976 growers, who obtained 41,537 kilogrammes of cocoons from 426 parishes, while the sale of the produce realized 41,816 fl. This was a great advance on the previous year, when there were only 1,059 growers cultivating the industry in 109 parishes, and producing only 10,132 kilogrammes, which were sold for 11,062 fl. The present cocoon harvest has been sold to Italy for 63,000 fl., and the profits thus realized are being devoted to the establishment of a silk cultivation school, to which three training instructors are appointed by the Minister of Education, and three by the Minister of Commerce. Three other appointments have been made by private efforts, so that very shortly nine teachers will be available to travel through the country and give gratuitous instruction in the mysteries of silkworm rearing and silk winding. In the model school at Goertz one of the professors holds classes for the surrounding district, and 80 kilogrammes of cocoons have been distributed to encourage beginners. The Government has also planted 28,956 mulberry trees. The report recommends the planting of mulberry trees on all the commercial lands and roads, in addition to the establishment of filatures in every district, and if their recommendations are carried out there is little doubt but that Hungary will become a great silk-growing centre.

A GARDEN ROCKERY AS A DIVIDING SCREEN.

THIRTY years have elapsed since the rockery now figured was constructed at Stoke Newington. There is no fashion in such things, and thirty years is no more than thirty minutes in respect of relative merit, if there is any merit of any sort whatever. When it was in the first instance made a subject of illustration many friends were gratified, and I will hope to renew the gratification in some quarters by offering this as a model for a certain class of useful rockeries.

Rockeries, like many other things, vary, and they ought to vary; there must be room for the exercise of individual invention and fancy, and for the adaptation of an idea to peculiar circumstances. If we were to go deep into the question, we should have to consider where art and nature should come to terms in the forms of rockeries, for at the first start we are adopting artificial means to produce a representation of something natural, and which it is usually a most difficult thing to imitate. Now, to avoid all such questions, let me offer a few practical observations on the sketch here presented from the pencil of my excellent friend Mr. A. Slocombe. The sketch represents what has been jokingly termed the "Roman Wall," and which is simply a little rockery constructed to make a division of the garden into two equal parts. It is called Roman because there is nothing Roman about it except Roman cement. The name originated in fun and frolic, and has stuck to it like cement ever since.

Let it be understood, then, that the Roman wall is virtually a screen. There is such an activity of work at the lower end of the garden all the year round that a certain amount of untidiness is inevitable. Much of this was always visible from the upper end, and until the wall was built I was perpetually adopting some new plan of shutting out from view all that conglomeration of disorder. At last I resolved to interrupt the view by means of a brick construction which should have an agreeably rustic appearance, and which should serve also as a rockery for ferns and alpine. The picture shows how this was done, but it shows the centre only, and the principal walk down. On

them needs taste and judgment. In the progress of the work, these points were especially borne in mind—to leave occasional openings between the burs for the formation of "pockets," and to allow the roots of the plants placed in the pockets to push into the mass of the wall; to give the affair as much as possible the aspect of a ruin without indulging in any excess of fantastic detail; to create as many different aspects and positions as possible—some portions being in the full sun, others full shade, and others intermediate. The crescent-shaped bastion is an admirable scheme for plant-growing, because of the choice it affords of damp, dry, shady, and sunny positions. As for the manual part of the work, that consisted in building up with cement on both sides, and filling in between with clayey loam as the work progressed; all the rest was a matter of eyesight and fancy.

The great service this renders me is that it affords suitable positions for many interesting plants. I have never seen *sodums*, *sempervivums*, and *mesembryanthemums* grow so finely as they have done planted out on the sunny ledges of this bastion. The trailing species of *mesembryanthemum* are pre-eminently beautiful and appropriate for the purpose, and on this wall I have had 125 species growing at the same time, presenting a variety of forms and characters which no other tribe of plants could equal in such a position. As for the *sodums* and *sempervivums*, they literally revel in the chinks they have established themselves in, and when they flower the bastion is smothered with beauty. That elegant little gem *Sempervivum arachnoides* has a place full in the front on a broad ledge, and it spreads out into a great cushion, silken with the web of threads from which it takes its name, and when the proper season arrives is an almost solid mass of elegant red flowers. The wall-loving ferns, such as *Asplenium ruta-muraria*, *A. trichomanes*, *A. adiantum nigrum*, *Polypodium vulgare*, and many others, thrive grandly in their prepared pockets in chosen positions; and as for the last, there are fine tufts of it on the summits, where I prepared places for them by removing a little of the earth, and putting in place of it about a peck of turfy loam and cocoa-nut fibre refuse for every tuft, and into that they rooted and grew with delightful



MURAL FERNERY AND SCREEN.

the right is a sort of bay, and banks beyond formed of tree stumps and burs. The building of which we get a glimpse across a corner of this bay is the bee shed. On the left is a similar bay and banks connecting the wall with a cosy summer house.

It will be understood, therefore, that the wall or bastion is the principal feature of an arrangement intended to serve several purposes. First, to divide the gardens at that point, and shut out from view the rosarium, of which you get a glimpse through the arch; also to shut out from view the houses, pits, potting shed, &c., &c., at the lower end; also to present an agreeable scene, and to furnish sites for interesting objects, more especially for the cultivation of plants which it is impossible to cultivate in a small garden except by the aid of some such artificial arrangement. This last is to me its most important use; in plain truth, though this is on a very small scale, it is a garden in itself, and I think I could find enough to employ and amuse me as an amateur gardener in the management of such a scheme alone, without any rosarium, or plant houses, or beds, or borders at all.

The construction stands in the centre of the garden, and the principal walk passes through it. To prevent a clear view through, the walls are crescent-shaped, so as to have a bastion-like appearance, and they consist of a central core of earth and a facing each way of burs. Experience has taught me that an affair of this kind—like some other affairs—must be done properly, or it will be useless. If the wall is too slender, it will be at all seasons of the year so dry that it will be a difficult matter to keep anything alive in it. The main portions require to have a breadth of two to four feet of earth enclosed, in order to retain sufficient moisture for the sustenance of the plants, and to encourage such things as ivies, ferns, and grasses to send their roots into the solid mass, that they may thrive without needing any great amount of artificial aid. Hence, in calculating the dimensions of a work of this kind, I would reckon on the principal walls having a thickness of four feet. To construct

vigour. So, again, here are all the varieties of hardy *Periwinkles*, with green and variegated leaves. *Ivies* of many sorts are making their way up to festoon the arches. At the foot of the wall, and in the shady bays formed in its recesses, the large-growing ferns are doing grandly in beds of prepared soil, consisting of about equal parts of loam, leaf mould, and peat. Nor least important of all the tenants of this little snugery are the grasses; and allow me to say that, beautiful as many ornamental grasses are, it is only in connexion with the rustic outlines and dark colours of a construction of this kind that ornamental grasses are seen to full advantage.

The catalogue of plants for such a place can scarcely be said to have either a beginning or an end. On the banks adjoining the bastion I have a delightful assortment of curiosities—*Saxifragas*, *Trifoliums*, *Drabas*, *Funkias*, *Alyssums*, *Aquilegias*, *Campanulas*, *Dianthus*, &c., &c., &c. I call to mind that I never could keep *Dielytra cucullaria* till I planted it in a chink in one of the shady banks. I remember that the beautiful *Polygonum vacciniifolium* never did any good here till I planted it in a damp hollow beside *Osmunda regalis*, and they grew delightfully in company. I never so much enjoyed certain hardy variegated plants till I sprinkled these banks and braes all over with them, and I woke one morning to a vision of *Epilobium angustifolium* presenting thousands of its rosy purple flowers in the midst of a delicate mass of creamy variegated leaves on a bank right opposite my seat in the corner, and I thought we might almost give up the cultivation of *Roses* and *Lilies*, and such like things, and be content with the indescribable beauty of that tuft of weed. I might have remained in this mood if I had not caught sight of some *Statice*s round about that were becoming glorious with balls of crimson and grass-like spikes of lavender-blue, and which hinted to me that man's capacity for the appreciation of beauty is as wide and vast as the diversity of beautiful forms presented to him; and so I took up with *Roses* and *Lilies* again, without forgetting the vision of the variegated Willow-herb.

S. H.

WILLIAM TURNER THE BOTANIST.

IN a review of a reprint, edited by Mr. James Britten, of William Turner's "Names of Herbes," A.D. 1548, in the *Athenæum* of September 9, 1882, occurs the following very acceptable and peculiarly interesting biographical sketch of our first English botanist and immortal author of "The Herbal" of 1563.

William Turner was the first Englishman who wrote about plants in a scientific manner. His science was, of course, a widely different thing from ours, but it will soon be noticed by any one who reads a page or two of the reprint before us, or, indeed, of any of Turner's non-theological writings, that he was a close observer of nature, and little given to rely upon authority when it was not supported by trustworthy observation. Turner was a Morpeth man. His father is said to have been a tanner. The year of his birth is unknown. He must have been some time during the first decade of the sixteenth century. Morpeth, though a place of political importance, must have been a small town when Turner was a boy. It may be inferred from several passages in the book before us that he spent his youthful days wandering about among the woods and heaths that surrounded his home. We find frequent notices of Northumbrian plants, and now and then we are told that this or that grows near Morpeth. In one instance he is still more particular, for we are informed that acetonium "is much in Northumberland in a wodde besyde Morpeth called Cottingwood." This place is, we fear, a wood no longer. It was, we believe, a fragment of the old forest, and in Turner's time must have been a wild park-like spot. Turner flourished in a time of religious change, and much of his life was given to religious controversy. He was an ardent Protestant, and on two occasions—once under Henry VIII. and again during the reign of Mary—it became necessary for him to retire to the Continent. He may have been a sufferer, but we have certainly been gainers from his banishment. Had he remained in England his botanical knowledge would have been of a far less valuable kind than it has proved to be. There is probably not a page of the reprint before us in which he does not mention some botanical fact that he has himself observed in the Rhinelands, Italy, or France. In the reign of Edward VI. he was rewarded with the deanery of Wells, which, of course, became forfeited on the restoration of the Roman Catholic worship under Mary. It was given back to him in or before 1560. We think it not unlikely that he was for a time chaplain to the English at Boulogne. Stowe's memoranda, published by the Camden Society, mention a minister "cawlyd Turnar of Bullyn," who, preaching, at Paul's Cross in 1563, maintained the startling opinion that "the deade of y^e cittie shuld be buried owt of the cite in y^e fylde." If this was not William Turner the botanist, there must have been two contemporary Turners who were men of scientific attainments. As far as we have been able to make out, this is the earliest English protest against intramural burial.

Turner's "Names of Herbes" must not be confounded with his larger works on botany. It has naturally less scientific value than they, but for the student of language it is perhaps more important, as it has certainly the advantage of being much shorter. Turner knew English well and could use it with effect in several directions. He has done us good service by enriching our tongue with several plant names that have now become familiar. This was done, not by inventing Latin or Greek compounds, but either by translating into English or borrowing from sister dialects. It is almost certain that the name of one of our best-known trees was introduced by him. Of the "Larix" he says that it "groweth on the highest toppes of the Alpes, higher then the firres do, the duche men call *Laricem ein larchen baume*, the french men cal it *Dularge*. It may be called in englishe a *Larche tree*." It is not improbable that the *Enonymus europæus* had its name of the spindle tree from him. He tells us that he had observed them growing in the hedges "betwene Barkway and Ware." Turner was, we may be sure, an observant man in many directions. It was, perhaps, natural that he should record that two of the greatest beech trees he had ever seen grew at Morpeth "on ij hylles right ouer the Castle." These had no doubt strongly appealed to his childish imagination, and there may have been a whole world of legend and romance connected with them that had impressed their forms on his memory. We should hardly have expected that one who seems to have known little of Yorkshire, except what he must have seen in travelling along the Great North Road, would have observed that the yew tree was particularly prevalent in that county. He may well have been the first to point out the fact.

There are several passages in the text which show that Turner took interest in his native tongue. English-speaking people have never been ashamed of their language, as some Continental peoples have been, but it comes upon us like a discovery when we find a man of the Reformation period treating it as something in itself worthy of respect. The name by which he knew the *Isatis tinctoria* was "wad," "not Ode as some corrupters of the englishe tongue do nikenam it." We do not remember that "ode" occurs in any of our modern glossaries, but the people who pronounce wood as 'ood, wool as 'ull, and woman as 'oman, would certainly omit the first letter in "wad," and probably change the vowel so as to make an ordinary hearer think they said "ode." Now and then we come on a derivation which, if not true, is worth attention. Speargrass, a plant which the editor does not think it safe to identify, grows in watery places in Northumberland, and is so called because "it cutteth mennes handes that touche it." In one passage Turner gives those persons who persist in thinking that Saxon was a separate language from our own a useful lesson. The *Armoracia rusticana* grew around his native place, and was there called "Redico." This he felt sure was all wrong: "It should be called after the olde Saxon englishe Reticol, that is Radische colle." We have not space to quote further from this very interesting reprint. There is hardly a page that does not throw light on some of those things which now engage the attention of thoughtful people. The shadowy outline of Turner's own taste which we derive from his little book leads us to think that the bent of his mind was towards physical science, not theology. In the sixteenth century it was, however, almost impossible for any intellect even a little above the average to keep out of the vortex of religious controversy.

A VULTURE IN THE CITY.—A little before noon on Friday a bird of vast proportions was seen flying between the Bank and the General Post Office. It at length alighted on the cross of the steeple at St. Vedast, and such a large crowd collected in Cheapside and around the Post Office to view the strange visitor that the efforts of the police were required to keep the thoroughfares open. A tradesman in the neighbourhood, by the aid of a good telescope, discovered the bird to be a vulture of huge proportions. The bird remained on its lofty perch for some time.

Possibly *Phragmites communis* or *Butomus umbellatus*.—ED. G. M.

The House, Garden, and Apiary.

IN THE SHADOWS.

OCTOBER's gold is dim,—the forests rot,
The weary rain falls ceaseless, while the day
Is wrapped in damp. In mire of village way
The hedge-row leaves are stamped; and, all forgot,
The hoodless nest sits visible in the thorn.
Autumn, among her drooping marigolds,
Weeps for her garnered sheaves, and empty folds,
And dripping orchards—plundered and forlorn.
The season is a dead one, and I die!
No more, no more for me the Spring shall make
A resurrection in the earth, and take
The death from out her heart—O God, I die!
The cold throat-mist creeps nearer, till I breathe
Corruption. Drop, stark night, upon my death!

DAVID GRAY.

THE HOUSE.

ORNAMENTAL plants employed in the decoration of indoor apartments should have their leaves kept free from dust, and in the case of the palms, dracænas, and ficus this will not be a difficult matter. Not only does an accumulation of dust on the leaves spoil the appearance of the plants, but it is decidedly injurious to them, especially if allowed for any considerable period. Now that the fires are again started, the plants should have the leaves washed with a clean sponge and tepid water about twice a week. In washing the leaves, which will be highly beneficial to the plants, apart from the mere removal of the dust, the sponge should be used just damp enough to remove the dust, as it is not desirable at this season of the year to saturate the foliage with moisture.

THE GARDEN.

ALPINE PLANTS suffer more from wet than frost; therefore choice kinds had best be potted and put in frames, as during January and February there is usually much havoc committed among alpenes on rockeries.

CHRYSANTHEMUMS are opening well, and all delicate flowers should be bloomed under some sort of cover to protect them from heavy rains. While the various varieties are in bloom, make up the list of what you intend to grow next season; and for specimen culture begin to insert cuttings within a short period.

DECIDUOUS TREES may be planted within the next few weeks. Fruit trees, roses, forest trees, ornamental shrubs, and all such things may be ordered in from the nurseries, and planted without delay, and every day gained will be a real gain for the future well-doing of the trees, which will begin to make roots directly, for the ground is now warm, but from this time will become cooler every day, and the longer planting is delayed the longer will the trees require to make more new roots, on which their vigour next season will depend. Never plant while the ground is in a saturated state; if it does not crumble freely wait a bit; meanwhile lay the trees in by the heels, to prevent injury to the roots by sunshine and drying winds.

FIGS carrying a second crop are often a cause of some anxiety. The larger the fruit the less likely is it to survive the winter, and the best way to save some is to remove all that are larger than peas, and then mat up the trees loosely, so that there will be a circulation of air amongst the wood to keep it hard, yet so that in the event of cutting winds they will have a fair amount of shelter.

KITCHEN GARDEN.—The late-planted winter greens and turnips have come along remarkably well, and unless the weather should be extra severe the breadths late planted will come in early in the spring to succeed the ordinary crop. There is nothing to be done now but to keep the ground clean by the use of the hoe in dry weather, and to lay down broccolis with their heads to the north. Plant Cabbages, Collards, Endive, Garlic, Tree and Potato Onions, Shallots, Cauliflowers under hand-glasses, Hammersmith and other hardy Lettuces. Vacant plots to be trenched two spades deep, and laid up in rough ridges for the winter. Move all refuse to the muck heap, to prevent litter and waste; whatever will rot into mould is of value as manure.

ORCHARD TREES may be better pruned now than later in the season, as the dead and dying branches can be better discerned while the trees are still in leaf than when they are quite bare. There is no mystery as to the pruning of standard trees. Never lop off large branches if it can be avoided; their removal is a positive injury to the tree; never cut carelessly, or allow a bough to snap off when half sawn through. Remove a branch where two cross each other; remove those that screen the boughs below them from the sun; keep the heads of the trees moderately open, so that every part is equally exposed to air and light; and remember all through that bearing trees very seldom grow too vigorously or make wood where it is not wanted, and the less use of knife and saw the better. It is a good rule not to prune fruit trees at all, for nine times in ten the operation spoils the look of the trees and makes an end of the fruit-bearing.

PLANTS IN FRAMES will soon be infested with mildew now if kept close or damp. Though nothing should go dust-dry, it will be best always to defer watering till the weather is clear and bright, and then water well the first thing in the morning, that the pots and plunge material may be somewhat dry before night; one good watering will suffice for a considerable period now.

THE APIARY.

THE apiarian who has paid due attention to his bees will have but little to perplex or cause him anxiety, for bees that have had proper attention will be in a condition to take care of themselves until March next, excepting that the hives will require covering with some warm material should severe weather set in, and those not so sound as they ought to be made waterproof by a covering so arranged that it will throw off the rains. Hives should now be placed in their winter quarters, and those who have a preference for placing bees in houses or sheds for the winter will do well to remove them there at once. But it is much better to place the hives on separate stands in various parts of the garden, and there allow them to remain throughout the year. Each of the straw skeps should have a piece of carpet or old sacking laid over it, and a large shallow earthenware pan placed bottom upwards upon it to throw off the water. The bar frame hives must also have a covering of some kind that will throw off wet. If it is necessary to use the feeding bottle any more this season, let it be done at once, for very late feeding is attended with considerable risk.

The Household.

PRESERVING WALNUTS.

By J. C. CLARKE.

KEEPING walnuts in so fresh a state that the kernel shall be plump and no difficulty be experienced in removing the skin from it without staining the fingers, is not so easily done as may be imagined from the appearance of the fruit. Nevertheless, it may be done in a fairly satisfactory manner when the right mode of procedure is understood. As walnuts were exceedingly plentiful with us last year, I subjected to a careful trial several different methods of keeping them. It may perhaps be interesting if I briefly describe the means I employed and the results obtained. It should be stated that all the walnuts were operated upon directly they were taken from the trees.

The first method adopted was one that is not unfrequently recommended as a good plan of preserving them. As soon as the nuts were brought in from the tree they were spread out on the floor of a dry cool loft, with the fresh green shells on them just as they left the tree. In this position they kept very well for the first three weeks, and we were during that time able to supply the table with clean nuts containing fresh plump kernels. Very soon after that period the green husks rapidly decomposed, and not only were the shells of the nut stained and in an unrepresentable condition, but the stain penetrated to the kernels, which it need not be said was most objectionable. I therefore concluded that this was not a good plan.

Our next plan was even more unsatisfactory. We filled some large flower pots with the green nuts, and then covered them with sawdust. After the pots were filled we placed them in a dry loft with the others. This was a decided failure, as in a short time the outer husks began to decompose, and the outside of the inner shells and kernel was so completely saturated with a black liquid that they were quite unfit to send to table at the end of a month.

The next step in our experiments was to obtain some zinc canisters made in the form of a grocer's tea caddy. One of these was filled with the fresh-peeled walnuts, the other was filled a fortnight later, the nuts in the meantime remaining in one of the vineries to dry. The first canister that was filled did not answer well, as the nuts remained so wet that they lost all their proper flavour in a few weeks. Those dried before being put in the canister were better, for they kept fairly well, and the flavour was pretty good. But the results were not such as to enable me to consider the plan altogether satisfactory. The last plan I have to describe is the best. It is not of my own devising, nor do I think it is altogether new. However, that is of but little consequence. I can recommend it as the best plan known to me. As soon as the green husks were removed the walnuts were placed in a clean six-inch flower pot, a score or so in each. It must be understood that each pot is to furnish enough for a dish, and the number of the pots must be determined by the demand. When sufficient pots have been filled, cover them separately with pieces of slate, and then bury them under coal-ashes, in the same way as newly-potted hyacinths. Any position in the open will do. The object of this is to keep them clean; the pieces of slate will prevent any water reaching them, and the covering of ashes will keep them air-tight. Under these conditions the nuts will be kept in a uniform state of moisture, and instead of the kernel drying up it will keep plump and fresh. From this store a single dish or any number of dishes may be drawn without in any way interfering with those that are left.

POOR FRENCH COOKING.

A returning tourist launches out into bitter complainings of the miserable fare that is furnished to visitors at hotels and inns, making out a terrible list of grievances against hotel dinners and cooks, accusing the latter of homicidal intentions towards the world at large, mine host being party, willing and active, in the crime. He dates indispositions without number, and prolonged digestive disturbances, to the fatal table d'hôte, to the coarsely-made, greasy side dishes, to the cold, tough, unwholesome entrées, to the sticky sweets and fossilized desserts. Having suffered much, he not only takes the public into his confidence by way of relieving his own mind, but gives them the benefit of his own sad experience, hoping it may profit them somewhat. The English reader may also not be sorry to hear what a Frenchman has to say on this really important subject. It is popularly supposed that all French people know how to cook; but this, like many another general axiom, is very far from being the truth. They used certainly to be miles ahead of the average English in the matter; but since so much has been said and written about cookery in England, and, above all, since improvement was made in the kitchen apparatus and various appliances, the difference is infinitely less. As for the French peasants, they neither practise nor understand even reasonably good cookery. I have often smiled at the readiness with which English writers on the subject make assertions concerning their superiority over the English labouring man. Such superiority only exists to any extent in towns; our Paris *ouvrier* and *ouvrière* prepare their food better and more cheaply than your London mechanic's wife knows how to do; but Jacques Bonhomme is too fond of saving every penny to spend much even on such a matter, and his daily *menu* is hardly more extensive than that of which the principal item is cabbage and bacon. Thousands of country people here never taste meat otherwise than boiled; and while *bouilli*—beef cooked to shreds—is the weekly Sunday feast in the inland departments, soup made from conger-eel and dog-fish—a horrible compound—is the ordinary nourishment of the dwellers on the sea coast during the summer, while salt mackerel and herrings compose the winter bill of fare.—From the *Ladies' Gazette of Fashion*.

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent Beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

TREELESS PRAIRIES.

By PROFESSOR MEEHAN.

THE subject of treeless prairies was again brought before the Academy of Sciences of Philadelphia recently by Mr. Thomas Meehan. He remarked that the absence of timber or arborescent growth on the grassy prairies of America still continued to be a matter of controversy, but he believed that in the light of accumulating evidence we might now come to a positive decision in regard to the question. The most prevalent belief had been that trees would not grow on those prairies—and we have had theories relating to soil or climate to show why they could not grow. Then there were others who believed that trees did grow there in ancient times, but had been burnt off, and kept burnt off by annual fires.

Mr. Meehan considered in detail the authors who had propounded various theories and the distinguished men who had advocated them, and said that it was evident climate could have nothing to do with the question, because in these prairie regions there were often large belts of timber lands, projected like huge arms into the grassy regions, with precisely the same climatal conditions over both. That the soil was not unfavourable was proved now by the artificial plantations everywhere successful, and that the soil was unfavourable to the germination of tree seed, as suggested by Professor Whitney, was on the face of it untenable from the fact that it required but the same conditions for the seeds of trees as for those of herbaceous plants, the number of species of which on the prairies was well known to be very large. Another great gain to our present knowledge was that since the annual firing of the grassy prairies had been discontinued by the advance of civilization, the timber was everywhere encroaching on them. Amongst the facts which he offered in proof of this was a reference to p. 505 of the seventh report of the Geological Survey of Indiana, where Dr. Schneck shows how land which was once grassy prairie is now covered with a luxuriant growth of forest trees; to the evidence of Major Hotchkiss, geologist, of Staunton, Virginia, that the Shenandoah Valley, now heavily timbered, was clear of trees in the early history of Virginia; to the discovery of buffalo bones in caves near Stroudsburg, Pa., by Dr. Joseph Leidy, now a timbered region, the buffalo only existing in open, grassy countries;* and to various traditions of settlers in some valleys now timbered, that the land was originally clear of trees. He pointed out that in all known parts of the United States at the present time, except the arid regions, where only drought-loving plants could exist, the natural result of freedom was the succession of forest growth. Seeds were scattered by winds or animals over acres of cleared land; if such land became neglected, these, again seeding in time, extended the forest area continually. The tallest-growing vegetation, like trees, crowded out the weaker, and the forest naturally crowded out the lower-growing and weaker herbaceous plants. He illustrated this by reference to the neglected cotton fields of the Southern States.

From all this, the speaker said that it was evident that there was nothing in nature, either now or in the past, to prevent the gradual encroachments of the forest over the grassy plains, till long before the white man came here the whole would have been completely covered by arborescent growth. Were there any artificial causes equal to the exclusion of trees, and yet permitting an herbaceous growth? If we were to sow a piece of land in the autumn with some tree seed and some seeds of annuals, the latter would be up, flower, mature, and scatter their seed to the ground before the next autumn, and many of these seeds would be washed into the earth, or drawn into the earth by insects or small animals. But tree seed would make young trees, which would not again produce seed for ten or more years. If now, at the end of this first season, a fire swept over the tract, the seeds of the annuals which had found a slight earthly protection would come up again the next summer, again seeding and extending the area. The trees would be burned down, and though perhaps many would sprout successive burnings would keep them confined to one place. In short, under annual burnings, herbaceous plants could still increase their area annually, but trees could never get far beyond the line they had reached when the annual fire first commenced. There could be no doubt that an annual burning in a tract destitute of forest growth would certainly prevent the spread of timber, or of any plant that required more than a year to mature seed from the time of sowing. Now, if we look at the actual facts, we find that the Indians did annually fire the prairies.

Father Hennepin, the earliest writer on Indian habits, noted that it was the practice in his time. There is little doubt but this practice of annual burning has been one extending long into the past. What object had they in these annual burnings? They must have known that the buffalo and other animals on which they were largely dependent for a living thrived only on huge grassy plains, and that it was to their interest to preserve these plains by every means in their power. Low as their power of reasoning may be, they could not but have perceived that while grassy herbage thrived in spite of fires, perhaps improved under the fiery ordeal, trees could not follow on burned land. What could be more natural than that they would burn the prairies with the object of retaining food for their wild animals? If we have no difficulty in reaching a positive conclusion so far, we may now take a glance at the early geological times. Mr. Meehan then referred to the researches of Worthen, Whittesley, and others in Ohio, Illinois, and other prairie regions. On the retreat of the great glacier, the higher lands and drift formation were probably high and dry long before the immense lakes formed from the melting and turbid waters ceased to be.

It was tolerably well understood that many species of trees and other plants which required a temperate atmosphere retreated southwardly with the advance of the glacier, and advanced to higher latitudes on the glacier's retreat. Thus these higher ridges would become timbered long before the lower lands became dry. Evidence accumulates that man existed on this continent, in the far west, not long after the glacier retreated, though "not long," in a geological sense, may mean many hundreds of years. The lakes of glacial water would gradually become shallower from the deposit of the highly comminuted material brought down from higher land, from the wearing away of rocky breastworks as in South Pass, Illinois, as well as from the openings which would continually occur from nature's ever-varying plan of streams underground. In all events, the drying of these lakes would be from their outward edges first. Aquatics would give way to marsh grasses, and these to vegetation such as we now find generally spread over the prairie region. If now we can conceive of human beings such as we know the Indian races to be already in more southern latitudes—having learned the fact that firing would keep down trees and aid in the preservation of the chase—following the retreat of the glacier to the higher lands, and still as they advanced north-

* Since the reading of the paper it has been brought to the attention of the author that the bones may have belonged to the wood buffalo.

wardly firing the plains up to the water's edge, it would certainly account for the absence of arboreal vegetation from these immense lacustrine lands from the very beginning of their formation. Of course with this view we should have to look for some evidences of man's existence, both on the lands which were once under water, as well as those which were timber lands at his first appearance there. He did not know how many such evidences have been or may be found. Man's traces in the past are at best but rare, and they would naturally be much more scarce in the lacustrine regions than in lands dry at the same epoch. At any rate, this part of his remarks, he said, must be taken as mere speculation; but, as we could see on the basis of sound scientific investigation why there could be no trees on these grassy prairies within the range of indubitable history, it was a fair inference that some such cause had continued from the beginning; namely, that annual fires had ever been the reason why arboresecent vegetation had never had an existence there.

Notes of Observation.

A NEW BASKET FERN.

AN exquisitely beautiful fern for a hanging basket is the newly-introduced *Gymnogramma schizophylla*. The minutely-divided fronds are about fifteen inches in length, and droop over the basket in the most elegant manner. It resembles at first sight a finely-cut polystichum with the graceful reflex habit of *Araucaria excelsa*. Several small specimens of the fern may be seen in the Tropical Fern House at Kew.

Harrow.

T. W.

PAMPAS GRASS.

While walking round Dr. Bradford's charming garden, I noticed his two fine specimens of pampas grass; one of them with twenty-one, the other with twenty-four grand feathery plumes. The ground slopes N.W. by W., and is shaded until three o'clock by a belt of Scotch firs, beeches, and huge evergreens, but open to the westward. The subsoil is a heavy clay, but well drained. The plants, which are seven or eight feet through and as much in height, are fifteen years old, and have hitherto received no protection. They were sadly disfigured by the cold wet winter of 1880-1881, that played such havoc among the roses, and in the following summer there were only three small spikes. This year they are grand objects against a background of conifers and reddening foliage of forest trees. Not far from the pampas is a very fine specimen of the common *hydrangea* with scores of pale blue trusses. It also is unprotected during the winter, and even in midsummer enjoys only from two to three hours sunshine. It is the only large specimen, I believe, in the neighbourhood.

Harrow.

T. W.

We had growing on the lawn here two noble specimens of the Pampas grass which for many years previous to the winter of 1880-81 produced in abundance their fine feathery plumes. But the cruel frosts experienced during the winter mentioned killed one and so crippled the other that it presented anything but a respectable appearance during the summer following, although they were covered with mats, three in thickness. But during the summer through which we have just passed the plant that survived has made rapid progress towards recovery, and is now producing nineteen spikes, but they are not so large as those produced before the injury received from the frost. Last March I planted in well-prepared soil two two-year-old plants, and so far they are doing remarkably well. I shall be glad to learn from those who have paid some attention to the matter what age the Pampas grass usually attains before it shows flower, as I have no recollection of seeing plumes on young plants.

Tegfynydd, Carmarthenshire.

P. NEATE.

SINGLE DAHLIAS.

Amongst the Notes of Observation in the GARDENERS' MAGAZINE of September 30 I notice a remark in a letter signed "Dahlia Fancier," which must lead to some comments, viz., that single dahlias as cut flowers have been much overrated, "for they last only a few hours in water," and will not stand more than a day, as witness the condition of the majority of the blooms at the Crystal Palace exhibition. We have grown them with great success as to effect in a square plot, and have had them arranged as cut flowers in water every week, where they last quite fresh always from three to four days, sometimes longer. They have created more talk and admiration from every person who has seen them than any flower we have ever grown. Doubtless if cut in fullest bloom and put into bunches for exhibiting purposes, like all single flowers, they will fall to pieces, but that they will only "last a few hours in water," I can of my own knowledge distinctly prove to be a libel on the artistic single dahlia; and the beautiful *Cactus dahlia*, which has gained equal admiration from the public, lasts even longer.

THE DAUGHTER OF A SUBSCRIBER.

DEEP DIGGING OF FLOWER BEDS.

As the autumn affords more leisure in the garden than the spring, I make it a practice to dig up the flower beds two spits deep before I put out the plants that are to flower in the spring. I have two good reasons for this practice. By digging deep in the autumn it provides a ready means of escape for the heavy winter rains, with the result that the roots are comparatively dry at a time of year when any excess of water about them might do serious injury. By following up this course of deep digging once a year the summer occupants have a chance of pushing their roots down out of the reach of drought. Many a time I have found that my geraniums and other strong-growing plants have gone successfully through a dry summer with the aid of but very little water, because they have found moisture and a well-moved soil below the ordinary depth. This has been at a time when other people have been incessantly watering with but very poor results. I therefore say dig the flower beds deep now, but do not bring the crude subsoil to the top. The proper course is to take off the surface soil, stir up the bottom a foot or more in depth, and then replace the top spit.

JOSEPH MACDONALD.

LANTON'S EARLIEST OF ALL PEA.

As your readers will soon be thinking of sowing their earliest crops of peas, I should like to recommend to their notice the above-mentioned variety. I have not grown it myself, but a near neighbour of mine tried it last year by the side of Day's Early Sunrise and Ringleader, and as I saw them just as they were coming into bearing, I am able to say that Earliest of All was quite as early as Ringleader and altogether a better pea. I think that your readers cannot do wrong in growing it for a first crop.

T. M. P.

OCTOBER FLOWERS.

The note at page 541 on Autumnal Flowers is interesting and useful. In years when a sharp frost tells us at the very beginning of October (or even earlier) that autumn has commenced, we look in vain for such gay colourings as we have at this season. In looking round my garden I make note of (*Eurothera macrocarpa* and *E. Missouriensis* as being full of fine flowers; *Aster dumosus* and *A. blandus*, quite beautiful; *Rudbeckia Drummondii*, splendid; *Aretotis grandiflora*, still good; *Campanula Celsi*, *C. bononiensis* and *C. grandis*, still showing flowers; several of the *Colchicums*, gay enough; *Wallflowers*, abundant, bright, and fragrant; the *Saffron Crocus*, *C. sativus*, showing its soft violet flowers; the hardy *Cyclamens*, more especially *C. africanus*, *C. coum*, and *C. hederifolium*, better than usual, exquisite in their loveliness; a few hybrid *Dianthus* worth searching for; *Liatris pycnostachya*, a fine border plant; *Lilium auratum*, not only in flower but in a glorious condition of freshness, a daily delight until the frost makes a change; *Funkia grandiflora*, flowering but looking very poor; *Diplacus atropurpurea*, good; *Oxalis rosea*, as fresh as at any time of the year; *Pyrethrum uliginosum*, a little dirty, but gay enough when viewed from a distance; *Stenactis speciosa*, not attractive, but worth mentioning. It is now a matter of grave regret to me that I have no herbaceous lobelias, no shrubby veronicas, and no pompones chrysanthemums. Amongst my bedding plants, which are for the most part very much the worse for wear, I see that the dwarf Marigold, *Tagetes signata*, is very gay, Cupheas are brilliant, blue Lobelias are flowery, though scarcely fresh, and the Iresines are clean and perfect, though a little dulled in their colour. Thus the autumnal flowers this year are neither few nor wanting in attractive characters.

R. W. B.

CHRYSANthemum MADAME DESGRANGE.

The introduction of the early-flowering chrysanthemums is likely to mark a new era in the flower garden, and when their cultivation becomes general we shall not have to complain of a flowerless autumn. I must confess that for some time I was not very favourably impressed with the summer-flowering varieties, for although useful for supplying cut flowers, they seemed out of season. The variety under notice comes in a little later, and forms a capital link to connect the fast fading summer display of the flower garden with the feast of form and colour awaiting us in November by the chrysanthemum proper to that month. If nothing else would make an impression in favour of the early-flowering chrysanthemums, the appearance of two beds of Madame Desgrange at Hampton Court Gardens at the present time would do so. I have no doubt it will become a general favourite with all who have had the good fortune to see it there, as it is, in full splendour. By what I know of it, I doubt if it is not a much improved variety; as growing there, it is about eighteen inches in height, very robust, and has good leafage, and carries immense trusses of white, somewhat irregularly-formed flowers with a greenish yellow centre. From the number of unexpanded buds it would appear that it will be gay for another month, provided the weather is favourable. Mr. Graham, the talented superintendent, assured me that the plants had not received any special feeding or treatment, as their appearance would suggest, and so highly is he impressed with its value that he intends making a special bed or two another year, intermixing with the chrysanthemum another autumn-flowering plant that he is working up. At present there are a few plants of the bright scarlet *Lobelia cardinalis*, throwing up its spikes above the white chrysanthemum, and the contrast is very pleasing. I should strongly recommend Madame Desgrange both as a bedder and border plant, and for supplying blooms for floral decoration, as white flowers are always useful, and sometimes in great demand.

Kingston-on-Thames.

C. ORCHARD.

TREES FOR THE SEASIDE.

All who plant near the sea should take note of *Pinus mugho*, *P. pinaster*, *P. pumilio*, and *P. Edgariana*, as admirably adapted to adorn and endure, for these beautiful trees are unhurt by the sea spray, and in fact seem rather to like it. The pinasters at Bournemouth are well known as characteristic of the spot, and they are often drenched by driving showers of spray from the sea. In many places where evergreen shrubs appear unequal to the conflict with winds and waves a protecting belt of these conifers would make all the difference, as within the line so formed bays, hollies, euonymus, rhododendrons, and other shrubs might be planted with safety. The evergreen shrubs I have found most useful in an experience of some years are the Portugal Laurel, the Laurestinns, and the Japan Euonymus. But these are useless in positions exposed to occasional showers of salt water unless protected by the storm-enduring pines. All seaside planting should consist of young trees in the first instance.

W.

PAVON'S SLIPPERWORT.

This noble plant is quite a rarity, though by this time it should be well known because of its value as a greenhouse and conservatory decorative plant. It is the *Calceolaria Pavoni* of *B. M.*, 4,525, the *C. perfoliata* of Ruiz. Some ten years ago I obtained a plant of Mr. Bull, and have often looked for it in plant houses in the gardens of friends, but have never seen it, or heard of it as a plant known and admired. It grows to a height of eight to ten feet; has large silky leaves; the flowers are in large leafy panicles; they are of great size, with the lip curiously folded back, and the colour is pale yellow. It is useful for many purposes, as it not only flowers at all seasons in the greenhouse, but may be planted out for the summer. I have a few trained out on a wall between plants of larger growth, and they were very beautiful in the later part of the summer, and continued flowering until the second week of October, when I had them taken up and housed. It should be remembered that calceolarias of this grand type arrest attention and give a fine tone to a group of plants, whether within or without.

R. W. B.

DEEP PLANTING OF CROCUSES.

Where mice are troublesome it is a good plan to plant crocuses rather deeper than is otherwise necessary, as the mice do not burrow very deep for their food. They may be planted as much as twelve inches under the surface with the assurance that they will find their way through, although somewhat late. It must, however, be stated that the deeper they are in the soil the weaker will they flower. I should prefer to plant the corms four inches deep where there are no mice, as the flowers will come up at their proper time and attain their full size. When it is necessary to plant deeper, they ought not to be more than six inches below the surface, as at that distance the mice will not injure them, and the flowers will not suffer.

JOSEPH MACDONALD.

KENTISH COBS.

It is curious to note how, when driving through Mid-Kent, corn seems entirely to disappear, and to give place to the tall languid hop, and to plantation after plantation and field after field of low-growing shrubs and trees. Standing high up by an old church, put so far from the village that it seems more useful as a beacon or landmark than as a place of worship, we can look round us for miles, and through the soft blue light that seems to brood, this October morning, over the low-lying landscape, we can see nothing but dreamy, silent stretches of country, with the curious hump-backed, hooded oast-houses dotted about, and here and there a few white Government tents that yet remain as shelter for the hop-pickers, whose scanty task is but just over, for the hops this year are both few and late, and are only just done with as far as the picker is concerned; while whole gardens are left "unpoled"—that is to say, with the bine twisted sparsely round the tall poles, because there was no fruit to gather. And in this case it is better, for the hops, to leave them alone, trusting that another year may be better, and allow the hop-grower to recoup himself for his present losses.

It is pleasant to turn away from contemplating this unsatisfactory state of things, to plunge into one of the plantations below us, where the well-known Kentish cob-nuts flourish as well as the hops have done badly. There is a great sense of calm in the plantations. The sunshine glints down through the boughs of the apple-trees that are planted as much for the sake of the shelter they give the nuts as for their fruit, which is almost as little this year as the hop-harvest. Every now and then a thin yellow leaf flutters through the crisp air, or a clump of nuts falls; or among the leaves on the ground a slight rustle draws our attention to a small red-robber, who, anxious to fill his larder for the winter, is braving all sorts of perils in his quest for provender. "Squirrels never take a nut that has a maggot either," says our guide, as he takes a shot with a stone in the squirrel's direction, "and we have to shoot them constantly, as otherwise they would clear off a plantation; but he's welcome to a few nuts this year, for we have more than I remember for some time. Just look here!" He turned back the broad changing leaves of a tree just by, and showed us the russet-brown clusters hanging closely together underneath them. The colour is really wonderful all round us, for there is not an inch of ground wasted. The apple-trees look grim and gray with their twisted, gnarled, yellow, lichen-covered arms, and below them stand black currant bushes in ranks, the leaves of which are turning deep purple and scarlet; while the nut trees, in serried lines, grow taller again, and in a more symmetrical form than the other bushes, and are yet densely green in places, and have only their ripened fruit to show that autumn is well-nigh over. And beyond them again, in every spare corner, young trees in pale yellow, or red, or faded green dresses, are bending and swaying in the gentle air, ready to be cut off in their youth for use as hop-poles in the neighbouring garden.

Presently we hear a sound of voices, and, boldly following our guide over muddy banks and in among the trees, brushing as we do so many a gossamer-web from across our paths, we come upon the nut-gatherers busy at their task, and eager to make the most of the fine weather, for in the damp the nuts do not harvest well, and, turning black, give the buyers the trouble of drying them over brimstone to give them a fine colour, which being decidedly a trick of the trade, is repudiated by the grower, who resorts to none of these "dodges" for putting a better face on the matter than it deserves. The gatherers are women and children, who do not touch the trees, but simply pick the nuts up from the ground as they fall from the boughs under the shaking they get from the foreman, who takes a pick, and, pushing it round the stool, *i.e.*, the stem of the tree, shakes it vigorously, nor ceases until the nuts cease to fall, when he goes on to the next tree, followed by his group of women, who scarcely stop from their task to look at us as we pass. One shilling and fourpence a day does not seem princely pay for such back-aching work, but the women look well and happy, secure of occupation in these parts, for the weeds will next claim their attention; as the plantations are kept quite as free from these plagues as are most gardens, and they will be required for some time yet to root up the American cress and long grasses that seem to grow the moment the master's eye is off them.

No one would believe that cob-nuts require the amount of attention that they do. To the uninitiated they seem such nice easy things to grow, almost wanting nothing save sun and air; but to begin with, the trees will only flourish and bear fruit on the Kentish rag, with a covering of loam or red sand, the "fleeter" the better, and entirely refuse to fruit at all if white sand or clay can be given them for sustenance. Then, too, the Kentish rag is not the only rag they require, and after the fruiting season is over the trees have to be plentifully mended or manured with rags, sprats, and farm manure, the rags coming down from London in wicker-baskets, that are afterwards used to keep the hares and rabbits off the young apple trees, as they are slipped over them, like a species of open-worked crinoline petticoat, but before the mending begins. The ground all round the trees is opened, and the long suckers that spring from the roots are cut off, after which the trees are sawn and cut to retain their shape, which is something like that of a cup, hollow in the centre, and overflowing, for the boughs close to the ground are the boughs that bear best and suffer least from the maggot or from the late frosts, that, coming with any real severity in May, can at times quite destroy any chance of nuts for that year. The cutting and sawing are done as soon as ever the leaves are really off and allow the operator to see the buds that will be first next year; and when once set to work, a skilful hand works rapidly, and it is pleasant to watch the swift manner in which he passes from tree to tree, until when he has finished his plantation it looks curiously like a flat table, so even and regular has been his handiwork. The small pieces sawn out are made into faggots for the use of the hoppers in the following autumn, for the hop-grower keeps his workmen in fuel and shelter, as well as in hard cash. Then the trees are wanded, the long wands, or shoots from the roots, being pulled up, so that all the strength of the tree goes essentially towards making fruit.

It seems ridiculous that fashion should extend to fruit, but it does; and the sweeter but smaller filbert is being gradually eliminated to make room for his finer relation. It is impossible for an outsider to discern between the trees until he is told that the trees resemble the nuts, and that the cob is a ranker growing, bolder-looking creature. Some of the trees are very old—more than 100 years old—but the principal plantation is about 30 years of age, for until the trees have been some time sedulously looked after they do not bear at all, and it is most interesting, first of all, to see them in the tiny square of ground, where about three or four stools, cut down and allowed to throw up as many wands as they like, provide stock enough to keep up the plantations, and allow of trees being replaced, directly one dies, to the school-

room, as it were, where the small trees begin their independent existence, finally settling down among their elders in the open plantations, becoming in their turn grown-up trees and useful members of society themselves.

When the nuts are gathered, they have yet to be harvested, and after coming in sacks from the plantations, are shot on the oast-hair, or the hair-carpet, in the hop-kiln, used as well for drying the hops, and which is capable of standing any amount of heat. Yet no heat is used in drying the nuts, and they are simply spread over the carpet, and left alone till they are sufficiently dry to be packed into the bushel-baskets in which they travel up either by rail or road to London, where they are sold on commission just now at about 61. per lb., and are bought by us at whatever our fruiterer chooses to charge us for them. The inside of the oast-house is most picturesque. At one end is a raised platform full of nuts; at one side a stop-ladder allows us to look down on the carpet, where, clad in their shaded brown coats, the nuts lie, waiting to be harvested, while the beams are used as store-houses for all sorts of things, from the cut rushes, brought from Sussex, and used for tying the hop-bines to the long hop-poles themselves, and are also made useful to hold the ponderous scales that before iron was as cheap as it is now were made of wood, and are of a most primitive construction.—*Daily News*.

ORANGE TREE CULTIVATION.

THE following facts as to orange cultivation at the Azores, communicated in a letter to an Australian contemporary, will throw some light on the causes of decadence in the tree and the means of preventing it:—

Until 1836 the orange trees budded, blossomed, and fruited with unvarying regularity. The grower would as soon have suspected the sun of variation from his diurnal course as the orangeries from their yearly round of duty. They were handed from father to son, and lasting as they did from generation to generation, it is not surprising that they became a symbol of permanence. These trees cost the growers no care, no attention, no labour, save the labour of picking and packing, so far as we can understand. The people might dance and drink the year round, and the orange would blossom and fruit the year round, without trenching, without manuring, without draining—it may be without pruning. The plant was neither fickle nor fastidious, and the islanders rejoiced in their orange trees. Suddenly, however, there came a change. This bright picture of the growing, green-leaved, self-contained tree, surrounded by a joyful sun-loving, dancing people, dissolves away, and gives place to a pale-leaved and sickly tree, surrounded by a carefaced and inquiring population. Their first proceedings were those of the panic-stricken; they were carried to extremes. From absolute indolence they rushed into alarming activity; but it was the blundering activity of ignorance. Having had little need to inquire into the physiology of the plant, or the relations subsisting between the soil and the plant, they adopted measures to set things right which outraged both, and only made things worse; but gradually, by the aid of the suggestions of science and a teachable disposition, a middle course was hit upon, and restorative processes were prescribed with an intelligent knowledge of the patients' requirements.

At first the trees were overloaded with manure and stifled with shelter, and a great deal more was done to them than they could well bear. Now they perceive that thorough drainage is at the foundation of successful orange growing; that next to this, trenching to a great depth is essential; and thirdly, that manure must be applied—but with discretion. It is true the trees are more fickle than they were, and die more frequently, and the fruit will not keep so long. But growers can again count with tolerable certainty upon their crop. The disease of the orange was first discovered in the Azores in 1836, when it was found that the oldest and best trees—as much as 200 and 300 years old, and producing each 6,000 to 20,000 oranges—were disappearing. It was observed that all the trees affected produced a very heavy crop the very year that the disease manifested itself, and the leaves became yellow and fell off in great quantities, and on the trunks or stems near, and sometimes beneath the ground, the bark opened, and drops of a kind of yellow gum exuded. The drops resembled tears (*lagrimas*, in Portuguese), and therefore the disease was named *lagrima*.

Many orangeries were quite destroyed, and a remedy was eagerly sought. Opinions as to the cause of the disease were much divided. Many thought it must be that the orange tree had a limited period of existence, and this being reached, the tree must thus naturally decay. As we then only propagated trees by layers, this explanation was not thought too unreasonable, but afterwards it was found that seedlings were attacked in the same way. Then it was found that superabundance of moisture in the soil was one of the worst conditions for the disease. Soon it was discovered that the destruction of the diseased bark and wood in the stem of the tree was the best method to save it. From February till August a skilled horticulturist visits every tree, and at the slightest sign of exudation of gum he cuts the bark across, to allow it to run out. If the disease is in an advanced state, the bark and the whole of the diseased wood is cut out, the roots being bared to a distance of a foot or two feet from the stem, every portion of diseased root being cut away. By this means the tree is cured if the disease is found at an early stage; if not, it is dug out, and a fresh tree put in from a reserve which is always kept for such contingencies. Although the disease still continues, the gardens now look very prosperous, for the remedy is known. . . . So we are returning to the old traditional culture. We are clearing the shelters, pruning the interior of the trees for the admission of air and light, are less liberal with manure, and keep the ground free of weeds, except when we want to excite vegetation. We have abandoned propagation by layers, and graft good chosen kinds upon seedling stocks. For shelter we prefer trees with their foliage, and take care not to let them grow too high.

THE DOGS ARE TO HAVE A PAPER, and they deserve it. No. 1 of the *Kennel Review* is before us, and makes fair promise of usefulness by representing the interests of dogs and their owners. Reports of dog shows are conspicuous in its columns, and there are useful essays and criticisms on the breeding and training of dogs, and all that belongs to the sports and pastimes in which dogs have a part.

AUTUMN DANGERS.—Pestilential fogs and vapours always follow excessive summer rainfall, and infectious diseases are at no time more prevalent than in the autumn. Every household should be on his guard, and provide in every bed-room, bath-room, and nursery WRIGHT'S COAL TAR SOAP. It is a simple but efficacious preventive of infectious disease. Purchase only Wright's "Sapo Carbonis Detergens," as prescribed by the medical profession, and see these words on every wrapper and tablet.—[ADVT.]

Replies to Queries.

Vine Border.—J. P., Sandown.—For a border of the size mentioned you will require 6 cwt. of inch bones and two cartloads of manure.

Book.—F. L.—The "Alphabet of Gardening," published at sixpence by E. W. Allen, 4, Ave Maria Lane, Paternoster Row, E.C., will afford you the desired information.

W. M. C., Upton.—We are not at liberty to give the address of the correspondent referred to; but any communication you may wish to make shall be forwarded to him if sent under cover to the Editor.

Soapsuds.—J. C. B., Kettering.—Neither rose trees nor evergreen shrubs will require regular supplies of moisture during the winter months, but an occasional watering with soapsuds will not do them any harm, provided the soil is well drained. The evergreens should not be watered overhead with the soapsuds.

Fancy Pansies.—H. Hooper, Bath.—The fancy pansies are a fine lot, the flowers being of large size, stout in substance, and rich and pleasing in colour. Although all the varieties are most valuable, special mention must be made of Elephant, A. J. Way, Lady Wolverton, Mayor of Bath, and King of the Pansies, the last mentioned being so good as to well deserve its name.

Names of Plants.—M. P. A.—No. 1, *Polystichum angulare*; 2, *Lastrea dilatata*; 3, *Selaginella apoda*. S. S., Rochdale.—The orchid is probably *Oncidium ornithorhynchum*, but we cannot say positively, as the flowers were much shrivelled and had lost their colour in consequence of being packed in cotton wool. Warwick.—No. 2, *Juniperus chinensis*; 3, *Phillyrea buxifolia*; 4, *Acer pseudo-platanus albo-variegatum*; 7, *Philadelphus coronarius*.

Chrysanthemums.—A. C., Stoke-on-Trent.—In the production of the flowers for exhibition in a cut state, the plants are raised from cuttings struck in November or very early in the February following, and are grown without being stopped at all. Your failure to obtain a satisfactory display of bloom may be attributed to your stopping the growth too late in the season. In the future you will do well to stop not more than once or twice, and at a very early stage of growth, the final stopping to be completed not later than the middle of May, but preferably by the end of April.

Injured Vines.—M. P. A.—It appears to us, from the information conveyed in your letter, that the most satisfactory course will be to root out the vines, and after the border has been re-made to replant with young ones. There is no season of the year more favourable for planting vines than the autumn, more especially when they have to be obtained from a distance. You may, if you prefer, raise a stock of vines from eyes in February and plant the vinery with them. With proper encouragement and ordinary care they will reach the top of the house in the course of the season, and the rods will be strong and, if judiciously stopped once or twice, will be of an equal thickness throughout.

Grapes.—A. J., St. Mary's Cray.—The shanking of the grapes may have been caused by the roots of the vines having descended into a cold subsoil, and if that is the case the only remedy will be to carefully lift them and concrete the border to keep them within bounds for the future. Occasionally shanking is caused by the check given to the vines by the loss of a portion of their roots during the winter. In the latter case the vines, in consequence of the richness of the border or the too liberal application of liquid manure, continue to make growth until late in the autumn, and produce long stout quill-like roots, which are so wanting in substance that they perish during the winter. Sometimes much damage is done to the crop by an excess of atmospheric humidity and an insufficiency of warmth. In the case of the Alicante referred to the fertilization was probably imperfect.

Correspondence.

THE PROPOSED PINK SHOW.

I AM very pleased, Mr. Editor, to see that my remarks upon the "rumoured" pink show, which you courteously inserted in your issue of the 7th inst., have been so promptly and satisfactorily noticed by Mr. Douglas and yourself. It now appears quite evident that a pink show will take place in London next year; but to ensure its being a success, I would suggest that the day of the show be fixed by three growers—say, one from London, one from the Midland counties, and one from the north—for unless some such arrangement is adopted it will be next to impossible for the interests of all to be fairly represented. The London pinks, I imagine, would be at their best by the middle of June, whereas those of the North and Midland counties would not be in that state before the first or second week in July. In fact, a pink show was held in Rothsay on the 14th July last, and another in Glasgow on the 28th July, and the Midland counties' shows formerly were held between the 7th and 19th of July. It would also be advisable that the three gentlemen selected should at the same time define the standard properties of a "show" pink, and if their decision were made known through the Magazine and other floral periodicals, growers and intending exhibitors would know what to work for. Mr. Douglas says, "One of the principal points is that they should have well-formed petals, and the nearer they could be had to that of Mr. Simmonds's fine picotee, 'Mary,' the better." In this I quite agree, the substance and shape of petal and the purity of the white being of the greatest importance; and the nearer the edge of the petal resembles that of a rose as regards its smoothness the better. The colour of the "half-moon" and lacing should be the same, and it should be free from running or jutting into the white. The number of petals to form a good flower ought not to be less than twenty-five, and if they be large and well shaped the five "guard," or outside ones, should form a circle of about two inches and a half in diameter; but the smaller the petals the greater would be the number required to produce a flower of such dimensions, the average size of a flower being probably two inches in diameter.

The styles of every flower when staged should appear from the centre, and this should be made imperative, as they wonderfully improve the appearance of a flower, and it would also prevent, to a considerable extent, the improper twisting or placing of petals crossways.

There is an old standing dispute as to the lacing running direct to the edge of the petals. In some good old varieties there is a ring or band of white outside the lacing, and this has, by various critics, been deemed a defect, but I look upon such an objection as a mere difference of fancy, and in no way an

imperfection if the ring be smooth and regular, but, on the contrary, it does, to my taste, add to the beauty of a refined lacing.

These little disputes, however, will be well understood by many pink growers, as they have been prominently brought before their notice some time back, and I trust I may not be considered officious in alluding to them on this occasion.

My desire is that the pink should be brought to the front again, and if a national show can be arranged I shall be glad to have my name enrolled on your list as a member, and when your "hat" comes round my "crown" shall be dropped into it, and I have no doubt that under your guidance the show will be "crowned" with success.

JAMES THURSTAN.

The Cedars, Merridale, Wolverhampton.

Obituary.

On the 11th ult., at Kandy, Dr. THWAITES, formerly the director of the Botanic Garden at Peradeniya. Previous to his undertaking the charge of that establishment he was known in this country as a singularly expert microscopist and an acute observer. His work in this direction was done at a period when the study of cryptogamic botany in this country was all but dead, or pursued only by very few devotees. In consequence of this many facts in the life-history of these plants detected by him were passed over with scant attention. On his appointment to Ceylon Dr. Thwaites abandoned to a great extent his researches in cryptogamic botany, and devoted such leisure as the administrative duties of his department permitted to the elaboration of the Ceylon flora, for which his numerous collections, and specially his enumeration of Ceylon plants, form an admirable preparation. Dr. Thwaites died in his 72nd year.

Markets.

COVENT GARDEN.

FRUIT.		
Apples.....per ½ sieve	3s. 0d. to 5s. 0d.	
Cob Nuts.....per lb.	0s. 6d. „ 0s. 9d.	
Grapes.....per lb.	1s. 6d. „ 3s. 6d.	
Lemons.....per 100	5s. 0d. „ 8s. 0d.	
Pears.....per 100	1s. 0d. „ 2s. 0d.	
Pine-apples, Eng. ..per lb.	3s. 0d. „ 4s. 0d.	

VEGETABLES.

Artichokes, Globe, per dz.	3s. 0d. to 5s. 0d.
Beet.....per doz.	1s. 0d. „ 1s. 6d.
Cabbages.....per doz.	1s. 0d. „ 1s. 6d.
Carrots.....per bunch	0s. 4d. „ 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. „ 4s. 0d.
Celery.....per bun.	1s. 6d. „ 2s. 0d.
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Endive.....per doz.	1s. 0d. „ 2s. 0d.
Garlic.....per lb.	0s. 10d. „ 1s. 0d.
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Horse-radish, per bundle	3s. 0d. „ 4s. 0d.
Lettuces.....per doz.	1s. 0d. „ 2s. 0d.
Mushrooms.....per basket	1s. 0d. „ 3s. 0d.
Onions.....per bushel	3s. 0d. „ 5s. 0d.
Onion Spring...per bunch	0s. 4d. „ 0s. 6d.
Parsley.....per lb.	0s. 4d. „ 0s. 6d.
Radishes.....per bunch	0s. 1d. „ 0s. 3d.
Small Salading ..per bun.	0s. 3d. „ 0s. 4d.
Spinach.....per bushel	2s. 0d. „ 2s. 6d.
Tomatoes.....per lb.	0s. 9d. „ 1s. 3d.
Turnips.....per bunch	0s. 4d. „ 0s. 6d.

FLOWERS.

Abutilons, per doz. blooms	0s. 2d. to 0s. 4d.
Bouvardias.....per bunch	0s. 9d. „ 1s. 6d.
Camellias.....per doz.	3s. 0d. „ 6s. 0d.
Chrysanthemums, per doz.	
bunches.....	4s. 0d. „ 8s. 0d.
Eucharis.....per doz.	3s. 6d. „ 6s. 6d.
Gardenias, per doz. blooms	3s. 6d. „ 7s. 6d.
Heliotropiums.....sprays	0s. 6d. „ 1s. 6d.
Lapagerias, per doz. blms.	1s. 6d. „ 5s. 0d.
Lilac.....per bun.	8s. 0d. „ 10s. 6d.
Marguerites, per doz. bun.	3s. 0d. „ 5s. 0d.
Mignonette.....	2s. 0d. „ 4s. 6d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d. „ 0s. 8d.
Primulas, double, per bun.	1s. 0d. „ 2s. 0d.
Roses.....per doz.	1s. 6d. „ 4s. 6d.
Roses, Tea.....	1s. 6d. „ 3s. 6d.
Stephanotis, per dz. sprays	5s. 0d. „ 6s. 0d.
Tropaeolum, per dz. sprays	1s. 0d. „ 2s. 6d.
Violets.....per doz. bun.	1s. 0d. „ 1s. 6d.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.		
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Prime Meadow Hay ..	90s. „ 105s.	
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Straw.....	30s. „ 42s.	

CORN.—MARK LANT.		
Wheat, Red.....per qr.	35s. to 41s.	
Wheat, White.....	37s. „ 44s.	
Flour, London nom. top price,		
per sack of 28lbs.....	—s. „ 43s.	
Flour, town-made whites.....	37s. „ 39s.	
Flour, households.....	34s. „ 33s.	
Flour, country households, best		
makes.....	35s. „ 37s.	
Flour, Norfolk and other seconds	30s. „ 35s.	
Barley, Malt.....per qr.	35s. „ 47s.	
Barley, Grinding.....	24s. „ 30s.	
Malt, English.....	32s. „ 43s.	
Malt, Scotch.....	33s. „ 43s.	
Malt, English, old.....	23s. „ 35s.	
Malt, brown.....	22s. „ 32s.	
Oats, English.....	22s. „ 30s.	
Oats, Irish.....	22s. „ 26s.	
Oats, Scotch.....	22s. „ 30s.	
Rye.....	40s. „ 42s.	
Tares.....	52s. „ 56s.	
Beans, English, Mazagan.....	36s. „ 40s.	
Beans, Tick.....	39s. „ 41s.	
Beans, Winter.....	37s. „ 47s.	
Peas, Grey.....	30s. „ 36s.	
Peas, Maple.....	42s. „ 46s.	
Peas, White.....	40s. „ 44s.	

METROPOLITAN MEAT MARKET.

Beef, inferior....	3s. 0d. to 3s. 8d.
Beef, middling....	4s. 0d. „ 4s. 6d.
Beef, Prime large..	4s. 6d. „ 5s. 0d.
Beef, Prime small ..	5s. 0d. „ 5s. 6d.
Veal.....	5s. 0d. „ 5s. 4d.
Mutton, inferior....	3s. 8d. „ 4s. 4d.
Mutton, Middling..	4s. 4d. „ 5s. 4d.
Mutton, Prime.....	5s. 8d. „ 6s. 6d.
Pork, large.....	4s. 0d. „ 4s. 4d.
Pork, small.....	4s. 8d. „ 5s. 0d.

GAME AND POULTRY.

Pigeons.....each	0s. 8d. to 0s. 9d.
Pheasants.....	2s. 0d. „ 3s. 6d.
Partridges.....	1s. 6d. „ 2s. 3d.
Grouse.....	3s. 0d. „ 3s. 6d.
Black Game.....	2s. 9d. „ 3s. 6d.
Fowls (Irish).....	1s. 6d. „ 2s. 0d.
Fowls (Essex).....	1s. 9d. „ 2s. 3d.
Fowls (Boscon).....	2s. 0d. „ 2s. 9d.
Fowls (Sussex).....	2s. 6d. „ 3s. 0d.
Fowls (Surrey).....	5s. 0d. „ 6s. 6d.
Fowls (live).....	1s. 9d. „ 2s. 6d.
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Consols.....	101 to 101½
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. avrg. of 40 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882	
29	S	21st Sunday after Trinity.	0 50	16 11	4 37	6 51	10 7	3 13	3 34	0 15	0 38	46 4	Aphelandra aurantiaca, S.	Scarlet. 302
30	M	Sheridan born, 1751.	0 51	16 14	4 30	7 51	11 3	3 57	4 20	0 59	1 22	46 2	Galanthus Veitchi, S.	Pink. 303
31	Tu	All Hallows Eve.	6 53	16 17	4 34	8 54	11 47	4 40	5 0	1 45	2 5	45 9	Carnation Alégaire, G.	Scarlet. 304
		NOVEMBER.					After.							
1	W	All Saints' Day.	0 50	16 19	4 32	9 59	0 23	5 25	5 48	2 25	2 50	45 7	Chrysanthemums, G.	Various. 305
2	Th	Michaelmas Law Sittings begin.	6 57	16 19	4 31	11 0	0 52	6 12	6 40	3 13	3 37	45 5	Isella albidula superba, S.	White. 306
3	F	[2] (Last Quarter, 6h. 58m. afternoon.	6 59	16 20	4 29	Morn.	1 19	7 7	7 40	4 5	4 32	45 4	Poinsettia pulcherrima major, S. .	Scarlet. 307
4	S	George Peabody died 1869.	7 0	16 19	4 27	0 10	1 40	8 12	8 50	5 5	5 37	45 1	Salvia Bruanti, G.	Scarlet. 308

The Gardeners' Magazine.
SATURDAY, OCTOBER 28, 1882.

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IMPORTANT NOTICE.—Advertisers are cautioned against having Letters addressed to Initials at Post Offices, as all Letters so addressed are opened by the authorities and returned to the sender.

CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s. EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES, 148 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Exhibitions and Meetings for the Ensuing Week.

THURSDAY, NOVEMBER 2. — ROYAL HORTICULTURAL SOCIETY OF IRELAND. — Winter Exhibition.

Auction Sales for the Ensuing Week.

MONDAY, OCTOBER 30, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

TUESDAY, OCTOBER 31, AT 12 NOON.—Messrs. Protheroe and Morris, at the Hale Farm Nurseries, Tottenham; Outdoor Nursery Stock.

TUESDAY, OCTOBER 31, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Lilium auratum.

WEDNESDAY, NOVEMBER 1, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

WEDNESDAY, NOVEMBER 1, AND TWO FOLLOWING DAYS, AT 12 NOON.—Messrs. Protheroe and Morris, at the Milford Nurseries, Godalming; Outdoor Nursery Stock.

WEDNESDAY, NOVEMBER 1, AT 12 NOON.—Messrs. Protheroe and Morris, at the Rugby Nursery; Outdoor Nursery Stock.

THURSDAY, NOVEMBER 2, AND FOLLOWING DAY, AT 12 NOON.—Messrs. Protheroe and Morris, at the Salisbury Road Nursery, Kilburn; Outdoor Nursery Stock.

THURSDAY, NOVEMBER 2, AT 11 A.M.—Messrs. Robertson and Co.'s Sale, at Trinity Nurseries, Edinburgh; Outdoor Nursery Stock.

THURSDAY, NOVEMBER 2, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; imported orchids.

SATURDAY, NOVEMBER 4, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Dutch Bulbs.

THE SEWAGE WORKS AT AYLESBURY were on a recent occasion critically inspected by a party of some six hundred persons, comprising engineers, chemists, sanitary officers, agriculturists, and members of municipal boards, the primary object of the invitation being to diffuse information at first hand amongst persons most likely to appreciate it. In connexion with the demonstration in the region of the sewage tanks there was a great exhibition of roots and vegetables grown with the aid of the manure manufactured from precipitated sewage, a secondary object of the Native Guano Company being to make known the suitability of the prepared manure for application to field and garden. The interest taken in the proceedings was such that a pelting rain did not prevent or even diminish the free inspection of the works and equally free discussion on their merits. At a luncheon given in connexion with the business of the day some excellent speeches were made on sewage in general and the system of the Native Guano Company in particular.

Many years have passed since the A B C method of treating sewage was first heard of. It did not obtain favour; in fact, it obtained decided disfavour, and for a sufficient reason. The promoters asserted that by precipitating sewage by the combined action of alum, blood, and clay, the residual product would be of such a highly fertilizing character that the expenses of the process would be paid for by the ready sale of the manure at a price which would give a reasonable profit on the entire undertaking. It is not for any one now to blame those who were so sanguine in the first instance. There were in that day many propounders of sewage

schemes, and they mostly agreed in the belief that the sewage of a town might be regarded as a river of gold, which those might gather who would carry out their proposals. We have never supported any of those visionary schemes, and events have justified our abstention, for in no single instance has the manufacture of a dry manure from sewage been made to pay its way, while experiments made with that end in view have been many, and most of them as costly as they were obnoxious.

To return to Aylesbury. Our first business is to forget the A B C system, and to bear in mind that the sewage works are the property of the Native Guano Company. Now this company does not depend on the sale of the manure for the costs incurred in the manufacture. It is paid, in a regular business way, to take the sewage from the and to send it on to the next river, purified, and, in fact, in the town condition of clear sparkling water. This is certainly accomplished, and so completely that we see fishes sporting in the outflow at a few yards distance from the precipitating tanks. A portion of the outflow has a bottom of white tiles, which, of course, would quickly display any deposit upon them. That a shadowy deposit may now and then occur is probable, and that there may be a trace of ammonia in the sparkling effluent water is also probable. But for all practical purposes the success of the enterprise is complete. If the sewage of every town in the land could be thus disposed of, the health, wealth, and decency of the nation would be considerably promoted.

The system is extremely simple, and may be described sufficiently for present purposes in very few words. There are three tanks side by side, and on the continuous margin of these, right and left, are narrow runnels divided by partitions and sluices. The sewage comes in from the town from a narrow tunnel, and is then of a tawny colour, and on the occasion of the inspection appeared to be not largely diluted. As it enters the works there is thrown upon it from a side pipe a jet of black fluid, consisting—so we were told—of blood, clay, and charcoal. This renders the stream as black as ink. Having progressed a few yards, there is next thrown upon it a colourless fluid consisting of a cheap salt of alumina, which, for convenience sake, may be called alum. The black stream continues its course to the end of the runnel, and then turns short round into the first of the tanks. From this it flows to the second tank, and thence to the third. By this time it is a good imitation of clear spring water, the solid matters having settled down into sludge or mud at the bottom of each successive tank, and as a matter of course in greatest bulk in the first tank. But it now has to travel twice the length of the three tanks in runnels on the side opposite that in which the black stream flows, after which it enters the outfall, and, as remarked above, it is then as clear as can be desired by any one who can take a practical view of the subject. There is no smell, because there is no fermentation; there is nothing offensive or even trying to fastidious persons, although it may be proper to remark that such should be forbidden to enter upon sewage works lest they should learn more than is good for them. The theory of the process rests upon the formation of a clot, which subsides by gravitation, just as coffee is refined by a slight addition of albumen.

Looking around we see steam engines, drying sheds, and other apparatus requisite to the preparation of the re-agents, as also for the lifting and drying of the sludge for its conversion into "native guano." The exact analysis of this we do not remember to have seen. That it is effectual as a fertilizer the magnificent roots, vegetables, fodder plants, and grain, exhibited in the great marquee would appear to testify. But evidence of that kind is to be received with caution, for not unseldom very grand samples of produce are reared without the aid of any manure whatever. It is sufficient, perhaps, to know that it consists for the most part of charcoal charged with alkalies and phosphates, and may come very near to a model manure, for carbonic acid is an important aid to plant growth, and is one of the direct products of charcoal when mingled with the surface soil. We shall not venture to doubt if this native guano is worth the £3 10s. per ton at which it is sold; and, in short, we recommend a fair trial of it, for theoretically considered it should be the cheapest manure of its class in the market. With an analysis before us, we might speak with greater certainty.

Amongst the party of inspection Londoners predominated, and the Lord Mayor was an able leader. It naturally occurred to them to ask if this system is applicable to the sewage of the metropolis, the mighty volume of which staggers the mind when we begin to

contemplate the treatment of it in surface tanks. The population of Aylesbury numbers 8,000 persons; the population of London, within the area requiring the special aid of a scientific sewage system, may be taken to number 700 times as many. That the necessary tanks can be constructed, and that by judiciously dividing the work there never need be undue pressure at any one point, appear to be reasonable *a priori* conclusions. But it is a grave question if the requisite re-agents are obtainable for an efficient purification of the London sewage on the Native Guano Company's plan. It is not for us to say that the daily demand for charcoal and alum, to say nothing of the blood, would outrun the means of supply, for we confess to ignorance on the point. But one cannot help speculating on the enormous consumption of the re-agents, and a probable difficulty in making a sale for the black guano. Probably no one in the great party of inspection could have found a fault or proposed an improvement; but the question did obtrude on all alike, If this system answers for a town of eight thousand, will it equally answer for one of five millions? If we may put scepticism under foot and derive all possible comfort from the demonstration, then we should say there is now very much to hope for in respect of every town that is still in a sewage difficulty, and most of all for London. The river Thames is not only polluted by the main drainage, but by dozens of small towns above the metropolis; while even now there are but few rivers anywhere in the land that are absolutely free from similar contaminations.

LEICESTER CHRYSANTHEMUM SOCIETY.—The third annual exhibition will be held in Hazel Street Board School, November 18.

THE CHRYSANTHEMUMS IN THE TEMPLE GARDENS are staged and the show is open. The flowers, however, will not be fully out for at least a week from this time.

A NEW MODE OF OBTAINING OXYGEN has been invented by M. Margis, of Paris. The operation consists in forcing atmospheric air through prepared membranes on the principle of dialysis.

THE BARBADOES HORTICULTURAL SOCIETY, represented by Mr. C. N. Thomas, Bridgetown, Barbadoes, West Indies, invite nurserymen to send their plant, bulb, and seed catalogues.

ESSEX FIELD CLUB.—At the meeting of the club, to be held at Buckhurst Hill this evening (October 28), at 7 p.m., Mr. T. Vincent Holmes will read a paper on "Deneholes"; and Mr. Robert M. Christy will offer some observations on the "Primula in Essex."

A SECOND CROP OF PLUMS.—The Rev. F. Bingham, of Horfield Rectory, Bristol, in a letter to the *Morning Post*, says: "The sexton of my parish, Mr. Brooks, gathered a second crop of plums on the 16th inst. from one of his trees. The flowers came into bloom when the first crop was gathered. An event so rare seems worth recording."

TREE PLANTING IN CANADA.—The Hon. A. G. Joly, ex-Premier of Quebec, who is an enthusiastic tree planter, proposes that a day in October, to be called "Arbour Day," be appointed upon which all the children in Canada should plant trees and enjoy themselves in the bargain.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The collection in aid of the Pension Augmentation Fund will be closed on November 30. Those who have not returned their collecting cards are therefore requested to fill them up at once and post them to Mr. E. R. Cutler, at 14, Tavistock Row, Covent Garden, London, W.C.

THE PITTING OF FODDER for winter feed is attracting renewed attention, owing to a correspondence that has sprung up in the *Times*. The system of Ensilage has been described by us, long since, as likely to obviate all necessity for the attempt to make hay in unfavourable weather, and therefore of all experiments in drying by artificial heat. This is a subject of such great importance that we recommend all who are interested in feeding cattle to give it their earnest attention.

THE MECHI MONUMENT.—The monument which is in course of erection in Tiptree Churchyard consists of a massive and durable stone standing on three steps, surmounted by a cross. The cost will be £35, with kerbstone and low iron standards and chains surrounding it. The amount in hand for the purpose is under £20, and an appeal is made to the friends of the famous agriculturalist to complete a fitting memorial of one who deserves to be had in remembrance for his great services to the farmers of England.

THE PEAT LITTER imported from the Continent, now so much used in London stables, is the subject of a letter to the *Times* from Mr. W. Sowerby, of the Botanic Gardens, Regent's Park. He suggests that there must be plenty of this sort of stuff in Ireland, and that its transference to a constant market might provide the Sister Isle with a suitable industry. No doubt of it. But our fellow subjects of the Emerald Isle are too much interested in politics to be troubled with prosperity.

THE FRENCH ROSES of 1882-83 announced up to the present moment, and of which the names and descriptions are given on another page, number fifty-three. Of these forty-three are hybrid perpetuals, six teas, one Bourbon, one hybrid Noisette, one Polyantha, and one Ayrshire. Fourteen raisers are represented in the list, and M. Eugène Verdier fils and MM. Lévêque et fils are credited with six each; M. Schwartz with four, M. Guillot fils, M. Levet père, M. Gonod, M. Liabaud, M. R. Barrault, M. Moreau-Robert, and MM. Souperet et Notting with three each; M. Schmidt with two, and M. Pernet and M. Ribault with one each. M. Vigneron has a total of eleven.

A STORM OF WIND AND RAIN passed over London from the north-west on Tuesday last, and very considerable damage to property resulted. Fortunately the hurricane was not of great duration, for when in full force it put a stop to business in many places, more especially on the Thames, where much disorder prevailed. As usual, on such occasions, many trees were blown down, and old elms were of course in favour with Rude Boreas to make sport of; for, to be sentimental on the subject, the tree that most aspires is oftenest brought to the ground.

BIRD PROGNOSTICS.—The Abbé Moigno, Canon of St. Denis, the veteran editor of *Les Mondes*, wrote as follows on September 9 last:—"On the morning of August 27 I observed the Paris swallows collecting on the roofs preparatory to taking their departure, which does not usually happen until about October 10. The martens had already preceded them by a week. Does this prognosticate an early and severe winter or the approach of some epidemic?" The latter remark has since acquired significance by the present terrible outbreak of typhoid fever in Paris. It would be interesting to learn if the early departure of the birds was confirmed by further observation, and what were the dates of their disappearance from other localities this year.

RHUBARB GROWING AT PETERSBURG.—The seeds of *Rheum palmatum* and *R. officinale*, brought by the Russian traveller, Colonel Przewalski, from Central Asia a few years back, have been successfully tried in the neighbourhood of St. Petersburg. They were gathered from plants growing wild in the Chinese province of Kang-Su, at an altitude of 8,000 feet. The climate of Petersburg was considered sufficiently analogous to justify a trial. The seeds sown in argillaceous soil have not thriven, but those in wet sandy soil have done admirably. Analysis of six-year-old roots of *R. palmatum* thus grown is said to justify the belief that the Russians will soon be in a position to send into the European market home-grown "Turkey" rhubarb of the finest quality.

PLANTS FOR THE LONDON POOR.—The Commissioners of Her Majesty's Works and Public Buildings intend to distribute this autumn, as usual, among the working classes and the poor of London the surplus bedding plants in Battersea, Hyde, Regent's, and Victoria Parks, and in the Royal Gardens, Kew, and the pleasure gardens, Hampton Court. If the clergy, school committees, and others interested will make application to the superintendent of the park nearest to their respective parishes, or to the director of the Royal Gardens, Kew, or to the superintendent of the Hampton Court gardens, in the cases of persons residing in those neighbourhoods, they will receive early intimation of the numbers of plants that can be allotted to each applicant, and of the time and manner of their distribution. The application should be made quickly.

WINE GROWING IN CASHMERE.—It will be remembered that a few years ago some very good samples of wines of the Sauterne and Bordeaux types were produced in Cashmere by a French viticulturist, M. Ermens, from vines imported from France. M. Ermens, we learn, has since been trying the grapes found growing wild in the forests of the Cashmere Valley. Three of these indigenous sorts have given fair results, although the grapes were picked under every disadvantage. One known to the natives as *Optman* gives a *must* of sp. gr. 10.56, and produced a good red wine of Rhenish type; another, *Katchébourie*, a fine white grape, gives a *must* of sp. gr. 10.65, and furnished an excellent white wine, like Chablis; a third, *Kavaury*, yielded an inferior wine, but made excellent vinegar. M. Ermens has established nurseries of those indigenous vines in Cashmere; and a French agricultural paper thinks it not improbable that this part of India may hereafter supply wines to take the place of those now failing in France.

AUSTRALIAN WINES AT BORDEAUX.—The prizes awarded in connexion with the International Wine Exhibition, which has been opened at Bordeaux for some months, are now being declared. The only British colonies exhibiting were Victoria, New South Wales, South Australia, the Cape of Good Hope, and Cyprus. The Australian colonies have been extremely successful, having been awarded no less than seventy-nine prizes, including sixteen gold and twenty-nine silver medals. Victoria has received the largest proportion of prizes, viz., nine gold, fifteen silver, and nine bronze medals, with five honourable mentions; New South Wales, five gold, nine silver, and eleven bronze medals, with two honourable mentions; and South Australia, two gold, five silver, and three bronze medals, with four honourable mentions. The red wines gave more satisfaction than the white varieties, red Hermitage produced in Victoria and New South Wales obtaining no less than eight gold and seven silver medals. The new wines of the Victorian vintage for 1882 secured two gold medals.

THE PHYLLOXERA.—The *London Gazette* of October 20 contains a copy of a decree of the Belgian Government, dated the 10th inst., received by the Board of Trade from the Secretary of State for Foreign Affairs, by which the provisions adopted by the International Convention at Berne with a view of checking the ravages of the phylloxera are enforced. The importation into and transit through Belgium of vines and dried cuttings and also of slips and suckers of vines from phylloxerated districts is prohibited, but the latter articles may be imported from non-infected districts, subject to special authorization from the Minister of the Interior. Market garden produce, cereals, fruit, and cut flowers may be imported without special formalities, but all other plants, shrubs, and vegetables (not being vines or parts thereof) can only be admitted by the Custom-houses of Antwerp, Brussels, Ghent, Liège, and Ostend, or if coming by the land frontier, by any Custom-house situated on a railway. The import of such plants is also subject to certain conditions set out in the decree.

EARLY-FLOWERING CHRYSANTHEMUMS.

THE middle of October having now come, I may fairly speak of what I have been able to see and do relative to early and semi-early blooming chrysanthemums. In the former I include all that will bloom before the beginning of October; in the latter those that bloom during October. I will deal in this paper with the early ones, leaving the others for a separate notice. The season has shown very great progress. Through the kindness of Messrs. Watson and Sons, of the Marlborough Nursery, Halliford Street, Islington, London; Mr. N. Davis, 66, Warner Road, Camberwell, London; Mr. Thomas S. Waro, Halo Farm Nurseries, Tottenham, London; Mr. R. Parker, of the Exotic Nursery, Tooting, Surrey; and Messrs. W. Clibran and Son, of Oldfield Nursery, Altrincham, Cheshire, at all of whose nurseries particular attention is and has been paid for some years past to the correct names and cultivation of these early varieties, and to whom I render my thanks for their assistance and consideration, I have been able to grow a large number of varieties.

The plant to be put first and foremost in what I may call this season's discoveries is *LA PETITE MARIE*. It is a really beautiful little gem, in fact, The Gem of all chrysanthemums. It is a very full white pompon, resembling *Madame Marthé* in shape, only smaller. I have found more than 300 petals in one flower. It grows at its full height, eighteen inches, but will bloom at four inches or two seemingly. I think it the best and most important early bloomer that has yet come to light. It is very early, and came into bloom with me on June 18: that was a cutting put in February 23, which proves the best time to strike to grow full-sized plants, as from that time onwards the later struck cuttings bloom shorter and shorter. The flowers are from one and a half to two inches across, and being so full when quite expanded form a nearly perfect ball as the short thick petals reflex.

The way in which the flowers are borne on the stalks is very good, being three or four together, but each having a stalk of its own about two inches long, which gives it a capacity for separate wiring in bouquets or button-holes. In this respect it is the very opposite of *St. Mary*, the small stalks of which are so short that many of the flowers cannot come out properly without disbudding. I had a plant before me when I made these notes in July in a thirty-two pot, six and a half inches across the top and the same deep, which is quite as large as the plant requires. It was eighteen inches high. It had no stick; it requires none, being stiff enough to bear its own weight. It had been grown entirely in the open air since it left the propagating frame, when there was no fear of frost. It had forty expanded flowers on it, all fit to cut and use. The plant was a perfect picture. It is sure to take the garden and the market for every purpose for which it is fit as soon as stock can be grown, which will not be for some time yet, as so much will be wanted. Its importance as a white flower is not alone probably its full worth, as it seems inclined to throw a yellow sport. I consider it deserves a first-class certificate, and believe it would have gained it had a sufficiently full-grown plant been shown for one. I think I know something about early-flowering chrysanthemums, after growing them all these years, and what I say is, not too much of this little beauty. As a plant it seems to grow slowly to the eye accustomed to see larger sorts grow from smaller cuttings, but then it has such a little growing to do in comparison with such a plant, for instance, as *Félicité*, which grows from four to five feet high. Still it comes to perfection in a short time. I put in a batch of cuttings on June 24, and by October 5 they were just coming into bloom nicely, and had not been forced or protected in any way since they were struck. It is perhaps well to mention that it seems to require less water than most chrysanthemums, and to be most happy when not kept too damp. Like the other early bloomers, you are not obliged to have them early; they can all be had late. I have some now just coming into bloom struck in the middle of July for the middle and end of October. This should be thought of by all who have hitherto only grown the late sorts; you can have the early ones early or late, but the late ones late only; they absolutely refuse to bloom any time but late. In growing early sorts we greatly increase our power of production, and add to our force, against an adverse climate and bad seasons, which discourage so many in growing the late ones in the open air. This plant alone shows that it by no means is a necessity of a good flower that it be either late or tall, and tall plants are very objectionable for many reasons. In conclusion, I have only to say to all admirers of the chrysanthemum—grow it.

LYON I consider the next discovery of importance. It is a very distinct advance on any other early one of the colour, and in reality one it will probably be some time before anything better of its kind and colour can be obtained. It comes into competition with *Madame Piccol* (the *Pecoul* of Parker); that is the original colour, not my red sport of it (syn. Mr. Piercy), which is a kind of rosy-purple. Lyon is of very good habit, and grows 2 ft. 6 in. high at its full. It is very free flowering, when in full bloom having more flowers apparently than leaves. It has the power of bringing out every bud into a good flower, and in that way on the stalks that every one has a stalk, so that it may be cut and used separately if desired. The flowers are very full, and when quite expanded nearly form a ball of beauty. I have counted 434 petals in one flower, and that was not all, as there were some in the middle it was difficult to count. It bloomed with me this season at the beginning of July, but I think it will bloom in May when I have had it a season or so. I think thus because in the summer it is quickly from a cutting into flower. Some cuttings put in on 18th of April came into bloom September 2. It is a real good one, the best of the kind and colour.

Another fresh one to this country is *MDLLE. JOLIVART*. This is another of the admirable stout dwarf growers, so desirable for the open garden. It only grows 2 ft. high and very stiff; does not require any sticks. It is a very abundant bloomer, with flowers not quite white in the open, but very white under glass. The blooms are two and a-half inches across and have a peculiar wax-like look. It is quite distinct from

all others, and I believe late struck cuttings will form admirable small pot plants fit for market and portable purposes. I have a plant of that kind now in bloom (October 22) not quite 10 inches high, with above a dozen open blooms. It came into bloom with me this season from a spring-struck cutting, August the 9th, and it should be borne in mind that with these sorts plants of the summer before generally bloom sooner than plants grown from cuttings struck the same spring.

SOUVENIR DE RAMPONT is another new one; it comes into competition with Dr. Bois Duval (syn. Little Bob Scarlet Gem), but is a much more robust plant and more rapid grower. It is a capital good small-pot plant, grows from 1 foot to 1½ high. Bloomed at the end of May. The flowers from an inch to one and a-half across. There are two colours of it, red-purple and crimson. The flowers are not so good as some, but the foliage is handsome dark-green and plentiful.

CURIOSITY is another addition to the summer bloomers. It is the colour of *Illustration* (not the late Japanese). The French say grey, passing to white, which is a very good description. The flower is much better than *Illustration*, but it is not such a free bloomer. It grows slowly to 16 inches high, and the flowers are very full and 1½ inches across. It is very early, flowering at the beginning of May, making it about the earliest, except *Nanum*.

POMPON TOULOUSAIN.—This is a new and entirely distinct variety, and comes into competition with the red sport of *Madame Piccol* (syn. Mr. Piercy), but it is a much more robust grower than that, and not so tall, hence is a better pot plant, though perhaps not quite so good a flower, but quite a different style. The colour is red; the French call it brick red. The flowers are about two inches across, and the plant grows about 15 inches high. Blooms in June. A cutting put in on April 18 was in full bloom on August 27. On September 2 there were thirty open flowers on it. Quite distinct from all others.

The last, though not by any means the least important, that has been first fairly grown by me this season is *LA VIERGE*. This, if not the whitest in cultivation, is one of them certainly. It slightly resembles *Madame Desgrange* in the form of flower, but is whiter, and instead of being a pale yellow in the centre, is pale green, which makes it very different in appearance. It is dwarf and stiff, doing without sticks, grows 2 feet high, and has flowers 2½ inches across, of very refined and delicate look. It bears a profusion of bloom. It flowers at the end of September, and has very handsome broad foliage. It is a good grower, a really excellent plant, and unlike any other.

There is just one more I have not spoken of last season because it borders so very close between the early and semi-early or October bloomers—blossoming at the end of September and the beginning of the next month—*ALBION*. This is a capital good garden sort; the flowers are not so handsome as some, but they come when flowers are scarce in the garden. It is a kind of French white, the colour of *Illustration*, but a better flower than that as well as being a profuse bloomer that will do without sticks, being stiff and dwarf. I believe this would be perfectly hardy on sand or gravel subsoils, which many of the others are not. It has a handsome foliage and good habit. Height, rather over 2 feet. Flowers 2 inches across, and which grow with stalks and in a way well calculated for all cut-flower purposes and at a time when cut flowers are scarce in many places.

As regards the older known ones, *Madame Castex Desgrange* is the very best and most showy. My friend the Rev. F. Freeman says, "It is worth its weight in gold." It is really a wonderful plant—strong, good, and beautiful. Mr. Watson, of Islington, has this season grown whole houses full of it; and I doubt if there was such a sight in England as I saw in one of his houses a few weeks ago. It was superb, and what an encouragement for town growers that sight was, for his nursery is in the midst of houses miles and miles from the open country. This, too, was no fancy growing, but downright hard work and sheer business. I believe he is the biggest grower of the early sorts in the country.

Nanum is certainly the next best for all purposes to which a dwarf-growing early white pompon can be applied. I have worked it much earlier since I have had it, so much so that some of my plants have bloomed twice this season, which I never saw any sort do before. *Precocité* is still the best yellow. *Fred Pelé* the best crimson except one, namely, Dr. Bois Duval. *Fred Pelé* has done remarkably well at Mr. Parker's, at Tooting, this season, and so has Dr. Bois Duval. They grow them in the open ground there, none in pots, and the subsoil is gravel. Dr. Duval does remarkably well too. At Mr. Watson's other place, The Grange, at Walthamstow, Essex, gravel subsoil; but neither of them do well with me; my subsoil is clay. For my own part, I consider them both weak plants; but as there are at present none other of the colour those who want it must grow them; but I have little doubt we shall soon see something of the kind better, as the public and the trade, both here and on the Continent, seem at last to be getting thoroughly alive to the value of the early varieties.

Madame Piccol, both the old colour and the red sport, are still best in some respects, and *St. Mary* (*Souvenir d'un Amie*). For white of that style this last I see is beginning to make its way into Covent Garden and some shops, but the shop and market trade seems very slow to get hold of new things in this direction.

West Road, Forest Hill, London, S.E.

W. PIERCY.

TRADE CATALOGUES.

EUGENE VERDIER, 37, RUE CLISSON (GARE D'IVRY), PARIS.—*Catalogue of New Gladioli and New Roses.*

W. WESLEY, 23, ESSEX STREET, STRAND.—*Book Circular No. 43, Conchology, Botany, Entomology, &c.*

DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Catalogue of Select Fruit Trees.*

ORANGE-TREE CULTIVATION.

By JAMES DOUGLAS.

READING a paragraph on this subject at page 571, referring to the culture and diseases of the orange in the Azores, I was led to ponder on the culture of the orange in this country, and to regret that it is not more generally cultivated, even in small gardens. The late Mr. Thos. Rivers, of Sawbridgeworth, was very sanguine that in a few years orange groves would be formed in England, and houses devoted to the culture of oranges would be found in every good garden. Mr. Rivers grew the orange well in the Sawbridgeworth nurseries, and the pleasure he derived from cultivating it, the enjoyment obtained from the sweet perfume of its flowers, and the delicious flavour of its fruits far surpassing that of the best obtained from the Azores, he hoped would be shared by thousands more of his fellow countrymen. But his sanguine anticipations have not been realized. There are no orange groves in England, and in few gardens is orange culture made a speciality of. Still, my experience leads me to make a positive statement to the effect that a large fund of real enjoyment may be derived from the culture of orange trees; even if it is indulged in to a very limited extent. If no convenience exists for planting the trees out, there is no other fruit tree with which I am acquainted that does better when grown in pots. The orange will also stand as much neglect as any other fruit tree, and none more appreciates generous treatment. The orange trees imported from the Continent will flower freely and bear fruit in ordinary greenhouses and conservatories; such trees are useful for their flowers, but the fruit is ornamental merely, and even if grown in a warmer house would not be fit for the dessert. The best oranges to grow for dessert purposes are the Tangerin, which ripen in September and October, the St. Michael's, and the Malta blood oranges. The best way to get a stock of trees is to purchase them young, clean, and healthy from a good nursery. They are easily propagated by grafting, and the lemon stock is the best to produce large vigorous specimens; those grafted on the orange do not grow so vigorously. To grow good oranges, the first step is to obtain good soil to plant them in, whether they are to be put out in a border or grown in pots: the black peaty-looking compost in which Continental trees are potted is about the worst, and good moderately clayey loam is the best material in which to pot them. Add to this a fourth-part of leaf-mould, as much rotten stable manure, an eight-inch potful of crushed bones to each barrow-load of the compost, and as much pounded charcoal. Drain the pots well, and in potting ram the compost in quite firmly with a wooden rammer. The trees may be grown in any hothouse; no special accommodation is needed. The back stages in a pine house or cucumber house are all the means we have ever had available for them, and under such circumstances we have had plenty of good fruit.

A few cultural notes may be summed up in a brief space. Suppose the trees are, as they ought to be, well established in their fruiting pots. I would place them in a warm house early in January; some time in February or March they would be in blossom, the flowers filling the air with their sweet perfume. The temperature should be about 60 deg. at night, and the atmosphere should be rather dry, with a little air on at night and more in the daytime. The Tangerins set their fruit the best and generally flower as well as ripen earliest. The treatment they require after the fruit is set is the same as would be given to pines or cucumbers, but the trees require to be well syringed at least once a day in fine weather. They are also very liable to be attacked by scale, and it is rather difficult to eradicate this pest except by carefully hand-washing them with soapy water. Some time in September the Tangerins will be ripe, to be followed later on with the two others named; the St. Michael's usually coming in first, and it is, I think, the best of the two. The fruit will hang on the trees in good condition for at least two months after it is ready to gather, which is a great advantage. When it is ripening off the trees must be kept rather dry at the roots, as the oranges have a tendency to burst their skins if too much water is applied at that time.

NEW CONTINENTAL ROSES OF 1882-83.

ADELAIDE DE MEYNOR, H.P. (Gonod).—Vigorous and free branching; flowers large, double, and beautifully imbricated; colour bright rose-cerise.

ADMIRAL SEYMOUR, H.P. (E. Verdier fils).—Vigorous in growth; flowers large, double, and beautifully formed, and of a rich velvety purple shaded bright red.

ALEXANDRE DUPONT, H.P. (Liabaud).—Very vigorous; the flowers of large size and double; colour red-purple shaded crimson.

ANDRÉ GILL, H.P. (R. Barrault).—Growth vigorous with ample foliage; flowers large, double, globular, and of fine shape; colour bright red-carmine.

ANTOINE CHANTIN, H.P. (E. Verdier fils).—Growth vigorous; flowers of large size, very double and beautifully formed; colour bright red-cerise with silvery shading at the back of the petals.

BARON NATHANIEL DE ROTHSCHILD, H.P. (Lévêque et fils).—Very vigorous in growth, and the flowers large, globular, and of splendid shape; colour bright rose shading to white at the edge of the petals.

BARON WOLSELEY, H.P. (E. Verdier fils).—Vigorous and free branching in growth; flowers large, double, and of fine form; colour bright velvety crimson shaded fiery red.

BIJOU DE LYON, P. (Schwartz).—A vigorous growing variety, producing its pure white and prettily imbricated flowers very freely and in large clusters.

COMTESSE DE MAILLY-NESELE, H.P. (Lévêque et fils).—Very vigorous; flowers of large size, globular in form, and of excellent shape; colour bright rose, shading to white.

DR. GARNIER, H.P. (Moreau-Robert).—Strong in growth and free blooming; flowers very large, well formed, and of a bright cerise-red colour.

JEANNE ABEL, T. (Guillot fils).—Vigorous; flowers of medium size, double, and of good shape; colour tender rose shading to white, centre bright rose. A seedling from *Comtesse de Labarthe*, and very fragrant.

JOACHIM DU BELLAY, H.P. (Moreau Robert).—Very vigorous; flowers very large, and beautifully formed; colour vermillion-red shaded fiery red.

JOSEPH CHAPPAZ, H.P. (Schmidt).—Vigorous; flowers large, and of a beautiful globular form; colour rose-lilac. A seedling from *Jules Margottin*.

JOSEPH TASSON, H.P. (Souper et Notting).—Vigorous; flowers large and of rosette-like form; colour purple, shaded velvety crimson.

JULES MAQUINANT, H.P. (Vigeneron).—Vigorous; flowers very large and good shape; colour clear red, very bright in the centre. Supposed to be a seedling from *Jules Margottin*.

LECOQ-DUMESNIL, H.P. (E. Verdier).—Very strong in growth; flowers extra large, quite full, and beautifully imbricated; colour red, marbled and shaded with crimson, brown, and violet.

L'ÉLÉANTE, T. (Guillot fils).—Vigorous in growth; flowers medium to large; colour bright rose-pink, shade l coppery yellow and marbled and striped white.

LE KHÉDIVE, H.P. (R. Barrault).—Vigorous; flowers medium to large; colour bright crimson, shaded purple and fiery red.

LE LOIRET, H.P. (Ribault).—Very vigorous; flowers very large and double; colour bright carmine, shaded black and with amaranth reflex.

LÉON SAY, H.P. (Lévêque et fils).—Vigorous; flowers very large; colour bright red, shading to rosy lilac.

MADAME ALEXANDRE JULIEN, H.P. (Vigeneron).—Very vigorous in growth and producing flowers of large size; colour beautiful tender rose; seedling from *Elizabeth Vigeneron*.

MADAME APPOLINE FOULON, H.P. (Vigeneron).—Very vigorous; flowers of large size; colour rosy salmon, with lilac reflex.

MADAME DOS SANTOS VIANNA, H.P. (Souper et Notting).—Vigorous; flowers large, double, and beautifully imbricated; colour rose-carmine, centre very bright.

MADAME EUGÈNE LABRUYÈRE, H.P. (Gonod).—Vigorous; flowers large and full, with fine petals; colour salmon, with red reverse.

MADAME EUGÈNE VERDIER, T. (Levet père).—Very vigorous, with ample foliage; flowers large, double, and of beautiful shape, and of a rich chamomise and very fragrant. It obtained the bronze medal at the Lyons exhibition in September last, and is a seedling from *Gloire de Dijon*.

MADAME FANNY DE FOREST, H.N. (Schwartz).—Very vigorous, and the flowers of large size, double, and well formed; colour salmon, passing into white and tinted with rose.

MADAME FANNY GIRON, H.P. (Schmitt).—Very vigorous; flowers of full size; colour satiny rose, reverse of petals white. Seedling from *Madame Vidot*.

MADAME LELIEVRE-DELAPLACE, H.P. (E. Verdier fils).—Growth vigorous; flowers very large, double, and of splendid shape; colour rich deep red.

MADAME LOUISE VIGENERON, H.P. (Vigeneron).—Very vigorous; flowers of full size and very double; colour clear rose, deep rose in the centre. Seedling from *Elizabeth Vigeneron*.

MADAME LÉOPOLD MOREAU, H.P. (Vigeneron).—Vigorous in growth, and bearing large flowers of good shape and of bright rose colour.

MADAME MARIE LAGRANGE, H.P. (Liabaud).—Growth vigorous, and the flowers large and very double; colour brilliant carmine.

MADAME MELANIE VIGENERON, H.P. (Vigeneron).—Very vigorous, and bearing flowers of full size; colour rosy lilac, silvery rose at the edge of the petals.

MADAME NATHALIE SIMON, H.P. (Vigeneron).—Growth vigorous, and the flowers large and of a bright red colour.

MADAME OLYMPE TERESTCHENKO, H.P. (Lévêque et fils).—Robust; flowers very large, double, and of a beautiful cup shape; colour white, shaded with rose and washed with rose-carmine.

MADAME REMOND, T. (Lambert).—Vigorous in growth and producing flowers of medium size; colour yellow bordered with purplish rose, supposed to be a seedling from *Anna Olivier*.

MADAME ROCHET, H.P. (Liabaud).—Vigorous in growth; the flowers of full size and globular, and the colour satiny rose.

MADAME VIVIAND-MOREL, H.A. (Schwartz).—Vigorous and free branching; flowers of medium size and freely produced in clusters; colour rosy carmine tinted with cerise.

MADAME VVE. ALEXANDRE POMMERY, H.P. (Lévêque et fils).—Very vigorous; flowers extra large; colour tender rose; centre bright rose and the edges of petals clear rose.

MADAME VICTOR HOBART, H.P. (Vigeneron).—Vigorous in growth and bearing large flowers of a brilliant vermillion-red.

MADMOISELLE CAMILLE BIGOTTEAU, H.P. (Vigeneron).—Growth vigorous; flowers of full size and colour bright red-cerise.

MADMOISELLE HÉLÈNE CROISSANDEAU, H.P. (Vigeneron).—Vigorous; flowers of enormous size; colour tender rose, bright rose in the centre. Seedling from *Victor Verdier*.

MADMOISELLE MARGUERITE MICHON H.P. (Vigeneron).—Growth free, and the flowers of medium size; colour bright red, shaded velvety crimson and illuminated with fiery red.

MADMOISELLE MARIE CLOSON, H.P. (E. Verdier fils).—Vigorous in growth; flowers medium to large, very double, of the finest shape, produced freely and continuously until late in the season, and remarkably fragrant; colour tender rose shaded white.

MADMOISELLE MARIE DIGAT, H.P. (Levet père).—Growth free; flowers large and globular; colour bright red-crimson.

MARGUERITE DE ROMAN, H.P. (Schwartz).—Very vigorous; flowers large and of a delicate flesh colour, bright rose in the centre. Supposed to be a seedling from *Victor Verdier*.

MERVELLE DE LYON, H.P. (Pernet).—Vigorous in growth; flowers very large and double, and of a beautiful cup shape; colour pure white shaded and washed with satiny rose.

MICHAEL STROGOFF, H.P. (R. Barrault).—Strong in growth; flowers of full size and beautifully imbricated; colour bright red shaded with violet-crimson.

MISS EDITH GIFFORD, T. (Guillot fils).—Vigorous in growth and of excellent habit; flowers very large and full; colour delicate flesh, bright salmon-red in the centre.

PRESIDENT LENAERTS, H.P. (Souper et Notting).—Vigorous; flowers of full size; colour deep red shaded velvety black.

SOUVENIR DE LA MALMAISON À FLEURS ROUGES, B. (Gonod).—A fixed sport of *Souv. de la Malmaison* bearing flowers of deep velvety red.

SOUVENIR DE THÉRÈSE LEVET, T. (Lovel père).—Vigorous; flowers large and double, and of a bright red colour. A seedling from *Adam*, and of a quite new shade of colour amongst the tea-scented varieties.

HOLLIES IN A LONDON GARDEN.

It has many times been said that the holly is a good town tree, but if this much were never said the world would know something of the matter, because in town enclosures in all parts of Europe, save the extreme north, hollies may be seen in perfect health, and occasionally of considerable dimensions. It is a common but most useful occupant of many of the public gardens in London, and therefore always on view, and in some of the most unlikely places, as, for example, in the very centre of the Bank of England, which is literally in the very centre of London, there may be seen hollies that have been established many years, and that are in perfect health, though lean in their growth, owing to the adulterated daylight they have to subsist upon. A striking evidence of the suitability of the holly for town life is afforded in the suburbs of Manchester, where great specimen hollies and substantial holly hedges abound, and this in localities where rose-growing is impossible by reason of the impurity of the air. In Alexandra Park, Manchester, there was an avenue of noble pyramid hollies of the large-leaved kind known as *Hodginsi*. These were examples of good management no less than of the fitness of the plant to the situation. But the dreadful winter of 1879-80 wrought such havoc upon them that in the course of the ensuing summer they were removed, and I know not at this moment what was planted in their place. That the smoky air caused them to suffer more from the severe frost than would have happened under better atmospheric conditions appears to be proved by the noble hollies of the same kind in the Grosvenor Park, Chester, which were exposed to an equally low temperature, and escaped without harm to a single leaf. Thus we pay dearly for the coal we "sublimate" and diffuse by way of the chimney. In that same winter hollies in London remained unhurt, although we had in the month of February, 1880, one of the most tremendous fogs on record, that made a terrific mark in the bills of human mortality.

The holly is not particular as to conditions, although a large study of the plant will reveal to us that it properly belongs to the warm temperate regions. It is happier in a moist than in a dry atmosphere. Everywhere on our Western coasts, no matter what the soil may be, the holly thrives; on the Eastern coast it lives, and is useful; in the extreme North it is not to be found. It is no unusual circumstance to see in Cumberland, as in Devon, hollies 70 ft. to 80 ft. in height, but on the Eastern coast such a growth is unusual; nevertheless the holly is accommodating; it is adapted for the rural adornment of all our cities, and it is a first-class evergreen London tree.

Having a collection of about eighty sorts of hollies in a country garden, I sometimes felt a tinge of anguish in respect of them when I had made arrangements to sing in the family circle, "Must I then leave thee, Paradise?" After several consultations with my top-sawyer, curator, and head gardener, he agreed with me that a certain lot of variegated hollies on their own roots that were exceedingly beautiful and of special interest, because grown from cuttings to considerable size, ought not to be left to the mercy of the unknown. As for the collection of sorts we had no compunctions, because we could renew them by a simple act of purchase, and the lifting of large hollies in a private garden may prove more trouble than it is worth. Very well; we lifted these lovely own-root variegated hollies that were about twenty years old, and had stood eight years undisturbed on heavy clay land. When the waiting waggon was filled with them May said to me, "They have stood too long; they have made tap roots like parsnips; I doubt if they'll live." I said, "Having gone so far we will go on, and hope for the best." They were planted with great care in a newly-made London garden and they lived. But so lean did they become and so unhealthy did they look that before they had finished a second summer in their new quarters they were all dragged out and burned, and there was an end of them. The change from buxom, sparkling, pyramid hollies to starved, ghostly, ugly things one seemed to want a name for was remarkable. They had no surface roots, they were not in proper training: the mere removal was death to them.

It may be proper, because instructive, for me to confess at once that I have in my time purchased several grand hollies from private gardens. Mr. A. will say to me, "We are about to level such a house and build on the garden. There are some fine hollies which you can have at a nominal price, and as you have room for them this is a fine opportunity." And I have sent the men and the horses, and the grand hollies have been lifted with caution and planted with care, and they have looked grandly in their new quarters until—well, until they died, and then we made firewood of them, and it cost more than they were worth to cut them up for the purpose. Never once in the course of a busy life, with much buying and planting of trees, have I had one slice of luck with specimen hollies out of any private garden.

And this story, you will say, is discouraging. Not a bit of it. I wish to warn the readers of the Magazine against costly undertakings, that are more likely to fail than to succeed. Suppose I give five pounds for a magnificent holly, and it costs me three pounds more to remove and replant it, and the thing dies? The outlay of eight pounds does not cover my loss. Five times that amount will not cover my loss: I know not how to estimate it, for a million of money to one who cares nothing for money is not sufficient to compensate for a speculation, a labour, and a failure, and the consequent disjuncting of one's gardening affairs.

But why dwell on these matters? For practical reasons certainly hollies are in one sense costly, although in another sense they are cheap. They grow slowly, which one ought not to complain of, for every leaf they make is precious. But they die slowly, and therefore when you go on the wrong tack you may hope against hope for a time,

which is a waste of hope, before you can be fixed in your mind as to the actual fate of the hollies. People are not tempted to lift big elms, and planes, and poplars, and birches, but they are tempted to lift big hollies, and I will hope that all who do so will have better luck than has befallen our several endeavours to steal a march on time by the aid of this beautiful but cold-blooded vegetable.

Per contra. You may make a royal hunt amongst London gardens to find the equal of my hollies. They form a very pretty collection; they now sparkle with scarlet berries when the sun shines, and when the sun does not shine they are quiet respectable evergreens, and make a very pretty picture as they stand, like the sharpshooters of old—that when a boy I used to see in dark green uniforms, a very dapper lot of soldier chaps—on green ivy lawns, or in open beds encircled with broad bands of green ivy, with a nice lively sprinkling of golden euonymuses and silver ivies to give light to the sharpshooters' parade. And the *per contra* story may soon be told. When I saw that my own hollies were doomed because of their long-fanged parsnip roots, I secured a lot of buxom young trees from Messrs. Veitch and Sons' nurseries at Coombe Wood, and Messrs. Richard Smith and Co.'s nurseries at Worcester; and these being carefully planted grew right away from the first as though they had not been moved at all. They are now the pride of the garden, and have but to be left alone for fifty or a hundred years to be always beautiful, interesting, and instructive beyond all ordinary precedent, for such as take an earnest interest in the development of a London garden.

The best way is invariably the cheapest way. My advice to all who plant hollies is, begin with thrifty young trees from a first-class nursery, for if the roots have not been specially managed removal will kill them. My best trees were four to six feet high when planted. They came in with grand wigs of roots holding a lot of stuff like a rook's nest, and we did justice to their fibrous roots by filling in firmly with mellow loam around them, and the result is that in not one instance in the case of about a hundred trees, all of exceeding beauty to begin with, has there been so much loss as the loss of one leaf through removal. The winter of 1879-80 punished a few of them, but it is difficult now to discover where the damage was done, because the subsequent growth has hidden it, and at this moment my crop of London-grown holly berries is so great that I feel I do wrong to suffer it. Had I the courage of only half a man I should strip the trees of their berries, and tell them to go on making leaves and wood, and leave me to find my corals for Christmas. But I cannot do it, and if I lose one or two trees out of many that are now literally loaded with fruit you will hear no complaint from the undersigned, because in the month of June last I saw evidences of impending danger in the exceeding fertility of my beautiful hollies.

Permit me, dear reader, now to quit my own garden and enter yours. A collection of hollies, you say, would be interesting, but as hollies are costly it is needful in the interests of economy to be well advised in the first instance. It strikes me that I can give counsel on this particular feature of town gardening, because I have paid for my own experience and made many notes on the state and prospects of hollies in hundreds of towns and cities in various parts of Europe. It must be observed in the first place that we see everywhere, in the great region within which hollies can live, that the common form, *Ilex aquifolium*, is the favourite, because it is the cheapest, and as a cheap tree is at once noble, useful, and manageable, having no strange idiosyncrasies to puzzle one. But we must not be content with the common holly if we are to do some good town gardening. Out of one hundred and fifty varieties of hollies known to students and collectors fully one hundred are as well suited for cultivation in London, Manchester, or Birmingham, as the common *aquifolium* that we are sure to see wherever a holly of any kind is possible. But in selecting hollies for a smoky or confined locality we may make costly mistakes, for some of the loveliest varieties are quite unfit to brave the battle and the breeze. All the smooth-leaved green hollies, without any exception, as far as I know, are as well adapted for town life as the common holly. These comprise such sorts as *Hodginsi*, *Shepherdii*, *Laurifolia*, *Cheshuntensis*, *Balearia*, and so forth; as well as the small-leaved hollies, such as *Donningtonensis*, *Myrtifolia*, *Crenata*, and others that have smooth glossy leaves that are not much curled or twisted. But the selection for a London garden should not in the first instance include the *Hedgehog* section, which have rough leaves too well adapted to gather dirt and thenceforth to look dirty; or the curly-leaved sorts, such as *Scotica* and *Tortuosa*, that show the under sides of their leaves and bring into the contracted scene a "too much" æsthetic element.

When we turn to the variegated section, it is no difficult task to determine what we should eat, drink, and avoid. In any case where it may be difficult to decide as to the merits of leaves or berries for London you may with safety vote for green first, yellow second, and white third. It follows that, generally speaking, the green-leaved hollies are to be desired first, next the golden-leaved hollies, and finally the silver-leaved hollies. These distinctions are of substantial importance, and in planting a garden with a view to make the very best of circumstances it will be a grave mistake to ignore them. The *Golden Queen Holly* is the grandest tree of its class at command for a London garden, and it is as well adapted for the situation as a common privet. The *Silver Queen* is not equally suitable, and the variegated sorts with rough leaves like the Variegated *Hedgehogs* are of no use at all: they live, but they never look respectable. I have some really fine trees of *Silver Queen*, but I find no pleasure in them, for, except during a few weeks when they are making their new leaves, when beyond all doubt they are very bright and beautiful, their appearance is that of printed calico badly washed—say, Manchester dragged through a London sewer. The variety known as *Best Milkmaid* keeps its looks well in a London garden, and, generally speaking, any smooth-

leaved holly with yellow variegation will prove well able to endure the assaults of smoke and dust and darkness.

It is the same with berries as with leaves. The yellow-berried hollies make a fine figure in London at Christmas. So indeed do the red-berried hollies, as, according to their trade, they should. But as the winter advances there happens a mishap to the red berries that does not befall the yellow. The red berries become black, and are at last, say in the green spring time, absolutely invisible, while at the very same time the yellow berries are bright and cheerful, and appear but little the worse for the settlement of soot upon them for months together. It may be that the skin of the yellow berry is smoother than the skin of the red berry, but on that point I cannot of my own knowledge speak with precision; but this is a fact and open to observation, that hollies bearing plentiful crops of red berries suffer much disfigurement from London smoke as the winter progresses, whereas hollies that bear yellow berries suffer but little in comparison, for their berries keep their colour until the spring is far advanced and the yellow berries are hidden by a new growth of leaves. But this remark should not properly tell against the red-berried hollies, for they are glorious until towards the end of the year, and if soon afterwards they

kind is possible. In the variegated section there are not many, and, strange to say, if I understand the case, we do not want many. The *Golden Queen* is not only superb as a variety, but grows as well in London as in the country. Keep your eyes open as you travel about, and you will learn a lesson on the relative value of yellow leaves and yellow berries, and the best lesson will be that of the London hollies. I could name a thousand examples if I and you had the time to endure the recital. If you travel northward at any time from London, just take note of a few *Golden Queen* hollies on the north side of Stoke Newington Green, where happily there are trees of *Silver Queen* to compare with them, and you will learn "straight off the reel" that it is the finest of all variegated-leaved evergreen trees for London. But the *Silver Queen* thrives; indeed, its vigour of growth is but a trifle less than that of the *Golden Queen*, and consequently where both have been planted for some years they differ but slightly in size and density of leafage. But the rain seems to brighten the yellow-leaved variety and to make more dirty the silver-leaved variety, and thus as regards appearance there is always a difference between them. There are several beautiful variegated varieties that prosper in the most satisfactory manner in London, but I forbear to give their proper names



SCABIOSA CAUCASICA.

cease to sparkle and change from corals to coals it does not much matter, for an end must come to every pleasure.

We now come to the selection of hollies for a London garden, and a rule may be given to this effect: take smooth-leaved green hollies, and smooth-leaved yellow hollies, but avoid all rough-leaved hollies, and be cautious in respect of white or creamy leaved hollies. In other words, green and gold will win, silver is nowhere, and hedge-hogs are altogether disqualified. Then it remains to make a selection, and I think for a small one the following will do:—

GREEN-LEAVED HOLLIES FOR A LONDON GARDEN.—*Altaclarensis*, a grand large-leaved variety of the aquifolium type; *Angustifolia*, narrow-leaved and pretty; *Femina*, a richly-coloured blue-leaved holly of compact growth, bearing scarlet berries abundantly; *Flava*, a handsome tree, bearing yellow berries; *Laurifolia*, a very distinct and handsome tree bearing foamy masses of fragrant flowers in the spring; it is the most flowery of all the hollies, but being a male it never produces berries; *Madame Briot*, *Myrtifolia*, *Donningtonensis*, *Hodginsi*, *Shepherdii*, *Cornuta*, and the fast-growing *Balearia* are first-class town trees that will never fail in any place where a holly of any

because in many nurseries they are known only under local names, and the safe way is for the intending purchaser to see them and have them marked before they are sent home. But if I do not give names, I can do something better. I can give a rule. The best variegated hollies for a town garden are those with broad, smooth, glossy leaves that are definitely and strongly marked with yellow, whether on the margin or in the centre of the leaf. The leaf should be broad and shiny with strong sharp colouring, and if the trees are well made and have had good nursery management to encourage the formation of fibrous roots, they will live and prosper, if properly planted—in fact, nothing but Death himself can kill them.

MOSES.

AGRICULTURAL TEACHING.—Mr. Wrightson is appointed to deliver the course of lectures at South Kensington in the new department of Agricultural Chemistry, while Mr. Chapman Jones will take charge of the practical instruction. Dr. J. M. H. Munro is appointed professor of Chemistry in the College of Agriculture, Downton, Salisbury.

SCABIOSA CAUCASICA.

THIS fine scabious is in a way to be appreciated as it deserves, for it may be met with in collections of hardy plants that are quite restricted as to numbers. It is the hardiest and most useful of the perennial species, and makes a beautiful specimen, as our figure demonstrates. The leafage is copious, and forms an elegant groundwork for the flowers, which rise to a height of two feet or more when the plant is in happy circumstances. The flowers are of a pale blue colour, and their great size renders them peculiarly attractive and pleasing. Any fairly good border will suit this fine plant, and we shall perhaps not easily find a place that is too cold for it; at all events, on heavy soil in the northern suburbs of London it is as hardy as any of the great class of plants it worthily represents.

The common Sweet Scabious, an old favourite with the growers of annuals, should never be forgotten when we have to speak of the genus in connexion with the garden. It is a first-class border flower, and its peculiar sweetness adds to its value. For the collector who loves many possessions, *S. agrestis*, with pale purple flowers; *S. graminifolia*, flowers pale blue or lilac, and *S. Webbiana*, with cream-coloured flowers, may be recommended. As rock plants they will have some interest, but they are outside the universal garden. *S. ochroleuca* gives the



FLOWER OF SCABIOSA CAUCASICA (Natural Size.)

unusual colour of pale sulphur in its flowers, but is of not much account in respect of beauty. All the scabious require a good soil, well drained, and to multiply them is an easy matter.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

It is too much the practice of those whose gardens are of small extent, as well as of those who have charge of large gardening establishments, to pay too little attention to spring-flowering bulbs of a miscellaneous character. The hyacinths, the tulips, and the polyanthus narcissi are unquestionably the most valuable of the subjects that have a place in the bulb catalogues; but they are not the only good things of their class, and they should as a rule be largely supplemented by some at least of the other bulbs, which may be had in perfection during the spring months. As so many amateurs confine their attention to the hyacinths and tulips, because of their knowing but little, if anything, of the other classes of bulbous plants, I shall perhaps be doing good service in pointing out a few of the best. We will first take the

IRIS.

Of these there are at least five which are specially suitable for pot-culture for indoor decoration early in the year. Taking them alphabetically, we have first *I. alata*, a very beautiful species, which, if the weather is mild, blooms during the winter in the open borders, and with the aid of a cold frame may be had in full flower during January; the flowers are of a pleasing blue colour. Then follow *I. Kolpakowskiana*, a charming species; the flowers comparatively large and coloured white, blue, and lilac. *I. persica*, very handsome; the flowers blue blotched with yellow, and delightfully fragrant. *I. reticulata*, the flowers deep violet-blue reticulated with golden yellow, and highly scented; and *I. tuberosa*, an interesting species, less attractive than the others, but well worth cultivating; the flowers blackish maroon and green. The two best adapted for general cultivation are *I. reticulata* and *I. persica*, for, whilst exceedingly beautiful, they are comparatively cheap. In growing the iris mentioned for indoor decoration, they should be put in five-inch pots, from three to five bulbs in each, with a rather sandy and moderately rich soil. The pots must be well drained, and the roots be buried an inch or so below the surface and have the soil pressed firm about them. After they are potted, place them in a cold frame, where they can remain until they are coming

into bloom, and as they will be required as early in bloom as they can well be had, they should be protected from frosts by covering the frame with mats or litter during periods of severe weather. The soil must be kept moderately moist until the growth begins to make its appearance above the surface, and then the water-supply must be increased according to the requirements of the plants. They should, as far as practicable, have a light and comparatively cool position in the conservatory, and as soon as the beauty of the flowers is past return them to the cold frame to complete their growth. It is essential to give them careful attention until the growth is completed and the foliage has died down, to ensure strong bulbs for the season following.

CROCUSES.

The beauty of the crocuses is of but short duration, but they bloom so early without the aid of fire heat and are so attractive in colouring that a few hundred corms should be grown. All the varieties offered by the trade growers under name are good, and there is no risk in making purchases. Albion, white striped purplish blue; David Rizzio, purple; Large Yellow, very deep yellow; Mont Blanc, white; Ne Plus Ultra, purple, and Sir John Franklin, purple; may be mentioned as representing the several colours, and as being of the highest excellence. Crocuses should be grown in five or six-inch pots, and should have a compost at once light and rich. In potting them place the drainage in the pots in the usual way, and then fill to within one and a half inches of the rim with the prepared soil, pressing it moderately firm as the pots are filled. Upon the surface place the corms so close together that they almost touch each other, and cover to a depth of about one inch. To force crocuses is unnecessary, as in the open they bloom early in March, and in a cold frame they will produce their flowers at the end of February, provided protection is afforded during periods of severe weather. *Crocus Imperati*, purplish violet, and *C. Oliveri*, bright orange-yellow, are two beautiful winter-flowering species, more expensive than the Dutch varieties mentioned above, but they are well worth the attention of those to whom the cost is not a matter of great moment.

CROWN IMPERIALS.

These stately subjects produce a pleasing appearance when tastefully grouped with other subjects. The most desirable varieties of the Crown Imperial, *Fritillaria imperialis* of the catalogues, are those known as Aurora, deep orange; Lutea, bright yellow, and Rubra, deep red. The bulbs should be potted singly in six-inch pots, with a rather rich compost, and be placed in a cold frame until they are draughted into the forcing pit, or are coming into bloom. As they bloom naturally in April, a very little fire heat will suffice to have them in bloom in March. They should be liberally supplied with water from the time they commence to grow freely until they show signs of going to rest, and it will be well to remember that unless well attended to after the flowers have faded the bulbs will not produce a very strong growth and a satisfactory display of flowers in the spring following. The varieties of *Fritillaria meleagris* are not without interest, but they are not sufficiently attractive to justify their being recommended for general cultivation. They are inexpensive, and the best effect is produced by growing them in five-inch pots, four or five bulbs in each.

LILY OF THE VALLEY.

In the pot culture of this exquisitely beautiful plant there are fewer difficulties than many suppose. To force them successfully early in the season requires a considerable amount of skill, but the production of flowers in March and April is within the range of the amateur. The first step is to secure strong imported clumps, which will cost about fifteen shillings per dozen, and produce from twenty to thirty spikes. Two sizes of clumps are usually sold, but the strongest are decidedly the best, and should invariably be selected, even if it is necessary to limit the number. The single crowns, costing about a penny each, are the best for very early forcing, but they are not so suitable for the amateur, who must perforce be content to wait for the flowers until the spring has commenced. Put each clump into a separate pot, which may be either five or six inches in diameter. Any friable soil will be suitable, but it is very important to make it thoroughly firm, or the water will pass away without moistening the centre of the clump. On the completion of the potting place in a frame, and unless both the clumps and the soil are thoroughly moist give them a good watering. The following day either invert a flower pot of a suitable size over each clump or cover to a depth of five or six inches with cocoanut-fibre refuse or leaves. The covering must remain until the flower spikes and foliage are beginning to push freely, when it should be removed, and the plants be supplied freely with moisture both at the roots and overhead. If it is desired to force them, there is no better course of procedure than to plunge the pots to the rims in a hotbed of which the temperature is about 80 deg., and to cover with pots or some light material as advised above until the flower spikes are pushing freely. The flowering season may be accelerated by removing them to a warm greenhouse or other structure as soon as they are beginning to grow freely. To keep both foliage and flower spikes dwarf and stout, place the plants in a light position not far removed the glass.

DIELYTRA SPECTABILIS.

We have no more elegant or beautiful plant in our gardens than *Dielytra spectabilis* when in its true character; but as usually seen in the greenhouse and conservatory in the spring months it has anything but a pleasing appearance. The fact is overlooked that the growth is wanting in substance, and that it is quickly drawn out of character when not receiving a full share of light; and in consequence of this oversight efforts are not made to place the plants in a light position when making their growth. When required for indoor decorations, *Dielytra spectabilis* should be grown well, or not at all, and

as there are no real difficulties to be surmounted, there is no reason why the amateur should not have a dozen specimens or so in the most perfect condition. Strong roots that have been specially prepared for forcing, which will cost about six shillings per dozen, must be procured, and put in six or eight inch pots, according to their size. Use a rather rich compost, such as would be prepared by the incorporation of fibrous loam and well-rotted manure, in the proportion of one part of manure to every three parts of loam, and press the soil firmly. The dielytra is perfectly hardy; but as the roots will be required to start into growth in advance of those outside, place them in a frame and cover with some light material, such as cocoanut-fibre refuse, until they commence to make new growth. Immediately it is seen that they are beginning to grow uncover, and from that time until they are in bloom they must have a position near the glass and enjoy a free circulation of air. Without light and air the growth will be weak and the flowers practically colourless. It is a very good plan to remove them to the greenhouse or other roomy structure as soon as they have made some progress, and stand them on inverted pots amongst dwarf-growing plants. By this arrangement they will have the room so essential to admit of their full development without practically taking up much additional space. When the plants are forced they should be distributed over the house or pit amongst the hyacinths and other subjects that do not attain a great height. Very early forcing is not desirable in any case, because of the difficulty of obtaining the proper colour of the flowers. An abundance of water will be required as soon as the growth becomes vigorous, and this must be continued until it is completed, to ensure the formation of strong crowns for the following season. It is a very good plan to harden off when they have done flowering, and plant in a bed of rich soil; a great saving of labour is effected, and any risk of their suffering from neglect during the summer season avoided. All the attention requisite after they are put out will be to water them once or twice to give them a start, and to keep them free from weeds by hoeing the intervening space two or three times.

SOLOMON'S SEAL.

Although not particularly showy, the Solomon's Seal, as *Polygonatum multiflorum* is generally called, is well worth growing. It has a distinct character, and is decidedly elegant when grown fairly well, and a "rough and ready" course of culture will suffice. Well-grown plants attain a height of about two feet, and the greenish white flowers are borne along the under-side of the gracefully-arching shoots. The clumps prepared for forcing or pot culture will cost about three shillings per dozen, and, as in the case of the dielytras, they should be put in separate pots. Almost any position under glass will suit them, as even under the shade of vines they become very little drawn. They can also be forced without any necessity arising for taking special precautions with them. After the plants have lost their beauty they should be hardened off, and be planted out in a spare corner to furnish supplies for subsequent years. In many gardens where the Solomon's Seal is duly appreciated a bed is formed in some shady position, and from this large blocks are lifted and put in boxes to afford supplies of sprays for decorative purposes, as well as moderate-sized clumps for potting for the embellishment of the conservatory. The blocks are cut out with the spade of a size to fit the boxes, and in these they are put with a layer of soil underneath, and a little packed round the sides to prevent the water draining away too quickly. Boxes and roots are then placed in either of the forcing houses in which space can be found for them.

IXIAS AND SPARAXIS.

These two charming groups of bulbous plants are sometimes described as so nearly hardy that they may be successfully grown on a warm border. This is not in accordance with my experience, and I have long been convinced that to have them in perfection they must receive the protection of a cold frame. When the soil is light and well drained the bulbs do not appear to suffer from frost during the winter; but they commence growing early in the season, and, even with the protection afforded by boughs of spruce or other trees stuck rather thickly over the bed, there is a great risk of the tender growth being injured by the frosts or the east winds. The only satisfactory course is to grow them under glass, either in pots or in a bed of soil; pot culture being, of course, essential when they are required for the decoration of the conservatory or indoor apartments. Five or six-inch pots are the most suitable, and four or five bulbs, which are by no means costly, should be put in each. When planted out arrange them six inches apart one way and four inches the other. During the winter they should be kept safe from frost, and in the spring the structure in which they have a place must be freely ventilated. Much might be written in praise of their great beauty, but it must suffice to say that those who are unacquainted with them will not be likely to regret having taken them in hand. The ixias of special excellence are *Bucephalus*, magenta-crimson; *Crateroides*, bright scarlet; *Fauna*, deep yellow; *Glory*, white with maroon centre; *Lady of the Lake*, magenta; *Lady Slade*, pink; *Prestios*, white with crimson centre; *Rosalie*, bright rose, and *Viridiflora*, the flowers sea-green with black centre, very distinct and of great value for decorative purposes in a cut state. Some of the finest of the sparaxis are *Angélique*, white with yellow centre; *Grandiflora*, purplish crimson; *Leucantha alba*, white; *Leonidas*, purple; *Prince Imperial*, crimson; *Rosca punctata*, rose marked with crimson; *Sulphureus*, yellow, and *Tricolor*, red and yellow.

LILIUM LONGIFLORUM.

This cheap and exquisitely beautiful lily is unsurpassed for pot-culture, and every amateur who has a conservatory should grow a few examples. It will force exceedingly well, as shown by the large number of plants with which the markets are supplied during the

spring months. With the protection of a cold frame during the winter and the assistance of the warmth early in the spring, this lily may be had in bloom very early in the year, but with the aid of the forcing pit it will flower during the early spring months. It should not be subjected to a temperature exceeding 70 deg., and as far as practicable the plants should be kept near the glass when growing freely. Either six or eight inch pots should be employed, and in the smaller of the two sizes put two or three bulbs, whilst for the larger pots three or four bulbs will be required. A compost consisting of fibrous loam three parts, and well-rotted manure one part, and sharp sand about half a part, will be the most suitable, and it should be made firm about the bulbs, which must be placed close together and be buried about an inch below the surface.

NARCISSI.

A considerable number of the daffodils may be grown with but little trouble, but I shall only mention a few of the best. The polyanthus narcissi are so well known for their adaptability for pot culture that they need not be referred to. I would strongly advise the more general cultivation of the Jonquils, which are remarkably elegant, and very attractive, and are also very sweet scented. There are the Single Jonquil, the Double Jonquil, the Campenelle Jonquil, and the Silver Jonquil. These have also the merit of extreme cheapness. The bulbs should be put rather thickly in five-inch pots, and be placed in a sheltered position, and covered with cocoanut-fibre refuse until the roots begin to run freely round the pots, when they must be removed to a frame. The Paper White blooms very early without the aid of artificial heat, and its flowers are of much value in a cut state. Where a large demand for cut flowers has to be met it is a good plan to grow it in quantities in boxes specially to cut from. The Hoop Petticoat, *N. bulbocodium*, is also a charming little species, which could not well be overpraised. Some of the cheapest of the larger-growing kinds may be turned to good account for conservatory decoration, as they bloom very early without any aid from fire heat.

SNOWDROPS.

A few pots of snowdrops have a very pleasing appearance in the conservatory or sitting room early in the year, and as they cost but little either in money or labour the production of one or two dozen examples should be attempted. Bulbs of the largest size should be obtained and put in five-inch pots. The pots should be drained, and filled to within about two inches of the rim with some light rich soil, which must be made moderately firm. Upon this place the bulbs rather close together, and cover with a little more than an inch of soil. Both the single and double forms are most desirable. *Galanthus plicatus* and *G. Elwesii*, are two large-flowered species, exceedingly beautiful, and well suited for pot culture, but they are both too expensive to be grown largely.

THE AUTUMNAL COLOURS OF FRUIT TREES.

By WILLIAM PAUL, Waltham Cross.

In your brief report on these nurseries you allude to the delightful colours of the fruit trees, and suggest the more frequent planting of such trees because of their pictorial beauty. Now that the gardens in and around many of our large towns are become seriously contracted, and proper orchards, or even kitchen gardens, cannot be secured where they are most wanted, the proposal to plant fruit trees in mixed shrubberies acquires peculiar force. There are many varieties adapted to the purpose, and while these give to the household most acceptable supplies of fruit, they contribute by their beauty to the interest and cheerfulness of the garden. In many cases, no doubt, it would be a grave mistake to plant fruit trees in villa gardens; but circumstances are as various as individual tastes, and there are many who will say if a thorn is admissible so should be a pear, apple, or cherry tree, to adorn the place and also to prove useful. A certain number of our fruit trees are unquestionably among the most beautiful of flowering trees and shrubs. What can be more lovely than an apple, pear, cherry, or plum tree in full blossom in the spring? Then there is a succession of fruit in summer and richly-coloured leaves in autumn.

The fruit trees here are at this time all aglow with crimson, purple, and golden leafage. The names of a few varieties that are conspicuous for high colour will perhaps be useful to many who are disposed to plant fruit trees as aids in the decoration of the garden.

APPLES are often very sober in their autumnal colouring, but Beauty of Waltham has the richest crimson tone. There are many yellows, such as Forge, Red Astrachan, Dutch Mignonne, Cellini, Warwick Pippin, and Allen's Everlasting; all these being productive varieties of excellent quality.

PEARS abound in crimson tints, and a large proportion of the best sorts known are resplendent at the fall of the leaf. The following are now showing various shades of crimson: Williams's Bon Chrétien, Seckle, Louise Bonne of Jersey, Princess Charlotte, Louise Grégoire, Beurré de Capiaumont, Napoleon, Doyenné du Comice, Doyenné d'Été, Doyenné Boussoch, Brockworth Park, Beurré Dicel, Beurré de l'Assomption, Baronne de Mello, Beurré d'Anjou, Beurré Bachelier, Urbaniste, Conseiller de la Cour, Comte de Flandre, St. Jean Baptiste, Caillot Rosat, Nectarine, Beurré Sterckmans, and Marie Louise.

PEARS with yellow leaves comprise Jargonelle, Gratiola, Beurré Giffard, Fondante d'Autonne, Catillac, Broompark, Comte de Paris.

CHERRIES conspicuous now for leaf colours are, Black Circassian, superb in its present crimson dress. The brightest yellow leaves are shown by May Duke, Morello, Empress Eugénie, Maumoth, and Archduke.

Such combinations of the useful and the beautiful as this subject brings before us should not be overlooked by the economical lovers of a garden.

HARDY BRODIAEAS.

THE hardy plants of this liliaceous genus are not adapted for the universal garden, and should never be recommended in books for adoption by persons unskilled in the management of plants that require peculiar treatment. The main reason for the scarcity of examples of *ixia*, *sparaxis*, *calochortus*—to name only these—in private gardens is that people fail to flower them; or, if they flower them, they fail to keep them; or, if they keep them, they never flower again, and thus ends the story. The writer of this could tell of a "dear lover of a garden," as he called himself, who really possessed much taste, and did not shrink from reasonable expenditure, begging from a friend a

same amount of care as *ixias*, and are really hardy in specially-favoured positions on warm, dry, sandy soils. Then they become most acceptable border and rock plants, decided in their style of beauty, flowering freely, and increasing underground in a satisfactory manner. In heavy pasty soil, or in bleak exposed places they do not hold their ground long, unless grown in frames, and they associate most agreeably with the lovely *ixias* when so treated. The old-fashioned plan of growing all the nearly hardy subjects of this class in pots is now often superseded by the better plan of making up a bed of sandy peat in a frame for them, and planting them out in it. When the spring is sufficiently advanced the lights can be removed, and while the plants thus obtain the advantage of free light and air, the owner has the advantage of seeing them form a proper part of the garden



BRODIAEA COCCINEA.

collection of *ixias* and *sparaxis*. It was a collection worthy of a thorough amateur, and had, when the plants were in flower, given delight to hundreds of persons in the original owner's garden. But the giving made an end of it; the plants were muddled in some way, and never a word was said about them. Probably they were planted out like crocuses on a heavy soil, and the subsequent winter melted them into pulp as manure for the next crop. There are too many yet who, though not wanting in judgment and spirit to a certain extent, hold firmly to the idea that all so-called hardy plants should be treated in the same manner, no matter whence they were derived, or what are their botanical or geographical relationships. For this class of cultivators the *brodiaeas* are of no use whatever, for they require about the

display and in their natural colours, which are never fully developed when they are "coddled."

The hardiest of the series and the one most commonly met with is *Brodiaea congesta*, the flower stem of which rises to a height of about fifteen inches, the umbel containing half a dozen flowers of a beautiful blue colour. This will keep its ground for three or four years in a London garden if the winters are not particularly severe, but a really hard winter will clear it off the ground, or harm it so that the loss of one year's bloom must be expected. *Brodiaea grandiflora* is a good species, with purplish flowers, which may be planted with *B. congesta*, but will be the first to go when conditions are unfavourable. But it makes amends for this by ripening seeds freely, and it seems to love

shade rather than full sunshine. A South-American species, *B. izioides*, the writer of this note has found amenable to ordinary frame cultivation: it has linear leaves like those above noticed, and rather large pale purple flowers that open to a face. *B. coccinea*, here figured, is the finest of the series, and is very distinct. All the others have leaves like those of *Narcissus bulbocodium*, but this has bold broadish leaves that form a suitable and rich setting for the flower stems, which bear umbels of from twelve to twenty flowers when the bulbs are strong and well grown. The flowers are of a brilliant crimson or purple-tinted scarlet colour tipped with green, three of the stamens assuming a petaline form and showing nearly white at the termination of the tube.

Brodiaea bulbs should be potted or planted as soon as received in autumn. Those put in frames should have but little water until growing freely; those on the rockery may be advantaged by laying over each clump a tile or slate lodged on a few large stones. The cover can, of course, be removed when the protection it affords is no longer needed.

NOTES FROM THE ORCHID HOUSE.

At no season of the year is the value of a well-assorted collection of orchids made more manifest than the present. The garden is now practically destitute of flowers, and but few of the occupants of the greenhouse and of the plant stove are in bloom. But in the orchid houses we have at the present moment a most beautiful display of colour; not so large, perhaps, or so bright as we usually have in April and May, but immensely attractive, and the plants in flower are sufficient to afford much interest. Not only is there a good sprinkling of flowers in the cool houses, but several of the finest of the occupants of the East India house are in bloom. There are, in fact, so many kinds in flower or rapidly coming forward that it would be possible to make up a rather lengthy list of autumn-blooming orchids; but I shall refrain from giving the names of all, and instead briefly allude to a few of special importance that took my attention in a leisurely walk through the houses.

ONCIDIUMS now in bloom include a few kinds of a highly meritorious character. A very pretty oncid in flower at the present moment is *O. incurvum*, a dwarf-growing species with white and brown flowers, which hardly receives so much attention as it well merits. In some respects superior to it is the charming *O. ornithorhynchum*, a rather small-growing kind which during the autumn produces a profusion of its elegant spikes of rosy purple flowers. The flowers are not large, but as they are borne with great freedom they produce a very pleasing effect. The lightness of the spikes renders them most useful for choice bouquets, and their value for this purpose is much enhanced by the delightful fragrance of the flowers. The white variety of *O. ornithorhynchum* is also very beautiful. As the species thrives in the cool house and is by no means costly, it is well suited to the requirements of the amateur. Of a very distinct character to the foregoing are *O. varicosum* and its superb variety *Rogersi*. These are just coming into bloom, and in a fortnight hence will contribute very materially to the attractions of the orchid house; the flowers are large, of the richest yellow, and appear to great advantage in the dull weather we usually have during November. These both do well in the intermediate house, and those who cannot afford the variety *Rogersi* should grow the species, which if not quite equal to it is very beautiful. *O. Forbesi*, one of the best of the kinds for growing on blocks, is also just coming into bloom, and when at its best the yellow and red flowers are very attractive.

DENDROBIUMS include the beautiful *D. superbiens* and its nearly ally *D. Goldieana*, which cannot be too widely known. They are exactly alike in growth, and differ from each other in colour, the last-mentioned of the two having flowers of a deeper shade of mauve. The growth is strong and erect, and the rich purplish mauve flowers are produced in slender gracefully arching spikes from near the top of the pseudo-bulbs. The flowers stand remarkably well, both on the plants and in a cut state, and in proof of this it will suffice to say that a spike will remain in good condition for ten or twelve weeks, provided the flowers are not exposed to drip or other injurious influences. Sometimes complaints are made of these two dendrobies not flowering so freely as could be wished, but there are really no grounds for them. With me they bloom as freely as could be desired. I am careful to give them a rather brisk temperature and an abundance of moisture when they are making new growth, and to place them near the glass to ensure its being strong and well ripened. From early in the autumn until late in the spring the plants are suspended from the roof as near the glass as possible without the tops of the pseudo-bulbs touching it. I would add that they are grown in teak baskets, rather small in proportion to the size of the respective examples, with a mixture of peat and sphagnum. A special favourite with me for winter is *D. Linawianum*, not unlike *D. nobile* in general character, and its flowers, which are white and rich rosy purple, are borne very freely. The chief point in its culture is to well ripen the pseudo-bulbs by placing the plants in a light position on the completion of the growth. The thorough maturation of the growth is of course important in the cultivation of all the dendrobies, but in the case of this species there will be very few flowers indeed unless the point has due attention.

ODONTOGLOSSUMS are flowering splendidly at the present moment, and if the promises hold good we shall have a rich display throughout the winter and until late in the spring. Prominent amongst the odontoglossots is *O. Alexandrae*, in which beauty and usefulness are admirably combined. It is certainly unsurpassed in beauty, and the flowers, which may be had for about six months, are of the greatest possible value for hand and button-hole bouquets, and for the formation of

sprays for the hair. We have about fifty spikes in various stages of development, and the diversity in the colour and form of the flowers is most remarkable. If I were obliged to limit myself to one species, I should without hesitation select *O. Alexandrae*, and I would strongly advise those amateurs who are able to afford it the necessary accommodation to grow, not one, but a score of plants of it. Nice examples can be had at a very low rate at any of the nurseries in which orchids form a special feature, so that the question of cost is not a serious matter. The beautiful *O. Roezli*, and its white variety, *O. Roezli album*, and the by no means unattractive *O. Rossi majus*, are also in bloom, and if less valuable than *O. Alexandrae* they are too good to be passed by without a word of notice and commendation. *O. Roezli* and *O. Roezli album* are almost perpetual blooming: we are seldom without flowering plants of them. Like *O. vexillarium*, they require more warmth than the majority of the species, and they do exceedingly well in the cattleya house. *O. grande* is now rather past its best, but it has been very fine for a long time past, and when looking at our specimens well furnished with their massive spikes it was impossible to avoid a feeling of regret that the species has been somewhat neglected of late in favour of newer and more expensive kinds.

LÆLIAS comprise several most valuable autumn-flowering species, chief amongst them being *L. autumnalis*, *L. anceps*, *L. acuminata*, and *L. albida*, all of which have the great merit of being cheap as well as good. These five kinds are all too well known to render it necessary to refer to them otherwise than in the briefest manner possible. Grown on blocks suspended from the roof of the house they have a remarkably attractive appearance, and the flowers are of the highest possible value in a cut state. From now until January they will contribute much to the attraction of the cattleya house, and as the flowers remain long in perfection they should not be cut excepting for the choicest bouquets or decorations.

CYPRIPEDIUMS rank high amongst orchids that bloom during the autumn, for the flowers are very distinct in character and colour and remain long in perfection. The comparatively new *C. Spicerianum* is now flowering superbly, and its flowers are so exceedingly beautiful that it may be safely described as one of the finest of its class. *C. Sedeni* is nearly always in bloom, but its flowers are none the less welcome at the present moment. Of great value is *C. villosum*, which stands so well that the flowers remain in good condition the greater part of the winter; and by no means the least beautiful of the lady's slippers is the old *C. insigne*, which some of the younger growers affect to despise because of its being common. It is so distinct and attractive that it should have a place in all gardens in which it can be afforded sufficient warmth, and where cut flowers are in much request a few large specimens will be found most useful to cut from.

ORCHIDOPHILIST.

NEW PLANTS AND FLOWERS.

CERTIFICATED DURING THE TWELVE MONTHS ENDING
SEPTEMBER 30, 1882.

ABUTILONS.

BRILLIANT (J. George), F.C., R.B.S., March 29, 1882.
EMPRESS (J. George), F.C., R.B.S., March 29, 1882.

ACERS.

CRATÆGIFOLIUM (J. Veitch and Sons), B.C., R.B.S., May 17, 1882.
JAPONICUM AUREUM VEITCHI (J. Veitch and Sons), B.C., R.B.S., May 17, 1882.
POLYMORPHUM DECOMPOSITUM (J. Veitch and Sons), B.C., R.B.S., May 17, 1882.
POLYMORPHUM LINEARILOBUM (J. Veitch and Sons), B.C., R.B.S., May 17, 1882.
POLYMORPHUM RIBESIFOLIUM (J. Veitch and Sons), B.C., R.B.S., May 17, 1882.

ADIANTUMS.

BOURNEI (J. Smith), F.C.C., R.H.S., May 23, 1882.
DOLABRAFORME (B. S. Williams), B.C., R.B.S., May 17, 1882; F.C.C., R.H.S., May 23, 1882.
LEGRANDI (J. Veitch and Sons), F.C.C., R.H.S., June 13, 1882; B.C., R.B.S., July 5, 1882.
LATHOMI (B. S. Williams), B.C., R.B.S., March 29, 1882.
PACOTTI (W. Bull), B.C., R.B.S., April 26, 1882.
VICTORIÆ (General Hort. Co.), F.C.C., R.H.S., March 28, 1882; (W. Bull), B.C., R.B.S., April 26, 1882.

AERIDES.

FORMOSUM (J. Veitch and Sons), F.C.C., R.H.S., June 13, 1882.
LAWRENCIANA (Spyers), B.C., R.B.S., July 5, 1882.

AGAPANTHUS.

UMBELLATUS AUREUS (B. S. Williams), B.C., R.B.S., May 17, 1882.

AGERATUM.

MALVERN BEAUTY (H. Cannell and Sons), F.C.C., R.H.S., August 16, 1882.

ALSOPHILA.

REBECCÆ (W. Bull), B.C., R.B.S., March, 29, 1882; F.C.C., R.H.S., April 25, 1882.

AMARYLLIS.

AUTUMN BEAUTY (J. Veitch and Sons), F.C.C., R.H.S., January 10, 1882.
DR. MASTERS (B. S. Williams), F.C., R.B.S., March 29, 1882.
DUKE OF ALBANY (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; F.C., R.B.S., March 29, 1882.
INDIAN CHIEF (J. Veitch and Sons), F.C., R.B.S., March 29, 1882.
MRS. B. S. WILLIAMS (B. S. Williams), F.C., R.B.S., April 26, 1882.
SHAKSPEARE (J. Veitch and Sons), F.C., R.B.S., March 29, 1882.
THE GIANT (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; F.C., R.B.S., March 29, 1882.

ANDROMEDA.

JAPONICA (A. Waterer), F.C.C., R.H.S., March 28, 1882.

ANTHURIUM.

SCHERZERIANUM WOODBRIDGEI (Woodbridge), F.C.C., R.H.S., April 11, 1882.

ASPARAGUS.

PLUMOSUS (B. S. Williams), B.C., R.B.S., March 29, 1882.

PLUMOSUS NANUS (J. Veitch and Sons) B.C., R.B.S., March 29, 1882; (J. Laing and Co.), F.C.C., C.P., May 20, 1882.

AUBRIETIA.

VIOLACEA (Dean), F.C.C., R.H.S., April 25, 1882.

AURICULAS.

ADA HARDWIDGE, Alpine (Douglas), F.C.C., N.A.S., April 25, 1882.
 AGAMEMNON, Gr. E. (Horner), F.C.C., N.A.S., April 25, 1882.
 AMAZON, Alpine (C. Turner), F.C.C., N.A.S., April 25, 1882; F.C., R.B.S., April 26, 1882.
 AMELIA HARDWIDGE, Alpine (Douglas), F.C.C., N.A.S., April 25, 1882.
 BLUE BELL, Gy. E. (Fellowes), F.C.C., N.A.S., April 25, 1882.
 BRUNETTE, S. (Pohlman), F.C.C., N.A.S., April 25, 1882.
 CHARLES DARWIN, Alpine (C. Turner), F.C.C., N.A.S., April 25, 1882.
 CORONA, S. (Horner), F.C.C., N.A.S., April 25, 1882.
 GEORGE RUDD, Gy. E. (Woodhead), F.C.C., N.A.S., April 25, 1882.
 GLADIATOR, Alpine (Turner), F.C., R.B.S., April 26, 1882.
 HECTOR, Alpine (Turner), F.C., R.B.S., April 26, 1882.
 J. D. LLEWELYN, Alpine (Turner), F.C., R.B.S., April 26, 1882.
 JUMBO, Gr. E. (Douglas), F.C.C., N.A.S., April 25, 1882; F.C., R.B.S., April 26, 1882.
 LUNA, Gy. E. (Horner), F.C.C., N.A.S., April 25, 1882.
 MRS. MOORE, Gr. E. (Douglas), F.C.C., N.A.S., April 25, 1882; F.C., R.B.S., April 26, 1882.

AZALEAS.

MADAME DE GREVE (H. Little), F.C., R.B.S., March 29, 1882.
 MR. F. COBERT (Todman), F.C., R.B.S., March 29, 1882.
 PONTICA NARCISSIFLORA (J. Veitch and Sons), F.C., R.B.S., April 26, 1882.
 RUBIFLORA FL. PL. (J. Veitch and Sons), F.C.C., R.H.S., May 9, 1882.

BEGONIAS.

ARTHUR G. SOAMES (J. Laing and Co.), F.C., R.B.S., May 17, 1882; F.C.C., C.P., May 20, 1882.
 A. F. BARRON (R.H.S.), F.C.C., R.H.S., July 11, 1882.
 EXONIENSIS (J. Laing and Co.), F.C., R.B.S., July 5, 1882.
 BALL OF FIRE (J. Laing and Co.), F.C.C., R.H.S., May 23, 1882.
 GOGOENSIS (J. Veitch and Sons), F.C.C., R.H.S., July 25, 1882.
 MRS. STEVENS (R.H.S.), F.C.C., R.H.S., July 7, 1882.
 HON. AND REV. J. T. BOSCAWEN (J. Laing and Co.), F.C.C., R.H.S., June 13, 1882; F.C., R.B.S., July 5, 1882.
 MADAME CAMESSE (J. Laing and Co.), F.C., R.B.S., July 5, 1882.
 MARQUIS OF BUTE (J. Laing and Co.), F.C., R.B.S., May 17, 1882; F.C.C., C.P., May 20, 1882.
 MRS. STEVENS (R.H.S.), F.C.C., R.H.S., July 11, 1882.
 MRS. DR. DUKE (J. Laing and Co.), F.C., R.B.S., July 5, 1882.
 SOCOTRANA (J. Veitch and Sons), F.C.C., R.H.S., November 12, 1881.
 THOMAS MOORE (R.H.S.), F.C.C., R.H.S., July 7, 1882, and July 11, 1882.
 TREATRA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 W. BEALBY (J. Laing and Co.), F.C., R.B.S., May 17, 1882.

CALADIUMS.

ALBO-LUTEUM (J. Laing and Co.), F.C., R.B.S., May 17, 1882; F.C.C., C.P., May 20, 1882.
 IBIS ROSE (J. Laing and Co.), F.C., R.B.S., May 17, 1882; F.C.C., C.P., May 20, 1882.

CALANTHES.

BELLA (J. Veitch and Sons), F.C.C., R.H.S., December 13, 1881.
 TEXTOREA (Spyers), B.C., R.B.S., July 5, 1882.

CALCEOLARIA.

CLOTH OF GOLD (Rapley), F.C., R.B.S., May 17, 1882.

CATTLEYAS.

GIGAS (B. S. Williams), B.C., R.B.S., July 5, 1882.
 GIGAS ALBO-STRIATA (H. James), B.C., R.B.S., July 5, 1882.
 GIGAS BURFORDIENSIS (Spyers), F.C.C., R.H.S., June 13, 1882.
 MENDELI JAMESIANA (James), F.C.C., R.H.S., April 11, 1882.
 MOSSIE SOUTHGATEI (H. James), B.C., R.B.S., July 5, 1882.
 WHITEI (H. Low and Co.), F.C.C., R.H.S., July 25, 1872.

CARNATIONS.

ALFRED HUDSON (Dodwell), F.C.C., N.C.S., July 25, 1882.
 CONQUEROR (C. Turner), F.C.C., N.C.S., April 25, 1882.
 CHARLES PAGE (Duffield), F.C.C., R.H.S., June 13, 1882.
 DUKE OF ALBANY (Turner), F.C.C., R.H.S., December 13, 1881.
 ENCHANTRESS (C. Turner), F.C.C., N.C.S., April 25, 1882.
 FLAMBEAU (Turner), F.C.C., N.C.S., April 25, 1882.
 FLORENCE (Wallington), F.C.C., N.C.S., July 25, 1882.
 HECTOR (C. Turner), F.C.C., N.C.S., April 25, 1882.
 HENRY CANNELL (Dodwell), F.C.C., N.C.S., July 25, 1882.
 JULIETTE (C. Turner), F.C.C., N.C.S., April 25, 1882.
 MR. HOWARD (Howard), F.C.C., R.H.S., May 9, 1882.
 MRS. PAGE (Duffield), F.C.C., N.C.S., July 25, 1882.
 NEGRO (Turner), F.C.C., R.H.S., December 13, 1881.
 NIMROD (C. Turner), F.C.C., N.C.S., April 25, 1882.
 PREMIER (C. Turner), F.C.C., N.C.S., April 25, 1882.
 RUFUS (C. Turner), F.C.C., N.C.S., April 25, 1882.
 TIM BOBBIN (Gorton), F.C.C., N.C.S., July 25, 1882.
 WHIPPER-IN (C. Turner), F.C.C., N.C.S., April 25, 1882.
 WILLIAM SKIRVING (Douglas), F.C.C., N.C.S., July 25, 1882.

CHRYSANTHEMUMS.

LADY SELBORNE (J. Salter), F.C.C., R.H.S., November 12, 1881.
 LA PETITE MARIE (T. S. Ware), S.C.C., R.H.S., July 11, 1882.
 REX RUBRORUM (J. Veitch and Sons), F.C.C., R.H.S., November 12, 1881.

CLEMATIS.

DANIEL DERONDA (Noble), F.C., R.B.S., April 26, 1882.
 DARWINI (Noble) F.C., R.B.S., April 26, 1882.
 PRINCESS BEATRICE (Noble) F.C., R.B.S., April 26, 1882.

COLOGYNES.

BARRATA (W. Bull), F.C.C., R.H.S., December 13, 1881.
 CRISTATA LEMOINIANA (J. Veitch and Sons), F.C.C., R.H.S., February 14, 1882.
 MASSANGIANA (B. S. Williams), B.C., R.B.S., April 26, 1882.

COLUMNEA.

KALHREYER (J. Veitch and Sons), B.C., R.B.S., March 29, 1882.

COMPARETTIA.

FALCATA VERA (Spyers), F.C.C., R.H.S., July 25, 1882.
 MACROPLECTON (Heims), F.C.C., R.H.S., July 25, 1882.

CORYANTHES.

EXIMIA (Spyers), B.C., R.B.S., July 5, 1882.

CORYLUS.

AVELLANUS AUREUS (Paul and Son), B.C., R.B.S., May 17, 1882.

CROTONS.

AUREO-MARMORATUS (J. Veitch and Sons), F.C.C., R.H.S., July 11, 1882.
 AUREUS MARMORATUS (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 BARON SCHRÖDER (B. S. Williams), B.C., R.B.S., May 17, 1882.
 BRUCE FINDLAY (B. S. Williams), B.C., R.B.S., July 5, 1882.
 DAYSRING (J. Veitch and Sons), F.C.C., R.H.S., July 11, 1882.
 LAINGI (J. Laing and Co.), F.C.C., R.H.S., November 12, 1881.
 PRINCESS OF WALDECK (B. S. Williams), F.C.C., R.H.S., June 28, 1882.

CRINUM.

MAKOYANUM (B. S. Williams), B.C., R.B.S., April 26, 1882.

CYCLAMEN.

PERSICUM CRIMSON GEM (H. Little), F.C., R.B.S., March 29, 1882.
 PERSICUM GIGANTEUM COMPACTUM, F.C.C., R.H.S., February 14, 1882.
 PERSICUM ROSE QUEEN (H. Little), F.C., R.B.S., March 29, 1882.
 PERSICUM STRIATUM (H. Little), F.C., R.B.S., March 29, 1882.
 PERSICUM TINTED GEM (H. Little), F.C., R.B.S., March 29, 1882.
 PERSICUM WHITE GEM (H. Little), F.C., R.B.S., March 29, 1882.

CYMBIDIUM.

PARISHI (Spyers), B.C., R.B.S., July 5, 1882.

CYPRIPEDIUMS.

GRANDE (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 INSIGNE AUREUM (W. Bull), B.C., R.B.S., March 29, 1882.

DAHLIAS.

ACQUISITION (Keynes and Co.), F.C.C., C.P., September 8, 1882.
 CHRISTINE (T. S. Ware), F.C.C., C.P., September 8, 1882.
 CONDOR (Keynes and Co.), F.C.C., C.P., September 8, 1882.
 EARL OF RAVENSWORTH (Harkness and Son), F.C.C., C.P., September 8, 1882.
 EVENING STAR (Keynes and Co.), F.C.C., C.P., September 8, 1882.
 FAVOURITE (C. Turner), F.C.C., C.P., September 8, 1882.
 GEM (C. Turner), F.C.C., R.H.S., July 25, 1882; F.C.C., C.P., September 8, 1882.
 HOPE (Keynes and Co.), F.C.C., C.P., September 8, 1882.
 ISABEL (C. Turner), F.C.C., C.P., September 8, 1882.
 JOHN HENSHAW (Rawlings), F.C.C., R.H.S., September 12, 1882.
 MAHEL (C. Turner), F.C.C., C.P., September 8, 1882.
 PANTALON (T. S. Ware), F.C.C., C.P., September 8, 1882.
 RUBY KING (Hooper and Co.), F.C.C., R.H.S., September 12, 1882.
 SENATOR (Keynes and Co.), F.C.C., C.P., September 8, 1882.
 WHITE STAR (T. S. Ware), F.C.C., C.P., September 8, 1882.

DAVALLIAS.

GRIFFITHIANA (Howard), F.C.C., R.H.S., May 9, 1882.
 FIJIIENSIS PLUMOSA (W. Bull), F.C.C., R.H.S., November 12, 1881; B.C., R.B.S., April 26, 1882.
 FENICULACEUM (B. S. Williams), B.C., R.B.S., March 29, 1882.
 TENUIFOLIA VEITCHI (J. Veitch and Sons) B.C., R.B.S., July 5, 1882; F.C.C., R.H.S., July 11, 1882.

DENDROBIUM.

FALCONERI GIGANTEUM (J. Veitch and Sons), B.C., R.B.S., March 29, 1882.
 MACROPHYLLUM DEAREI (Deare), F.C.C., R.H.S., April 11, 1882.

DICKSONIA.

CHRYSOBRICHA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

DIEFFENBACHIA.

MAJESTICA (B. S. Williams), B.C., R.B.S., March 29, 1882.

DRACENAS.

FRAGRANS VARIEGATA (W. Bull), B.C., R.B.S., March 29, 1882.
 LINDENI (W. Bull), F.C.C., R.H.S., November 12, 1881.
 THOMSONIANA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

ERICA.

HYEMALIS ALBA (Kinghorn), F.C.C., R.H.S., January 10, 1882.

GAILLARDIA.

PICTA PUNCTATISSIMA (J. Carter and Co.) F.C.C., R.H.S., June 28, 1882.

GLADIOLUS.

ALA (Kelway and Son), F.C.C., R.H.S., August 8, 1882.
 A. F. BARRON (Kelway and Son), F.C.C., R.H.S., August 8, 1882.
 BONO (Kelway and Son), F.C.C., R.H.S., August 8, 1882.
 JAMES MCINTOSH (Kelway and Son), F.C.C., R.H.S., August 8, 1882.

GLOXINIAS.

CORDELIA (J. Veitch and Sons), F.C., R.B.S., July 5, 1882.
 GARIBALDI (J. Veitch and Sons), F.C.C., R.H.S., June 13, 1882.
 MAJOR MASON (R.H.S.), F.C.C., R.H.S., July 7, 1882.
 MRS. ATKINSON (Hudson), F.C.C., R.H.S., June 28, 1882.
 ROBIN HOOD (J. Veitch and Sons), F.C.C., R.H.S., June 13, 1882.

GODETIAS.

DUCHESSE OF ALBANY (Daniels Bros.), F.C., R.B.S., July 5, 1882; F.C.C., R.H.S., July 11, 1882.

SATIN ROSE (J. Carter and Co.), F.C.C., R.H.S., August 8, 1882.

GRAMMATOPHYLLUMS.

ELLISI (H. Low and Co.), B.C., R.B.S., July 5, 1882.

MULTIFLORUM (Spysers) F.C.C., R.H.S., July 25, 1872.

GYMNOGRAMMA.

LAUCHEANA GRANDICEPS (Dixon and Co.), F.C.C., R.H.S., April 25, 1882; B.C., R.B.S., April 25, 1882.

HELICONIA.

AUREO-STRATA (W. Bull), F.C.C., R.H.S., November 12, 1881.

HELIOTROPIMUMS.

BOUQUET PERFUME (Lemoine), F.C.C., R.H.S., August 16, 1882.

MADAME P. ATHLES (Lemoine), F.C.C., R.H.S., August 16, 1882.

WHITE LADY (Cannell and Sons), F.C.C., R.H.S., December 13, 1881.

IOYA.

GLOBULOSA (Cranston), F.C.C., M.R.B.S., April 4.

HYACINTHS.

CHALLENGER (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; F.C., R.B.S., March 29, 1882.

CHARLES DICKENS (J. Veitch and Sons), F.C., R.B.S., March 29, 1882.

DELICATA (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; F.C., R.B.S., March 29, 1882.

DUKE OF ALBANY (J. Veitch and Sons), F.C., R.B.S., March 29, 1882.

ENCHANTRESS (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882.

LEO (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882.

SURPRISE (J. Veitch and Sons), F.C., R.B.S., March 29, 1882.

(To be continued.)

The House, Garden, and Poultry Yard.

RETROSPECTION.

THE bubble of the silver-springing waves,
Castalian music, and that fluttering sound,
Low rustling of the loved Apollian leaves,
With which my youthful hair was to be crowned,
Grow dimmer in my ears; while Beauty grieves
Over her votary, less frequent found;
And, not untouched by storms, my life-boat heaves
Through the splashed ocean-waters, outward bound.
And as the leaning mariner, his hand
Clasped on his ear, strives trembling to reclaim
Some loved lost echo from the fleeting strand,
So lean I back to the poetic land;
And in my heart a sound, a voice, a name
Hangs, as above the lamp hangs the expiring flame.

N. C. ROSCOE.

THE HOUSE.

FERNS in cases will require very little moisture at this season of the year to maintain them in a thriving condition, but they must have sufficient to keep them safe. In watering from the present time until the turn of the year, take advantage as far as practicable of bright dry weather for the application of water, and exercise a fair amount of care to prevent the fronds being made very wet: some kinds will be in no way injured by the saturation of their fronds with water, whilst others, such as the adiantums, will in all probability suffer more or less. The cases ought also to be ventilated more freely to ensure a sweet and comparatively dry atmosphere, which it need hardly be said is the best preventive of mildew. If a general rule is wanted it can be given briefly to this effect—give no water to fern cases from November 1 to February 1.

THE GARDEN.

AURICULAS must be kept clean and dry; any drip from the lights will do incalculable mischief; at no time, not even during frost, should the roots be dust dry; it causes an exhaustion of the plant which will tell seriously on the bloom hereafter.

CARNATIONS will often be found beset with green fly during damp warm weather at this time of year; in which case fumigate at once, and again a few days afterwards, and they will probably remain quite clean till they begin to grow again in spring.

CAULIFLOWERS potted for keeping over winter should be kept rather dry, and as much as possible exposed to the weather, to keep them stocky and hard. Keep the lights or glasses on always at night from this time forth, removing them every morning, except during frost or drenching rains. In wet muggy weather tilt the lights upon blocks of wood or bricks, so as to create a circulation of air amongst the plants, and yet keep them from being saturated with water.

CURRENTS AND GOOSEBERRIES should now be lifted if required, as the next year's crop will be less jeopardized by getting them early to the places in which they are to fruit. Fork in a good dressing of manure between the trees in old plantations.

CABBAGE FOR SPRING SUPPLIES.—Now is a good time to select from the seed beds some of the smallest plants and prick them out in some warm corner where they can be protected if necessary, to provide a stock of plants for putting out in the spring, and for making good any losses that may occur in the beds put out for early use. It is not an uncommon occurrence for a hard winter to kill a good many of the plants where the situation is low and the ground heavy and cold.

GREENHOUSE.—On bright days open all the ventilators, to cause a free circulation of air among the plants. Avoid using fire-heat as much as possible consistent with the safety of the plants, and give very little water to those that have finished their growth, or which it is desirable to throw into a state of rest. Plants in pits will endure short periods of frost better if kept well aired and moderately dry. A clear sky and a few points of north in the wind may be considered indications of frost, and at such times the cultivator should be on his guard.

FRUIT TREES to be planted as soon as possible; manure not to be used unless the ground is in a poor condition, and then a little fresh soil should be used with it if possible. Turf from the roadside, clay, clearings of ponds and ditches, are excellent materials to invigorate an old worn-out soil required for fruit culture, as also to give body to poor sandy and chalky soils. In planting, keep all roots near the surface; never plant any tree deeper than it was before, and if it was evidently too deeply planted before give it a better chance than it had previously by more shallow planting. Stake immediately to prevent rocking by the wind, and at the same time prune with care.

PEACHES in the forcing house to be pruned at once, the roots top dressed, and the branches washed. Vacancies may now be filled up in the peach house, and nothing better for the purpose than bearing trees. In planting peaches on open borders, let attention be first given to drainage: if the soil is light, lay down six inches of tenacious loam or clay, or turf from a loamy pasture, and about three inches of rotten dung, and then stir the whole, and mix this material with the staple to a depth of two feet, mixing the ingredients well together. The peach, nectarine, and apricot all require a firm, substantial, and somewhat adhesive soil, a south aspect, and a dry bottom.

PRIMULAS and CYCLAMENS to be kept in the warmest part of the greenhouse, and have every encouragement to push forward for bloom. If they cannot have a structure to themselves, keep them near the glass where there is no drip.

REVISE all named plants while there are blooms or fruits to determine if they are tallied correctly. To keep plants correctly tallied will do more to familiarize the mind with their several characters and excellencies than any amount of book study; in fact, every garden is a book where, not he who runs but he who stoops may read, and everything of real interest should have a tally correctly written. This is specially useful in regard to rock plants, coniferous trees, and roses.

THE POULTRY YARD.

THOSE who devote attention to the rearing of turkeys will now be entertaining serious thoughts in regard to fattening some portion of the stock. Such peculiar ideas are entertained in many districts as to the means to be adopted for bringing the birds into condition that in many instances they will cost a good round sum before they are finished. If people like to pay for their hobbies, it is not for us to complain or even to remark upon the matter. Every one to his taste, and there are worse ways of spending money than in amateur farming. In feeding turkeys at this stage almost anything will do, but there must be plenty of it. Boiled potatoes, mashed and mixed with barley meal, or crushed oats, or buckwheat, answers splendidly. To save time in describing details, let it be understood that they want a lot of anything good, supplied fresh, with plenty of pure water, and the place to be kept clean and sweet. If you can obtain waste fat from the market, you may regularly smash up a lot and mix it with the meal; and you may even buy tallow greaves—only mind you fatten a few on corn and potatoes, without greaves, for your own table. If well managed, three weeks of such feeding is enough. The most delicate birds are the poult of the year; but if you want large turkeys you must fatten those that have raised only one brood, and are, we will say, eighteen months old.

Calls at Nurseries.

MESSRS. HANNAFORD AND SONS' NURSERIES, TEIGNMOUTH.

It is at all times interesting to look over a seaside nursery, and to see how the conductors have to provide for the wants of a large number of small customers as well as for a considerable body of large purchasers who for the most part reside near the coast, and therefore require such trees and shrubs as well as tender flowering plants as will thrive in an atmosphere that is sometimes heavily charged with salt spray. This is the position of the Messrs. Hannaford and Sons' nurseries, and a walk through the different departments shows how well the requirements of a large body of purchasers of subjects belonging to a well-appointed nursery are provided for. I make this remark here because time and space are precious just now, and I can only refer to a few subjects that are of more than ordinary interest.

First, allow me to observe that recently Cupressus macrocarpa has been referred to in these pages as admirably adapted for seaside planting, provided it can be sheltered from rough winds. This fact is fully recognized by the firm, and a large stock of it is growing as a consequence. All the plants are raised from home-saved seed, and they may be seen all about the nursery in sizes from one-year seedlings to specimens six feet in height. I particularly noticed a fine stock of specimens that were about five feet high, and growing in large pots, to be ready for removal at any period of the year. I was assured that this was the only way of supplying the wants of their customers, who came at all seasons of the year and wanted them at once and for immediate effects. The round-leaved laurel is thought much of here, as it is said to be more hardy than the other kinds. As its name indicates, its leaves are rounder than those of the common laurel. Ligustrum coriaceum is grown in large quantities, as it is found to succeed admirably on the coast. Weigela also do well, and I also noticed some particularly healthy examples exposed to the sea breeze of Pinus insignis. Fruit trees are largely grown, and roses are of course a strong feature.

Amongst the flowering plants in the open ground the single dahlias made an attractive display, and nowhere have I seen Pyrethrum inodorum so good as here. The plants were not so much overgrown as they usually are, and they were literally covered with flowers that were as white as one could wish. In most cases this pyrethrum blooms but sparingly, and the flowers are heavily tinted with green. A strain of Tom Thumb antirrhinums must not be omitted; the plants were not more than ten inches high, and were flowering freely, the prevailing colours being white, yellow, and crimson, variously marbled and spotted with distinct and pleasing colours. Geum coccineum, grown in seven-inch pots, as it is in these nurseries, is not to be despised for decorative purposes in September, and its flowers are not wanting in value in a cut state. The shrubby veronicas meet with a fair share of attention, and their condition shows that either the management or the climate is most favourable to them. I have not seen so good a display of veronicas out of doors since the winter of 1879-80. The severe cold experienced during that winter destroyed the greater portion of the veronicas in most parts of the country. Hyacinthus caudatus, so useful to cut from, is grown in quantity and highly esteemed. Lilium auratum at the time of my visit was flowering grandly in the open ground, and produced a striking effect. The bulbs were planted six inches deep, and had a nice sprinkling of sand round them when put out. Mr. Hannaford told me

that by planting them in this way he had very few losses. Most of the bulbs, it may be added, were bearing from four to seven flowers each.

If it were required of me to name one of the leading plants that are grown in quantity here for seaside gardens, it would be the *Eucynurus*. This and the tamarisk are always at home by the sad sea waves. The rich, deep glossy green leafage of *Eucynurus japonicus* renders it invaluable. The old golden-leaved variety with narrowish leaves acquires here a sparkling brightness that we cannot match in inland districts, and the newer broad-leaved Japan varieties with yellow and creamy variations grow rapidly and never suffer from the winter, as they are reported to do in London. When in doubt play trumps, and here they are in vegetable form, fit for all sorts of purposes, cheap enough for a front garden and good enough for a grand promenade.

In the various plant houses there is a good stock of useful subjects. *Bouvardias* receive a good deal of attention and are grown in large numbers. Ferns, dracaenas, and palms of a suitable size for table decoration appear to be a great feature of the trade, and a very large stock of all the best zonal pelargoniums had just been brought into the houses to furnish flowers for the winter. An active business appears to be carried on at the shop, which occupies a prominent position in one of the principal thoroughfares of the town, cut flowers, bulbs, and seeds coming in for a full share of attention.

J. C. CLARKE.

Exhibitions and Meetings.

THE ROOT SHOW AT AYLESBURY.

THE great exhibition of roots and vegetables held at Aylesbury in connexion with the inspection of the sewage works of the Native Guano Company brought together a great assemblage of farmers and gardeners, as well as of experts in engineering and chemistry. The sole object of the display was to attract attention to the capabilities of the manure prepared from sewage by the A B C process, and viewed in this light there can be no doubt it answered its purpose. In fact, it was an immense exhibition, and the stuff shown was of fine quality, and admirably represented a well-prepared schedule. To very many present the interest turned upon the value of the manure. It consists evidently and avowedly of charcoal plus sediment from sewage. Now charcoal pure and simple is a proper fertilizer of the ground. There is much interesting evidence on this point in Leibig's "Chemistry of Agriculture," and there is much experience of its use amongst practical men of an inquiring turn who turn to good account the facts that pass before them. Charcoal necessarily generates carbonic acid, and it also necessarily absorbs ammonia from the atmosphere, and thus by a double action it contributes to the plant what may be called its lowest class of food, its read and potatoes; and also its highest class of food, its meat and wine. It is, moreover, a long-lasting substance, assimilating with the soil itself but slowly, for we may discover where this black manure has been used two or three or more years subsequent to the time of application. But though not disposed to assimilate with the soil, as in the case of prehistoric caves, where the charcoal is often untouched by time, while all other records of men, such as carved bones, flint implements, and the like, are much decayed, yet this does not prevent its assimilation with the plant, which indeed is easily accomplished. Solid substances do not enter into plants, and therefore charcoal is excluded. But the action of oxygen upon it gives rise to the production of carbonic-acid gas, which is readily soluble in water, and the solution produced in the soil and moving through it may reach plants that are situated at some distance from any particular spot where the charcoal may be deposited. The question then arises, What besides charcoal are we to consider as necessary constituents of this manure? Undoubtedly, we may expect a low percentage of alkalies and phosphates, and, speaking from a theoretical speculation only, we should expect a rather large percentage of chlorides. These several constituents are essentials of a complete manure. Of ammonia there is probably not much more than a trace, for it is admitted that its separation is beyond the power of the process, as we imagine it beyond the power of any process designed for large operations; in the laboratory it may be another matter. But, it may be asked, why speculate at all? Why not go to head-quarters? It remains to be said, therefore, that the company, so far as we are aware, has never published any authoritative analysis of this manure. As we have never purchased any, and have never been asked to recommend it, we may have but slender right to press questions that might prove inconvenient, but we have the right to criticise, for we have been invited to do that, and we are the more concerned to make a public matter of the relative value of the manure, because that is a part of a great public question. The A B C system has had some ups and downs, and it was discovered too late that the manure would not pay for the process of producing it. But when the works are subsidized by municipalities, and the manure is sold at £3 10s. per ton, its actual value becomes a subject of general interest. In brushing through the crowd at the show, we met with many friends—practical men, of large experience—who have used the manure through a course of some half-dozen years or so, and they all told the same tale of quick effect and lasting virtue, and added an opinion that it was cheap at the price.

The schedule was laid out in a way to prevent the entrance of roots grown on small plots by forcing processes, the object being to secure selections from genuine crops of reasonable breadth. We could name places where a similar plan might be adopted with advantage, for it serves no useful purpose to have roots grown in little lots with extra nursing and minute care. What is really wanted is the encouragement of profitable cropping, just as good plain walking is more useful than dancing on the tight rope. The classes for mangels and turnips were in several instances required to be taken from crops of not less than three acres, five acres, and seven acres. As illustrating the general serviceableness of the manure, the classes comprised, in addition to roots, cereals, vegetables, grapes, and stove and greenhouse plants. However, the big stuff predominated, and mangels and potatoes were especially fine. It should be added that the rules prohibited the entry of any articles not grown with this guano, and it was clear to all that the best means had been resorted to in order to ensure the most genuine test possible of a public character of its adaptation to restore the balance in the soil of the constituents that are forever in process of abstraction by the crops we put upon it.

AUTUMN DANGERS.—Pestilential fogs and vapours always follow excessive summer rainfall, and infectious diseases are at no time more prevalent than in the autumn. Every householder should be on his guard, and provide in every bed-room, bath-room, and nursery WRIGHT'S COAL TAR SOAP. It is a simple but efficacious preventive of infectious disease. Purchase only Wright's "Sapo Carbonis Detergens," as prescribed by the medical profession, and see these words on every wrapper and tablet.—[ADVT.]

Notes of Observation.

STORING DAHLIAS.

IN my time I have tried many different ways of keeping dahlias through the winter, and the most satisfactory of all has been to place them in a shed where they will be secure from frost and cover them with earth. From my experience of this plan I am satisfied that the drying of the tubers in the open air, and stowing them away in all sorts of fancy positions, is altogether a mistake. It is very certain that the dahlia does not in its native country get any fanciful treatment, and why should it have it here? As a matter of fact, the more naturally it is treated the better the roots keep. We have just taken up our stock, which is rather a large one. I had them brought to the shed as soon as they were lifted, and then had them covered with six inches of soil that had lain in a heap for months past in the frame ground. It was, therefore, neither very wet nor very dry. The soil is laid over the roots sufficiently thick to exclude the air, and the moisture it contains will keep the roots fresh and plump until the spring. I have no hesitation in saying that roots so preserved will be in a far more satisfactory condition in the spring, than those not covered up during the winter. When the roots are exposed to the air, even if it be in an ordinary cellar, they become more or less shrivelled up, and as a consequence they do not start into growth so strongly as those which have been kept in plump condition.

T. M. P.

WHERE ARE THE GOOD POTATOES?

What may be the experience of other people I cannot say, but I know as regards my own that since I have exhausted my stock of eating potatoes for the present year I have not tasted, either out or at home, any that are mealy and of good flavour. To qualify this statement it is necessary to say that my garden is so small that I cannot grow more than enough for use during the first three months of the season. Therefore I only grow the old Ashleaf, and, as just stated, since we finished them we have not had a good eating potato in our house. What is quite as remarkable, we dine with friends sometimes, and the potatoes they place on the table are like those we buy—they are close and ill-flavoured. In consequence I have come to the conclusion that potatoes generally are of very inferior quality this year. This is also the experience of a friend of mine. He has purchased potatoes from widely different districts, but the results are the same; the potatoes are waxy and wanting in flavour. I write to know if you can account for this. Last year we could obtain the very best potatoes at a low price, but this season we have to pay more money for samples of a very inferior quality.

ONE WHO LIKES A MEALY POTATO.

POMPONE DAHLIAS.

As an old grower of dahlias tolerably free from prejudice, I have been much gratified to observe how prominently the pompones are coming to the front. Taking them all round they are most valuable: in the flower garden they make a splendid display, and in a cut state they are most useful, as the flowers can be readily arranged with other subjects, and stand well in water. Amongst the large array of dahlias exhibited at South Kensington none pleased more than the pompones in the beautiful stand from Slough. The scarlet varieties were particularly attractive, and some of the newer shades of rose and of lilac were very pleasing. The pompones, in common with the show, fancy, and single forms, are not in a general way made the most of in the flower garden. The plants are not prepared sufficiently, and instead of strong examples in six-inch pots being put out at the end of May, small plants in sixties are considered suitable by the majority of growers. In consequence, the summer is half over before the plants have made sufficient progress to bloom freely and produce a striking effect. I employ them with much success for bedding purposes, and I so shape my course that I have when the time arrives for putting them out plants with stems as thick as a man's little finger. To keep them down to a moderate height, and render the use of sticks unnecessary, I plant them aslant and peg down the growth until the bed is covered. They are then allowed to grow naturally, and the effect produced is all that could be desired.

DAHLIA FANCIER.

OCTOBER CHRYSANTHEMUMS.

The early-flowering chrysanthemums, such as *Indicum nanum* and *Précocité*, are of much value for garden decoration during September and the first week or so of October, and they may be employed for the embellishment of the conservatory; but they do not, as so frequently stated, fill up the gap between the summer-flowering plants and the general stock of chrysanthemums. They are too early to do this, and as a matter of fact they leave a decided blank. We still want a race of chrysanthemums that will be at their best in October, and we have a good contribution to it in Mrs. Cullingford, exhibited by Messrs. J. Veitch and Sons at the October meeting of the Royal Horticultural Society. This variety was raised by Mr. Alfred Salter, who appears to have been devoting some attention during the past two or three years to the raising of seedling, and belongs to the incurved section. The flowers are about the size of those of that well-known variety *Annie Salter*, and are pure white, so that they will be of much value for decorative purposes in a cut state, and in appearance are superior to the best of the early-flowering kinds. The plants exhibited by the Messrs. Veitch were in full bloom on October 10, and from the profuse manner in which they were producing their flowers it is evident that the variety will not be without value for market purposes. If other readers of this Magazine know of varieties that are at their best during October, they would do a real service to cultivators generally by giving the names. I do not mean varieties that produce a stray flower or come into bloom the last week, but those which are at their best at the middle of the month.

CHRYSANTHEMUM GROWER.

GREEN PEAS IN AUTUMN.

This season I have found that well-known second early pea *Dickson's Early Favourite* of much value for furnishing supplies in the autumn when green peas are much appreciated. Of this variety I had a quart of seed when making my last sowing of peas on June 15. I thought it desirable to use the seed, and although I feared the results would not pay for the labour of sowing, I determined to carry out my first intentions, knowing that knowledge gained would not be without value. The seed was sown in the ordinary way, and the crop had the usual attention, and I have now good cause to be well gratified with the result. The yield has indeed been most satisfactory. For some time I was able to gather a good supply twice a week, and on October 13 I gathered nearly a peck, the quality being remarkably good. It will perhaps add to the usefulness of this note if it is stated that the soil is light and sandy, and slopes somewhat.

Wycombe Court, Bucks.

D. W.

"EARLIEST OF ALL PEA" (LAXTON).

This variety of pea, recommended by "T. M. P.," last week, is true to its name. So far I have proved all our early peas against Laxton's William the First. Now Earliest of All must be the standard for earliness. It is a week at least earlier than William the First, and has more peas in a pod, which are of better quality when cooked. I shall grow all I can of it next year.

J. DOUGLAS.

INDIAN CROCUSES.

The plants to which I am desirous of briefly referring in this note are in no way related to the crocuses of the English garden, which afford such a pleasing display of colour during the early spring months, but constitute a very important group of orchids. So attractive are the flowers that they would be welcome at any season of the year, but produced as they are in the two comparatively dull months of October and November, they never fail to receive a full share of appreciation, and it is perfectly safe to regard the several species forming the group as of much value. They are, indeed, so thoroughly attractive that in all gardens in which they can have the requisite degree of warmth a few examples of each should be grown whether there is an orchid house or not, for they can be cultivated with great success in an ordinary plant stove with the general collection. They have long been favourites of mine, and every autumn our large specimens form a very distinct and most attractive feature of the intermediate house, and fully justify the care bestowed upon them. I am induced to call attention to the *Pleiones* now as they are just coming into bloom, and those who are desirous of becoming acquainted with them can readily do so, for in all the nurseries in which orchids are cultivated may now be found flowering specimens of some, if not all, the kinds. For the information of those who are not acquainted with the genus, it may be observed that they are dwarf in growth, the leaves attaining a height of from six to eight inches, and the flowers from three to four inches. They are all deciduous, and the flowers are produced at the commencement of the season of growth and in advance of the foliage. The plants are indeed destitute of leaves when in flower, and when well grown and at their best they present the appearance of solid masses of bloom a few inches above the surface of the pots or pans. Good examples in five or six inch pots are very attractive; but they are most effective when grown in the form of specimens measuring from ten to twelve inches in diameter. As the roots do not extend far below the surface, a great depth of pot room is not necessary, or indeed desirable, and pans rather deeper than those usually employed for propagating purposes are decidedly preferable. For the majority of our specimens we have pans ten inches in diameter and four inches in depth, and these appear to be the most suitable size that could be employed. We use a mixture consisting of peat, loam, sphagnum, and sand, the proportions being two parts each of loam and peat, and one part each of sand and sphagnum. The most suitable period at which to repot them is the commencement of the growing season; and therefore they should have whatever repotting is necessary immediately the flowers have lost their beauty. In shifting them remove as much of the old material from about the roots as can be taken away without any risk of injury, and the base of the pseudo-bulbs should be kept well above the level of the rim of the pan. Good drainage is essential, and to secure this fill the pans to about one-third of their depth with crocks or a mixture of crocks and nodules of charcoal. The growth is made during the short days, and it is important to place them when potted rather near the glass to ensure the foliage being stout and firm. Rather liberal supplies will be required during the growing season, which may be said to commence when the young leaves begin to push up freely. During the season of rest the water supply must be reduced, but they must have sufficient moisture to prevent the shrivelling of the pseudo-bulbs, and as soon as the flower buds make their appearance there must be an increase in the water supply. There are three kinds of special value, and these are—*Pleione lagenaria*, the flowers rose, white, and crimson; *P. maculata*, white, the labellum marked with crimson, and *P. Wallichiana*, which has flowers of a pale rose colour.

W. G.

CHOICE PEACHES.

The note of "G. S." and the communication of Mr. Douglas on the selection of peaches and nectarines for the orchard house have afforded me much interest, and I was glad to note that they both advise more extended selections than those which obtain in most gardens. As a practical cultivator I have long been convinced that the general body of cultivators harp too much on Royal George peach and Elrue nectarine, two excellent fruits undoubtedly, but they are not so good that they should be grown to the exclusion of all other kinds. I have also proved in the orchard and other fruit houses under my charge that there are at least twelve peaches of the highest degree of excellence, and worthy of being generally cultivated; and yet we see on all sides large houses devoted exclusively to two or three varieties. It is not of course practicable to grow as many as a dozen kinds under glass in any one garden, unless there are several structures, or the trees trained as cordons or grown in pots. But there are few gardens in which the indoor culture of peaches is attempted that space cannot be found for six kinds. I am not partial to pot culture, because of the immense amount of labour necessary to keep the trees well supplied with water during the summer season. Were it not for this fact I should have no objection to growing the trees in pots, as I am fully aware that when they are properly cared for they will yield most satisfactory crops. I know also that the system will enable the cultivator to grow a much larger number of trees in a given space than is otherwise practicable, and thus give him an opportunity of enjoying a goodly number of distinct varieties. I have a great liking for the double cordon system of training the trees, as by it an opportunity is afforded of growing a comparatively large number of varieties without the labour incidental to the pot trees. The double cordons have two or three leading stems, and their roots are in a border in the usual way, and if the growth has a tendency to become too luxuriant for the trees to be fruitful a very little root pruning will generally suffice to check the excess of vigour. In giving the names of the twelve sorts that, according to my experience, have special claims upon cultivators, I shall arrange them in three groups, the first to contain four early, the second five mid-season, and the third three late kinds. The three early varieties I would recommend are Alexander, a comparatively new American variety, the fruits of medium size, well coloured, and of excellent flavour; Hale's Early, another variety of American origin, bearing medium-sized fruits of excellent flavour; Rivers's Early York, a capital variety in the way of Early York, but hardier and altogether better; and Dr. Hogg, a large handsome and excellent fruit. The five mid-season varieties are Royal George, the best peach of its season; Bellegarde, a valuable variety bearing fruit of large size and splendid quality; Alexandra Noblesse, an excellent variety of the Noblesse type; Grosse Mignonne, one of the very best of the mid-season peaches, and a worthy com-

panion to the Royal George; Condor, a little-known but good peach, the tree a capital bearer, and the fruit of fine quality. From the late kinds I would select Late Admirable, not a heavy cropper, but more productive than Walburton's Admirable, and of excellent quality and appearance; Goshawk, which I see Mr. Douglas recommends, and deservedly so, for the tree is a good bearer, and the fruit large, handsome, and well flavoured; and Lady Palmerston, thoroughly good in its season. A new variety, under the name of Waterloo, has been spoken of as ripening in advance of Alexander, and as being in other respects good. If it is so it will prove a decided acquisition, and any trustworthy information that can be obtained respecting it will be appreciated by

HEAD GARDENER.

CHOICE NECTARINES.

The remarks in my note on peaches with reference to the desirability of growing a larger number of varieties than is usually the case applies with equal force to the nectarines. It may not be necessary to have so large a number of nectarines as of peaches, but the number should be considerably increased for the purpose of extending the season and enhancing the interest attached to their cultivation. It will be safe to say that no employer will object to his dessert being as varied as possible, provided the whole of the fruits are of the highest quality obtainable in the respective seasons; and it may be assumed that there will be no objection to the period over which the supply of any particular fruit extends being increased by three or four weeks, when it can be done without any additional cost. There should be not more than one nectarine to two peaches, and for associating with the twelve varieties of peaches the following six are quite unsurpassed:—Lord Napier and Rivers's Orange for early supplies, both being productive, handsome in appearance, and of excellent quality; Violette Hâtive, Pine-apple, and Stanwick Elrue for mid-season; and Milton, late, a rather new and very excellent fruit. Victoria is also a good late nectarine. Mr. Douglas did right to reject the Elrue with so many good sorts to select from.

HEAD GARDENER.

SHRUBS FOR FORCING.

Amongst the shrubs annually forced for the decoration during the early spring months of the large conservatory under my charge, none are found more useful or are more appreciated than the Persian Lilac and the Guelder Rose. The blooms of the first-mentioned afford a very pleasing lilac shade, and those of the other are of a pure white, and both have a very effective appearance in contrast with the scarlet and crimson hues of the rhododendrons and orange and red tints of the Ghent azaleas, which also are forced rather largely. The lilac and viburnum are in the first place readily propagated, as two or three good stools of each will afford abundant supplies of suckers, and they bloom freely and can be forced with a minimum of trouble. The great point is to have the wood thoroughly ripened and well set with flower buds, and by a very simple course of procedure we obtain both. I find that the best results are ensured by growing them in standard form with stems ranging from two to three feet high, as the whole of the young wood can be properly ripened, and moreover neat standards can be effectively arranged with the other occupants of the structure. In the case of the Guelder Rose the flowers appear to greater advantage on standards. In a secluded but open part of the shrubbery we have several stools of each of the subjects from which we draw every autumn a supply of suckers equal to our annual requirements, and to promote the production of strong suckers we manure liberally. At the end of October or early in November the strongest suckers are selected and taken off with as many roots as practicable, and cut back to a length ranging from twenty-four to forty inches according to their strength. All the buds from the base to within six or eight inches of the top are removed, and they are then planted in an open position in the kitchen garden, and unless the soil is fairly rich we apply a rather liberal dressing of manure. During the summer, all shoots that push below the second or third pair of buds are rubbed off, and the space between them is kept free from weeds. In the course of the autumn they are lifted and planted farther apart, a good distance at which to put them being thirty inches one way and two feet the other. Some time during February the shoots produced during the previous summer are shortened back to within about four inches of the base, to encourage the production of lateral growth. In the succeeding autumn they are again lifted, for they must not remain in the same position more than twelve months. A few of the strongest are selected and potted up for forcing, and the others replanted about six inches farther apart each way than in the year previous. The young shoots are pruned in the course of the winter, and the plants kept free from weeds during the summer, and if the progress made is satisfactory, as it usually is, all but a few weakly examples are ready for forcing in the course of the winter. They are lifted as early in the autumn as it is safe to do so, and everything is in readiness for potting them immediately they taken are out of the ground, to avoid the exposure of the roots to atmospheric influences. After the potting we stand them on a hard surface, and if the weather happens to set in very severe previous to their being draughted to the forcing house we give them the shelter of the orchard house or a spare shed. To force them successfully, a temperature of about 60 deg., and an abundance of atmospheric humidity, are necessary, but the conditions of an ordinary forcing house are most suitable. The cultivation of these subjects in pots a year previous to their being forced is occasionally advised, but in a long practice I have not found it necessary; but I have found it essential to transplant the stock annually, because of the tendency of the plants to make too strong a growth when young.

W. K.

Literature.

Vines at Longleat; their History and Management. By WILLIAM TAYLOR. (171, Fleet Street.)—In a very neat little pocket volume we have here the series of papers on the celebrated vines at Longleat contributed to the *Journal of Horticulture* by Mr. Taylor. Some discussion has arisen upon the author's statements of facts and proposals of practice, and these give peculiar interest to the papers as they now appear in a collected form, convenient alike for first perusal and for future reference. As regards Mr. Taylor's declarations and incidental observations we are bound to speak in terms of the highest admiration. He is clear, precise, methodical, and scientific. The subject is one that a superficial writer could not treat at all, and it is one that a scientific writer might bungle unless blessed with all the practical details of grape growing at his very fingers' ends. Mr. Taylor has contributed in a very substantial manner to the literature of this important subject, and we advise every grape grower to obtain and read this capital shillingworth.

Replies to Queries.

D. C.—You will probably have six months' notice at Christmas, and you will in that case have to turn out at Midsummer. In such cases as yours there should be a special agreement.

Amateur.—The tree is worth very little in money, for the simple reason that it is a most difficult thing to sell. To a nurseryman it would probably be of more value than to anyone else, and he would at once cut it up.

Constant Reader.—There should be no difficulty at all in keeping the camellias and ensuring the full development of their flowers. In other words, as there is a dispute on the subject, our decision is that it is an easy thing to do. Be careful not to keep them very warm. The seeds mentioned should not be sown until February or March.

Names of Fruits.—M. C. M.—Your apple is the English Codlin. W. S., Parade.—1, Beurré Borekians; 2, Duchesse d'Angoulême; 3, Beurré de Rance; 4, not known; 5, Court of Wick; 6, King of the Pippins. J. Barrows.—1, Sops in Wine; 2, Sercretion Golden Pippin; 3, Towers's Glory; 4, Powell's Russet. The others are not numbered, and all are bad samples.

Single Dahlias.—Amateur.—The roots of the single dahlias should be stored during the winter season in precisely the same manner as those of the show and pompon varieties. The chief points in the keeping of dahlia roots when at rest are to place them where they will be safe from frost and damp, and to cover them sufficiently to prevent shrivelling. A cellar or out-house will be in every way suitable for the winter quarters, provided it is free from damp, and the roots can be placed upon the floor and be covered with a six-inch layer of dry soil, or a twelve-inch layer of hay or straw.

Walnuts and Cobs.—Young Gardener.—Salting filberts and cobs when packing them away for the winter and storing walnuts in sawdust are both objectionable, and those who recommend the practices to you have but little knowledge of the conditions under which these two classes of nuts can be most successfully kept. The application of salt to cobs or filberts will assist materially in the maintenance of the kernels in a plump and fresh state, but the salt will also cause the husks to decay and the shells to turn black, and thus render the nuts quite unfit for the table. The objection to the use of sawdust in the storage of the walnuts consists in the fact that it will impart to the nuts the same odour as the wood of which it is made, and walnuts kept in sawdust for even a short period are decidedly objectionable, if not quite unfit to eat. For particulars as to the best way of storing walnuts we would refer you to the communication of Mr. Clarke on that subject, which appeared in our issue of last week. To keep filberts and cobs there is no better way than to pack them when quite dry in glazed earthenware pans with close-fitting lids, and to stand the pans upon the floor of the fruit-room.

Names of Plants.—Annie Wood.—1, *Sparmannia africana*; 2 and 4, imperfect specimens that no one can name; 3, *Salvia splendens*; 5, *Chrysanthemum frutescens*, the best of the *Marguerites*; 6, *Hypericum calycinum*. J. Jennings.—1, *Clitoria Plumieri*; 2, *Elais occidentalis*; 3, *Canavalia obtusifolia*; 4, *Nephelium Longana*. These and others that you refer to are not, in a horticultural sense of the term, important plants, but we would advise you to consider seriously before you clear out the stove as you propose. You may be sorry when sorrow availeth nothing. F. C. D.—1, *Cotoneaster microphylla*; 2, *Eucynymus japonica*; 3, *Ligustrum lucidum*; 4, shrivelled up, send a bit when in flower; 5, *Quercus ilex*; 6, *Berberis aquifolium*. Minerva.—1, *Echeveria retusa*; 2, *Selaginella Mertensi*; 3, *Ceanothus azureus*; 4, *Pentas carnea*; 5, *Sedum Sieboldi*; 6, *Kalosanthera coccinea*; 7, an *Andromeda* not in flower; 8, *Iberis sempervirens*. J. Galloway.—It is simply impossible to give English as well as Latin names, and that is the sole reason why we do not attempt it. Suppose we describe a plant as a tea tree; then the question arises does this name apply to a *ceanothus*, a *lycium*, or a *camellia*? These may all be spoken of as tea trees, and yet not one of them is a true tea tree. When the proper botanical name is given, reference should be made to a respectable book for information as to the history of the plant.

Watering Orchids.—R. W.—In watering orchids during the autumn and winter it is necessary to exercise considerable care, for if the supply is in excess of the requirements of the respective kinds some will be encouraged to continue in growth at a time when they should be at rest, and the risk will be incurred of all of them having the roots more or less injured. On the contrary, if kept too dry a considerable proportion will suffer a very severe check. It is also necessary to distinguish between those which have fleshy pseudo-bulbs, such as the cactylas, dendrobis, and oncidis, and those without them, of which the aerides, the vandas, and the phalenopsis are well-known examples. The kinds belonging to the first-mentioned group require less water when at rest than those forming the second, and speaking in a general way it will suffice to give just sufficient to prevent the shrivelling of the pseudo-bulbs and foliage. The others, on the contrary, must have water enough to maintain the material about the roots in a nice moist state. The foregoing remarks apply to those kinds that rest during the winter. Some make their growth between October and March, and these of course require exceptional attention, and must have more liberal supplies of water; but in no case must the moisture be so abundant as for plants that make their growth in the spring and summer. The question, "How should orchids be watered in the winter?" cannot be satisfactorily answered in an offhand manner, and there is a general concurrence of opinion that the watering during the winter months requires the most careful attention and the closest observation on the part of the cultivator, to ensure each plant receiving that amount of moisture most conducive to its health.

Salvias.—S. K. P.—There are at least six distinct salvias which may be successfully employed in the decoration of the conservatory during the autumn. Those of special value for general purposes are *Splendens Branti*, the finest of the scarlet-flowered kinds, as it has a dwarf habit and flowers more freely than the well-known *Splendens*, and is equal in brilliancy. Neatly-grown plants are very effective in the conservatory, and the flower spikes can be employed for decorative purposes in a cut state, as they are elegant in appearance, and the colour of the flowers appears to great advantage when under the influence of artificial light. *Grahami* is also an excellent scarlet variety, and should not be overlooked. *Mons. Issanchou* is very distinct and not wanting in attractiveness, although less valuable than some of the other kinds; it has the habit of *Gesneraflora*, and the flowers are pure white freely striped with brilliant scarlet. *Ianthina*, which has recently been brought forward under the name of *Hoveyi*, has rather large purple flowers and is free blooming and very

effective. Pitcheri bears bright blue flowers, which are of medium size and freely produced in elegant spike, it possesses additional value from the fact that there are not many other blue flowers available during the autumn months, when it is in perfection. Bothelli has rather small flowers of a pleasing rose colour, and is most useful for associating with other kinds. With a view to working up a stock of the several kinds, we would advise you to purchase at once bushy examples in five-inch pots, which, with proper attention, will furnish a good supply of cuttings in the course of next spring. After the flowers have lost their beauty nip off the spikes, and until the end of February keep rather dry at the roots, but afford sufficient moisture to prevent their suffering. Then shift into six-inch pots and place them where they will have just sufficient warmth to start them into a vigorous growth. As fast as the cuttings can be obtained take them off and strike them in the usual way. When rooted, the cuttings can be potted off singly or in triplets, the latter course being preferable when it is desired to produce rather large specimens with the minimum of trouble.

Markets.

COVENT GARDEN.

FRUIT.		
Apples.....per ½ sieve	3s. 0d. to 6s. 0d.	
Cob Nuts.....per lb.	0s. 6d. " 0s. 8d.	
Grapes.....per lb.	1s. 6d. " 3s. 6d.	
Lemons.....per 100	5s. 0d. " 8s. 0d.	
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RECLAMATION OF LAND IN IRELAND.

MR. MITCHELL HENRY writes to the *Times* that he has put together a few figures connected with the reclamation of a specific piece of land (quite inferior in natural value to the average bog-land in Connemara), and he maintains that they demonstrate that a more satisfactory return for outlay cannot be found in Manitoba itself. "The piece of land to which the figures relate consists of thirteen acres of deep bog, for the drainage of which the medal of the Royal Agricultural Society of Ireland was awarded. It forms part of a tract of several hundred acres, more or less reclaimed, of which the judges report that the bog was from five to ten feet deep, and it is the worst piece of land that we have attempted to improve. Except in the driest weather cattle could not cross it, and it contained swallow-holes or soft underminings of slush, which continued to discharge mud and water for many weeks. For shooting purposes it may be taken as worth annually one shilling an acre, and that was its only value; but now, converted into cultivated land, it is worth after six years' cropping, £1 an acre; and, with a trifling exception, it has repaid all the capital expended on it." Mr. Henry maintains that "if capital and superintendence are forthcoming, land apparently most unfavourably situated can be reclaimed and made the homes of peasant proprietors, each with thirty or forty acres, at a profit to the State both pecuniarily and morally. You cannot get rid of the Celtic population of the west or nicely adjust the number of

people who are to live there on the basis of theoretic fancies. The stern reality remains and confronts you at every turn. Ireland can only be regarded as an undeveloped estate, subject to periodical famines and containing in parts of it a population habitually wretched and hungry. The governor of an Indian province would deal without difficulty with this state of things, and by means of public works render recurrent famine impossible. In this country, however, we cling with a kind of religious fervour to the doctrine of private enterprise; and although driven, as Lord Russell and as Lord George Bentinck were, to contemplate a serious effort when dire calamity overtakes us, our good intentions invariably depart with the first ray of sunshine. Mr. Henry concludes:—"Would that I could rouse the country and the Government to the real conditions of this social problem. Emigration is an excellent thing in its way, and I have never opposed it; but once more I ask, 'What steps are being taken to prevent vacated holdings from being occupied again? and, when the present scare has passed away, what power will suffice to keep squatters off the lands that are unfitted for human occupation unless these lands are planted and enclosed? The Irish Church surplus has disappeared, and not even a remnant is left that could be intrusted to a small commission of practical men, to be used as a reproductive fund as the Peabody fund has been used in London. To me the outlook seems very dark, and to preach to unwilling ears is dull work indeed. We are the victims of theories, and the whole powers of the State stand paralyzed before a problem that would not perplex a second-rate railway company. During the past quarter of a century we have paid off much more than 100 millions of public debt, and we reckon our annual income at 1,000 millions a year. I appeal from doctrinaires to the intelligence and the consciences of the great body of the English and Scotch people; and I ask them whether they will be for ever content to spend their money in keeping soldiers and police in Ireland, or whether history supplies them with any instance of a people who were chronically hungry, half-clothed, and wretchedly housed, who were not at the same time dangerous and discontented."

FRUITING OF THE SALISBURIA.

At a meeting of the Academy of Natural Sciences of Philadelphia Mr. Thomas Meehan referred to some specimens of the fruit of *Ginkgo biloba*, better known here as the *Salisburia adiantifolia* of Smith and other authors subsequent to Linnæus, which have been borne by a tree on the grounds of Mr. Charles J. Wister, of Germantown. The tree was far removed from any other flowering

tree, which afforded good grounds for the belief that this specimen was hermaphrodite. In botanical classification the genus was accepted as of dioecious character. Sexual characters were, however, among the most unreliable. There would be nothing improbable in a tree bearing wholly male or wholly female flowers as a general rule, changing so far as to have both on one tree. Cases of this kind were not uncommon in *Acer dasycarpum*, and other deciduous trees, and, he believed, probable in the red cedar, *Juniperus virginiana*, an ally of the *Ginkgo*. In this cedar there were often trees met with which were wholly male in most seasons, but on which occasional berries might be seen; while other trees, usually so abundantly fertile as to be almost covered with blue berries, would occasionally have many more male flowers than usual. In Rubiaceous plants, where dimorphic flowers were so common—the short-styled ones and the short-stamened ones being on distinct plants, and practically dioecious—there were cases of change at times. The white-berried *Mitchella repens* which were growing on his grounds, apart from the red-berried variety, had not produced a berry until last year, when a few were produced; and the short-styled *Bouvardia*, so common in greenhouses, and with short styles, had produced a branch on one plant under his observation the past winter which had the styles projecting beyond the corolla. In annual plants the variation in sexual characters was well known to vary, even with external conditions. *Ambrosia artemisiifolia*, the common rag-weed, produces mostly male flowers in poor soil, or when growing thickly together in wheat fields after the grain is cut; but when growing in the richer soil of potato or Indian-corn fields the increase of female flowers is very marked. Sometimes plants under these conditions are found wholly female. Indian corn also varies through some innate law. Male flowers are not uncommon on the spikes which bear the grain, while grain among the males, or "tassels," showed the occasional presence of female flowers there. It is more than likely that complete dioecism, claimed for some Asiatic conifers, does not really exist.

Prof. Angelo Heilprin remarked that fruit had been found on this tree recently in the Central Park, New York; and that bees might carry the pollen long distances, and fertilize female flowers. It did not follow that the presence of fruit on isolated trees involved moncecism.

Mr. Redfield observed that pollen from the large male tree, three-quarters of a century old, at the old Hamilton homestead, now Woodlands Cemetery, and but six miles away in a direct line, might be wafted by winds to Mr. Wister's tree in Germantown.

The President, Dr. Joseph Leidy, remarked that pollen from coniferous trees was known to be carried by winds to enormous distances.

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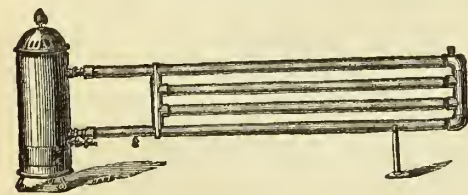
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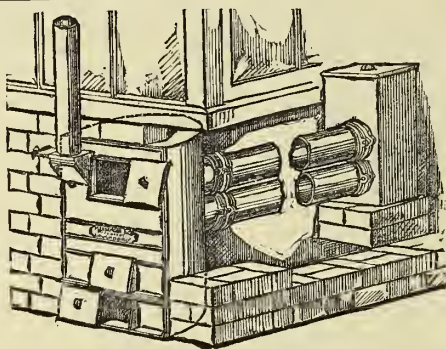
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, of soil, of water.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
5	S	22nd Sunday after Trinity.	7 2	16 17	4 25	1 14	2 1	9 31	10 5	6 15	6 55	44.8	Abutilon aurea globosa, G.	Ye'low.
6	M	St. Leonard.	7 4	16 16	4 24	2 17	2 21	10 40	11 12	7 30	8 5	44.5	Abutilon elegantissima, G.	Rose-red.
7	Tu	Battle of Mooltan, 1818.	7 5	16 11	4 23	3 22	2 42	11 38	—	8 37	9 3	44.1	Bouvardia elegans, G.	Scarlet.
8	W	Cambridge Michaelmas Term divides (noon).	7 7	16 7	4 22	4 26	3 4	0 2	0 25	9 27	9 50	43.8	Cattleya maxima, S.	Rose.
9	Th	Birth of Prince of Wales.	7 9	16 2	4 20	5 33	3 29	0 43	1 3	10 8	10 23	43.5	Gesnera zebrina, S.	Scarlet.
10	F	● New Moon, 1th. 20m. after.	7 10	15 56	4 19	6 37	3 58	1 20	1 35	10 45	11 0	43.3	Onchidium reflexum, S.	Yel ow.
11	S	St. Martin, Bishop.	7 12	15 50	4 17	7 42	4 34	1 55	2 10	11 20	11 35	43.1	Salvia gesneriflora, G.	Scarlet.

The Gardeners' Magazine.

SATURDAY, NOVEMBER 4, 1882.

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SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

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Exhibitions and Meetings for the Ensuing Week.

THURSDAY, NOVEMBER 9, and FRIDAY NOVEMBER 10.—Brixton CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

Auction Sales for the Ensuing Week.

MONDAY, NOVEMBER 6, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Bulbs.

TUESDAY, NOVEMBER 7, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.

WEDNESDAY, NOVEMBER 8, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; 2,000 Liliun Auratum, and Bulbs.

THURSDAY, NOVEMBER 9, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; the collection of established orchids.

FRIDAY, NOVEMBER 10, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.

SATURDAY, NOVEMBER 11, at 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Roses, Hardy Plants, and Bulbs.

ENSILAGE IS A SYSTEM OF PRESERVING GREEN FODDER FOR WINTER FEED, and the pit in which it is stored is called a SILO. These terms explain themselves phonetically. It is a question of some interest to the British agriculturist whether ensilage might with advantage be practised here, as it is in the United States of America, and some parts of the continent of Europe? There are many and pressing temptations to a trial of the system, not the least of which arise out of the difficulty of making hay when the sun shines. The hay crop of the present year was sadly delayed and washed about, and sometimes spoiled, and sometimes saved as by the skin of its teeth. The old incubus called "agricultural depression," in its way persuasive towards inquiry and experiment, but being a very poor incubus, will not readily countenance expense, unless incurred by a government or corporation; and then, of course, no respectable ghost objects, even if the outlay be extravagant. The advocacy of ensilage, as the one thing wanted to put new life into our fading agriculture, has been undertaken by some able pens, and without such aid, it finds favour with many—at least, in a hypothetical way—because, forsooth, it is "American." But it will have to stand upon its merits, and if it should become established here we shall be delivered from the clamour of those who vainly declare that sweet hay may be made by machinery with cheap fuel as a substitute for sunshine.

The first point for the inquiring Britisher to bear in mind is that ensilage is nowhere practised with such stuff as we call "grass," and therefore it does not properly compete with haymaking. The materials put into silos are grasses certainly, but they are such succulent giants as rye, maize, and sorghum; these being cut when fullest of sugary juice, or, in other words, with "the milk" in them. It would be impossible to make hay of these to any advantage, for when sufficiently dried in the hot sun that produced them they would be no more tempting to hungry cattle than an old reed fence, which they would remotely resemble in texture and appearance. The coarse, juicy, nourishing herbage of these great grasses is cut into short lengths and packed, with a certain proportion of chopped straw, in concrete pits, and as the packing proceeds pressure is

applied to solidify the stuff into a cake as quickly as possible. When the silo is filled it is heavily weighted and made close against rain and air, and the vegetable mass undergoes a kind of suppressed fermentation. When, after some months of this storage, the silo is opened the fodder is found to be of a yellowish-green colour, with a slightly acid taste and vinous smell. It is spread out for a few hours on a clean floor, and is then greedily eaten by cattle. That the cattle thrive on this diet need not be said, for the system would soon collapse were it otherwise. The amount of milk they yield and the rate at which they make flesh, with many other such particulars that have been made public, we need have nothing to do here. When cows thrive they do make milk and meat, no matter what their diet may consist of. The one question before us, and the only one worth a moment's consideration, is, Will ensilage fit in anywhere with the routine of British agriculture?

That the system is worthy of trial on an English farm is not to be doubted. What answers in one place may answer in another, and a clear knowledge of the facts is, at all events, desirable. For the enlightenment of the general public a trial by some competent corporation, as, for example, the Royal Agricultural Society, would be of great service, as in some cases perhaps serving to prevent wasteful expenditure and consequent disappointment on the part of adventurous agriculturists; and in other cases, perhaps, demonstrating what may really be done for the improvement of our routine of cattle feeding. Our ordinary meadow grasses appear to be quite unfit for ensilage, but in this matter we may be mistaken, and trial should be made of them, as another way of harvesting a grass crop in bad weather. But the prickly comfrey seems to be the very thing, both because it needs doctoring in some way or other to make it tempting to cattle, and its succulent nature seems to indicate its suitability for this mode of treatment.

It would, we think, be a matter for grave regret were the eulogies of ensilage that are now current to produce an impression on the public mind deeper than what may be termed the inquiring stage. Before the adventurous agronomist constructs his concrete silos he may, perhaps, advantageously make comparison of the elementary facts as they are now before us. The practice of ensilage is not the resort of men perplexed about hay making, as we are. It is practised in sunny lands, where our hay grasses and our winter roots are not of much account, but where, by the aid of irrigation and solar heat, immense crops of succulent vegetation, such as maize and sorghum, are easily secured, and can be preserved in no other way. There is no casting up of accounts between hay making and siloing, for the stuff wherewith to make hay does not exist, or, at all events, has a very subsidiary position as compared with the more gigantic grasses that love a semi-tropical heat varied with bursts of thunder and deluges of rain. But if a comparison between sweet hay and sour silo cake must be made, the truth must be told that well made hay contains a large percentage of the original nutritive properties of the grass, and the silo cake a comparatively small percentage of those useful constituents, the loss by fermentation and the draining away of moisture being considerable. Ensilage is not so much the choice as the necessity of those who practice it. They have no hay, they have no roots; their summers are hotter than ours, their winters are colder. On many a farm in the Eastern States the preservation of roots for winter cattle feed would cost more than they would be worth. It is even needful to manage the winter feed in such a way as to reduce the need for water to the lowest possible minimum, and hence a moist food taken from a warm pit may be better for the cattle than hay and roots with water. Certain it is that the climates differ, the crops differ, and the systems differ, but if there is anywhere a lesson for us, let us learn it; let us act upon it; let us not suffer any prejudice or any mistake to stand in the way of the much desired restoration of agricultural prosperity.

ROYAL BOTANIC SOCIETY.—The following are the dates of appointments made for the year 1883: Spring exhibitions, Wednesdays, March 28, April 25. Summer exhibitions, Wednesdays, May 16, June 13. Evening fête, Wednesday, June 27, 8 to 12 p.m. Promenades, every Wednesday from May 2 to August 1, excepting May 16, June 13 and 27. Lectures at 4 p.m. Fridays, May 4 to June 22. General meetings for election of new Fellows, &c., Saturdays, at 3.45: January 13, 27; February 10, 24; March 10, 24; April 14, 28; May 12, 26; June 9, 23; July 14, 28; November 10, 24; December 8. Anniversary, Friday, August 10, at 1 p.m.

PELARGONIUM SOCIETY.—The annual meeting will be held at South Kensington on Tuesday, November 14, at 1 precisely.

NATIONAL AURICULA SOCIETY.—The annual meeting will be held at South Kensington on Tuesday, November 14, at 12:30.

STAINES AND EGHAM CHRYSANTHEMUM SHOW will be held on Thursday, November 23.

THE COBDEN CLUB PRIZE ESSAY, on "Peasant Proprietorship," is by Mr. F. Watson, M.A. It will be published immediately.

PROPOSED PINK SHOW.—It will be necessary on November 14 to agree to a few preliminaries, and probably a meeting of promoters will be held immediately following the meeting of the Pelargonium Society.

BULWELL FOREST, with an area of 148 acres, which was included in the borough of Nottingham at the extension of the boundaries, has been acquired by the Corporation at a cost of £3,770.

"**PAXTON'S FLOWER GARDEN**," part 27, just published, contains coloured portraits of *Pleione maculata* and *P. lagenaria*, in a hard style of drawing, but truthful and attractive; also of *Veronica Andersoni*. The last-named well-known plant is a true hybrid, raised from *V. salicifolia* and *V. speciosa* by Mr. Anderson, of Maryfield, near Edinburgh.

THE GOLDEN QUEEN ONION, of which Messrs. Carter and Co. have favoured us with samples, is an extremely pretty variety, of small size, slightly flattened, of a clear light straw colour, peculiarly adapted for pickling, and on account of its mild flavour may take the place of shallots in the kitchen. It is a good keeper, and adapted for any purpose for which small, neat, mild-flavoured onions are required.

EDINBURGH INTERNATIONAL EXHIBITION.—The official report of the Royal Caledonian Horticultural Society represents the recent exhibition as the most successful of the international series. The total admissions numbered 30,760 persons, and the total receipts (including 393*l.* 16*s.* received as subscriptions) amounted to 1,500*l.* 7*s.* The expenses are put down at 551*l.* 7*s.* 10*d.*; the prizes paid amounted to 800*l.* 1*s.* 6*d.* When all contingencies are provided for there will remain a surplus of about 100*l.*

Kew Gardens.—The regulations under which the public are admitted to these gardens is once more a subject of discussion, and seems likely to provoke much feeling of a kind calculated to diminish what is called the autonomy of the authorities at Kew. The inhabitants of the districts immediately surrounding Kew demand an extension of the hours during which the gardens are open to the public, averring that by one p.m., the present hour of opening, the best part of the day is gone, both in summer and winter.

TOWN TREES.—The Metropolitan Garden Association are about to try their hands at planting trees in the Mile End Road. Arboriculture has not hitherto been successfully applied in the adornment of this fine thoroughfare, for reasons never very satisfactorily explained. In the Bow Road, a mile further eastward, one of the finest boulevards in the metropolis is rapidly growing, and scarcely one of the saplings has failed to flourish. There are men living who remember when on the wide waste of the northern side of the Mile End Road there was a grove of chestnuts that were destroyed by insult and ill-usage.

THE PRESERVATION OF THE MALVERN HILLS as a free and open health resort and recreation-ground is felt to be a matter of the utmost importance to the towns and villages that are scattered around the feet of the mountain—for such this group of hills must be regarded. Systematic enclosure of these romantic and breezy wastes would be a grave misfortune, more especially to Oxford, to which the Malvern Hills serve as the nearest and the most salutary sanatorium. A Bill for the preservation of the picturesque heights has been drafted, and will be presented to the House of Commons next session. In the meantime the old engine of war, money, is wanted, the liabilities incurred up to the present time amounting to about a thousand pounds.

HEAVY RAINS AND GREAT GALES have made their marks on the country and the fortunes of men; and once more halcyon days prevail, with mild sunshine and a soft, west wind. The country, more especially where there are elevated woodlands, is now extremely beautiful, the waning leafage being rich and various in colour, contrasting in a striking manner with the deep green of firs and spruces. Since the happy change occurred, people have spoken of the advent of St. Martin's summer, but that does not properly begin until November 11, which is the day of "Martilmasse." In a paper on the subject which appeared in our issue for December 3, 1881, St. Martin's summer was reckoned to begin November 9, and end November 16, this rule being deduced from the records of the weather, and not from the traditions of the Church.

RAINFALL IN OCTOBER.—Although such a large amount of rain has fallen this October, it is by no means in excess of what has been marked in many Octobers of previous years. It has been here seven inches in fifteen days; in 1865 I measured, in October, in my gauge, ten inches. In 1880, in the same month, within two-tenths the same amount. In 1872 the rain in October was seven inches. It is worth noting that, when we have had a very wet October, it has generally been followed by an excess of rain in the next two or three months. Thus, when, in October, 1872, we had seven inches of rain, in the next month rain fell on twenty-three days to the amount of five inches, and not less in December and in January of the next year. The following months were comparatively dry. This may possibly be the order of the weather this season; and as our rainfall in 1882 is as yet below the average, we may expect a wet November and December.—CHAS. HOLLAND, Petworth Rectory, October 31.

HEREFORDSHIRE POMONA.—Part five of this fine work has reached us, and renewed the pleasure we have experienced in turning over previous issues. This part is devoted wholly to apples and pears, of which it contains figures of seventy-two varieties.

THE DERWENTWATER ESTATES.—Acting under the direction of the Lords of the Admiralty, Mr. Driver, of London, offered for sale on Tuesday at Newcastle-on-Tyne 8,384 acres of land (of the annual value of £9,340), now known as the Greenwich Hospital Estates. The auctioneer remarked that there was no doubt as to the clearness of the title. Till 1715 the estates belonged to the Earls of Derwentwater, but about that time came into the possession of the trustees of Greenwich Hospital, being granted to them by Act of Parliament after the attainder of the last Earl of Derwentwater for high treason. The lots disposed of were as follows:—Grindon Hill Farm was bought in for £16,000; Grindon Farm was sold for £15,000; Blainwhain, or Grindon Lough, Farm, £11,500; Whitechapel Farm, £8,000; Lipwood Farm, £21,000; Brokenhough Farm, £13,000; Harsondale Farm, with woods, £5,500; Harlowfield Farm, £975; Langley Castle Farm, with ruins of Langley Castle, £17,000; West Land Ends Farm, £9,000; Esp Hill Farm, £18,500. The other lots, excepting a few small ones, were not disposed of. The total amount realised was upwards of £122,000.

THE CHRYSANTHEMUM EXHIBITIONS announced to be held during the current month are sufficiently numerous to tax the energies of both exhibitors and judges, and from present appearances they will be fully up to the average in quality. The first exhibition of the season will be held by the Brixton Hill Society, the dates being the 9th and 10th inst. The remaining exhibitions will be held on the following dates: 13 and 14, Stoke Newington; 13, 14, and 15, Borough of Lambeth; 14, Putney and Walton-on-Thames; 14 and 15, Southampton; 15 and 16, Borough of Hackney; 16 and 17, Kingston-on-Thames and Tunbridge Wells; 18, Leicester; 21, Manchester and Oxford; 21 and 22, Liverpool; 21, 22, and 23, Brighton Aquarium; 22, Wimbledon; 22 and 23, Northampton; 29, South Shields. More than the usual degree of interest is attached to the Kingston gathering, as the final contest for the challenge vase offered in 1879 and the competition for the second vase also of the value of twenty-five guineas will be commenced. The first of the two vases was awarded to Mr. G. Harding, Putney, in 1879; to Mr. W. Tunnington, Liverpool, in 1880; and to Mr. F. Faulkner, in 1881; and in accordance with the conditions, these cultivators are alone eligible to compete for it this year. The second vase will also be for twenty-four incurved and twenty-four Japanese blooms, the conditions being: "The winner to hold the vase till the next exhibition, when it shall be returned to the Society. Should the same exhibitor win the vase twice (not necessarily consecutive), it shall become his property; but should it be won by three different exhibitors in the first three years, then the competition in the fourth year shall be confined to the three winners." The three winners of the first vase will not be allowed to compete for the second this year.

CHOICE GARDEN TREES AND SHRUBS.

By W. KEMP.

As we are now in the midst of the planting season, a few notes on the selection and planting of the choicer kinds of trees and shrubs adapted for gardens of moderate dimensions will probably prove useful. It is not of course possible for the owners of gardens of moderate size to plant every tree and shrub remarkable for its extreme beauty, or indeed any considerable proportion of the two classes. But it is possible for them to pay more attention to the choicer kinds of trees and shrubs and thus render their gardens far more attractive and interesting than is possible when the chief furniture consists of the ordinary timber trees, a few overgrown lilacs and laburnums, and the summer bedders. I have no wish to speak disparagingly of either the lilac or the laburnum, but they are not the only flowering shrubs that should have a place in the garden; and when overdone, as they usually are, they become in some degree objectionable. Trees and shrubs remarkable for the elegance or the rich colouring of the leaves, ought also to be planted somewhat extensively, for they increase the attraction of the garden in a remarkable degree, and when arranged with taste and judgment they produce an effect which at once arrests the attention of those visitors who in a general way take but little notice of the occupants of the garden. First of all something must be said about

WHEN AND HOW TO PLANT.

In referring to the best time for planting and in giving directions for the manner in which the work should be performed, it will be necessary to pass over a well-beaten track. It must be said for example that the planting should be done as early in the autumn as circumstances will permit, and at a time when the soil can be filled in firmly about the roots without any risk of its being converted into a paste. The importance of early planting cannot well be over estimated, as a few words will suffice to show. The soil, speaking in a general way, is decidedly warmer than in the spring. It is also in a better condition, particularly if at all heavy, for although the frost may pulverize the surface the rain and snow will leave the soil so saturated with moisture that to carry on planting operations until the spring season is far advanced is often impracticable. There are soils so light that trees and shrubs may be planted satisfactorily on almost any day between the end of October and the end of March, but even on these soils autumn planting is preferable because of the risk of injury from drought in the spring. It is necessary to pay some regard to the condition of the soil; and without discussing the matter in too much detail, it may be stated that the soil should be neither too wet nor too dry, but it is a rare occurrence for it to

be very dry after October. The difficulty with soils that are in any way close and tenacious is to carry on planting operations at a time when it is not so wet, that the greatest possible care is necessary to prevent its being converted into a pasty state. In planting there are two points of prime importance—one is to lift the plants without much injury to the roots, and the other to have the holes large enough for the roots to be spread out to their full length and in a regular manner. It is not of so much importance that the roots have a large quantity of soil about them, and in the case of nursery stock it is of course not possible to obtain plants having large balls of soil, unless it be specimens of large size for special purposes, and these do not come within the scope of the present communication. The planter need only trouble himself about the roots being abundant and free from injury, as they usually are when received from a nursery in which the transplanting of outdoor stock receives due attention. If the soil is unfit for working when the purchases are received, they should at once be laid in by their heels to avoid injury to the tender fibrils by exposure to atmospheric influences. The holes should be shallow, more especially when the soil is heavy, and a good rule is to plant the several subjects the same depth, or not quite so deep as before; the depth of the roots previous to the removal being usually indicated by the marks of the soil on the stem. After the hole is made the bottom should be pricked over with a fork, and when the shrub or tree is placed in position readily spread out. It is desirable to have at hand a barrowful of light sandy soil, such as the refuse of the potting bench, with which to cover the roots to a depth of two or three inches before filling in with the staple. Failing this, take enough soil from the surrounding surface to cover the roots, as the top crust of even heavy soils is usually in a nicely pulverized state. It is a good rule to well break up all the soil used for filling in, and to tread it as firmly as is practicable without making it pasty. When the soil is so wet that the treading cannot be properly done, tread moderately firm and leave it until the soil is in a drier state. There is one rule that should in no case be broken, and that is to stake every tree and shrub also that requires support immediately the planting is completed. If left, as is often the case, for some time without the needful support, they become more or less loosened, and the roots have a heavy strain imposed upon them that they are unable to bear. Generally, the swaying to and fro of the unstaked tree results in the formation of a large space round the stem down which the air is able to pass to the roots, to their manifest injury. With these few general observations, I will proceed to point out a few of the best of the

TREES AND SHRUBS WITH GOLDEN FOLIAGE.

The trees and shrubs with golden, silvery, and purple or bronze foliage form an important group, and it would be a very easy matter to make up a rather lengthy list of really good kinds, for they are far more abundant than their appearance in gardens would warrant us in believing. It is impossible, within a brief communication, to speak in detail of the manner in which the several classes should be arranged in the shrubbery. But it may be said with advantage that by far the best effect is produced when the various colours are arranged to form bold and distinct masses, more especially when shrubbery belts are of considerable breadth and some distance from the windows and main walks. For example, large clumps of the Golden Elder, each consisting of about three plants, and placed twenty-four feet apart, will produce a far more striking effect than the plants would have arranged singly at a distance of eight feet from each other. In borders of moderate size and immediately under the eye a more mixed style of planting is admissible, and trees should, as a rule, be planted singly.

One of the most valuable of the golden-leaved trees for choice positions in the shrubbery and the park is the Golden Oak, *Quercus concordia*, which for richness of colouring has no equal. It is of free growth, without being very vigorous, and the tree when nicely developed has a highly-finished and effective appearance. The Golden Laburnum, *Cytisus laburnum aureum*, is very free in growth, and the leaves are of a fine golden hue, and it is of the highest value for planting in quantities, particularly in the back rows. Another fine tree is the comparatively new but now plentiful Golden Poplar, *Populus canadensis Van Geerti*, for it is rich in colour and free in growth, and admirably adapted for both garden and park. The most valuable of the deciduous shrubs with yellow leaves is the Golden Elder, *Sambucus nigra aurea*, for it does well in shade and sunshine, and in town and country, and is effectively coloured. It is also plentiful, and bold masses at suitable intervals along the front of broad belts of shrubs and trees, either in garden or park, have a striking effect. The Golden Hollies, the Golden Yews, the Golden Arborvitæ, and the Golden Retinosporas are all exceedingly beautiful, and may be employed with good effect in the shrubbery border and as single specimens on the lawn. When associated with other subjects they should have prominent positions in the front lines.

TREES AND SHRUBS WITH SILVERY LEAVES.

Really good trees and shrubs with silvery leafage are not so abundant as with yellow leaves. The most striking is the well-known *Acer negundo variegata*, which is unsurpassed for the purity of its variegation and for its effectiveness. It can be grown as a tree or as a large bush, according to the wish of the owner; and to keep it to bush size it will be simply necessary to prune the new wood back every winter. The Silver Poplar, *Populus argentea*, the Silver-leaved Lime, *Tilia argentea*, and the White Beam Tree, *Pyrus aria*, all have leaves which are silvery white on the underside, and, when moved by the wind, produce a peculiar and striking effect. They are all suitable for the back rows of borders, but they appear to the greatest advantage near the boundary of a plantation and in the front line of a belt of trees. The Silver Willow, *Salix argyrea*, is decidedly handsome, and worthy of a

choice position, and must not be overlooked. The most desirable of the silvery-leaved shrubs are the Silver Elder, *Sambucus nigra argentea variegata*, a handsome and effective shrub; the Variegated Syringa, *Philadelphus coronarius variegatus*, which has broadly margined leaves. Two or three of the Silver Hollies must be planted, and in the choicest positions; the best of these is perhaps the Silver Queen.

TREES AND SHRUBS WITH BRONZE LEAVES.

The best known and the most useful of the trees with foliage of a sombre hue is the Purple Beech, *Fagus sylvaticus purpureus*, which makes a grand specimen on the lawn, and is useful in the shrubbery, as it not difficult to keep it within bounds. The Purple Birch, *Betula alba foliis purpureis*, is equally valuable, the growth being free and elegant and the colouring exceedingly rich. The Purple-leaved Oak, *Quercus robur atropurpurea*, is a grand companion to the Golden Oak, as it is remarkably rich in colour and of moderate growth; it is one of the very finest of the purple-leaved trees for the choice shrubbery. The very finest of the shrubs is the Purple-leaved Nut, *Corylus avellanus purpureus*, which is of moderate stature, and has leaves of large size and the richest purple shade we have in hardy trees and shrubs.

TREES OF ELEGANT HABIT.

This group comprises a very large number of trees of the most elegant character, and it is a matter for regret that so few of them are met with in English gardens. At the present moment I shall mention a few only of the best. Chief amongst those with pinnate leaves is *Ailantus glandulosus*, which may be justly described as one of the most beautiful of hardy deciduous trees. It is of vigorous growth, and remarkably elegant at all stages. A few good examples will give to a shrubbery border a tropical aspect, and invariably attract much attention. In growing this tree in borders, moderately strong examples should be planted, and every winter the growth of the previous summer be cut down to nearly level with the ground. A constant succession of stout shoots which produce the finest leaves is obtained, and the plants are kept to the most suitable height for the shrubbery. Other trees with finely divided leaves of a similar character to those of the ailant, which can be strongly recommended, are the Venetian sumach, *Rhus cotinus*, the Stag's Horn sumach, *R. typhinus*, the scarlet sumach, *R. glabra*, and its exquisitely beautiful variety, *R. glabra lacinata*, which is so elegant that it may be employed for table decoration. Of a distinct character to the preceding are the fern-leaved alder, *Alnus glutinosus lacinatus*, the cut-leaved beech, *Fagus sylvaticus heterophyllus*, and the fern-leaved beech, *F. sylvaticus asplenifolius*, and hardly less desirable. The tulip tree, *Liriodendron tulipifera* and *Catalpa syriaca*, have bold massive leaves, are noble in aspect, and most valuable for contrasting with trees having feathery foliage. A few weeping trees are very desirable, and those of most value for gardens of limited dimensions are the weeping birches, *Betula alba pendula*, *B. alba pendula elegans*, and *B. alba Youngi*, the last-mentioned being the best of the three; the weeping beech, *Fagus sylvaticus pendulus*, the weeping ash, *Fraxinus excelsior pendulus*, *Populus tremula pendula*, and *Salix babylonica*, the last-mentioned being specially suited for water scenery.

FLOWERING TREES AND SHRUBS.

These are most valuable aids in beautifying the garden and pleasure ground, and it is evident to those who travel much, and who have good opportunities for observation that they are not planted too extensively either in large or small gardens. Foremost amongst them are the Siberian Crab, *Pyrus malus baccata*, *P. malus floribundus*, and the Chinese Crab, *P. spectabilis*, all of which attain a moderate height, and are very free-blooming and wonderfully effective in their season. Not less to be desired are the Double Thorns, *Crataegus oxyacantha*, fl. pl., *C. oxyacantha multiplex*, and *C. oxyacantha Paul's Double Crimson*, and the Single Scarlet Thorn, *C. oxyacantha punicea*. Then may be mentioned the Snowy Mespilus, *Amelanchier botryapium*, the double-flowered Peaches in variety, the Laburnum, the Lilacs in variety, *Dr. Lindley* and *Charles X.* being two forms of much merit; *Magnolia conspicua* and *M. Lenné*, two of the finest of the flowering trees; the common Hydrangea and *Hydrangea paniculata grandiflora*, *Kerria japonica*, fl. pl., *Philadelphus coronarius*, single and double; the Guelder Rose, *Viburnum opulus*, and its near allies, *V. macrocephalum*, and *V. plicatum*, and hardy Azaleas and Rhododendrons in great variety. Both azaleas and rhododendrons should be planted plentifully along the front of borders and in beds, and if named varieties are considered too expensive, seedlings of high quality can be purchased at a low rate at many nurseries. The choice varieties must have a fibrous soil to ensure their growing freely and flowering abundantly, but they will afford an ample return for any attention that may be bestowed upon them.

EXHIBITIONS OF CHRYSANTHEMUMS.

ROYAL HORTICULTURAL GARDENS, CHISWICK.

REPORTS have represented that in these gardens there is an exhibition of a particularly showy character, comprising chrysanthemums of many kinds in specimen style of cultivation. Those who originate such reports kill two birds with one stone, when nobody desires them to kill any birds at all. What they really accomplish is a display of their own ignorance of what constitutes a chrysanthemum exhibition, and the misrepresentation of a fact to the vexation of a few and the disappointment of many. People who go to Chiswick under the persuasion of such reports will find that in this case, as in many others, there is a difference between actualities and verbal representations of them. It was never intended to make a great exhibition of chrysanthemums in the gardens at Chiswick, nor was any such thing needed, either now or at any time. So few of the Royal Horticultural Society's Fellows visit the gardens that we often wonder how Mr. Barron can maintain his

standing as a leader in good work under an almost permanent cloud of discouragement. But, as a matter of fact, he does hold to horticulture with a firm grip, and the chrysanthemums that are now in the great vinery illustrate the case admirably. There is no exhibition in any proper sense of the term, but there is a most useful demonstration of a simple mode of treating the flower for a home show of a quiet character, from which many gardeners may take a salutary lesson. We will transfer the great vinery to a private garden, a task difficult enough for one week's work. It will follow that as the roof is delightfully dotted with bunches of grapes, and stippled with green and golden and scarlet leafage, that some covering of the great floor space might be desirable. And this covering has been provided, and the result is a very pleasing and seasonable picture. In the spring of this year a lot of newly-struck cuttings of chrysanthemums were planted out, and left to grow naturally with no more aid than a few stakes and ties to keep them safe against storms. There was no stopping practised; they made their heads and filled them with flower buds just as they pleased. Three weeks ago they were lifted carefully and put into half bushel baskets, and now they occupy the floor of the great vinery, and make a sheet of variously-coloured flowers from end to end. At this moment they are not full out; therefore this notice appears in time for all and sundry who would wish to see them. A better practical lesson, applicable to thousands of private gardens, we shall not easily meet with at this time of year. The plants are in rude health, leafy to the base, and with ample heads of bloom. The flowers are smallish, for there are too many of them; but there they are in the natural mode, and the people who object to the severe thinning and high feeding practised by the florists may at Chiswick see the best result of the most simple system of cultivation. The great vinery in which the plants are housed is, as remarked above, very leafy and grapey overhead. The view from either end, and especially from the end next the rockery, is extremely beautiful, one of the most beautiful of its kind within ready reach of the Londoner. As for the journey to Chiswick it is now nothing. A few days since we left Highbury Station for Gunnersbury by the usual North London train at 9.4. At 9.50 we were walking through the vinery. At 11.13 we took train at Gunnersbury, and reached Highbury before the stroke of twelve, having had more than an hour in the gardens.

FINSBURY PARK.

The exhibition of chrysanthemums that Mr. Cochrane, the able superintendent, has provided this season for the visitors to Finsbury Park is of the most splendid character, and in some respects surpasses the magnificent displays of previous years. It is held as usual in a glass structure near the Manor House gate, but the temporary erection of previous years has been replaced by a plain and substantial house of a permanent character, which affords sufficient space for the arrangement of the plants and for their accommodation. Some change has also been made in the arrangement of the plants, and instead of a central group with a walk all round it a broad path runs down the centre with banks of plants on each side. This change has been made to facilitate the passage of the visitors through the house on the Sundays, the numbers in the two past years having been so great that those who were able to have a glimpse of the flowers without waiting more than an hour considered themselves very fortunate. About fifteen hundred plants have been grown this season, and their condition at the present moment and the splendid quality of the flowers reflect much credit both upon Mr. Cochrane and Mr. Mardlin, the head foreman.

In the collection all the leading varieties in the several classes are represented, and amongst them are many interesting old flowers but seldom seen at the exhibition, as well as the finest of the most recent introductions. Amongst those fully in bloom two or three days ago were Mrs. George Randle, George Glenny, and Mrs. Dixon, a trio of well-known and useful incurved flowers; Refulgence, the darkest of the incurved flowers, and, as here represented, of grand quality; Mr. Bunn, a superb sport from Golden Beverley, and differing from it in its finer petal, more perfect shape, and greater depth of colouring; Aurea multiflora, a useful yellow incurved variety, the flowers of medium size, good quality, and brightly coloured; Cassandra, white rose tipped; Gloria Mundi, a good yellow incurved variety; White Beverley and Golden Beverley; White Venus and Pink Venus, two of the most beautiful flowers of their class; St. Patrick, a handsome flower, but rather dull in colour; the blooms here are simply perfect; Abbe Passaglia, an old and useful variety.

The tasselled, or Japanese flowers, are well represented, and include most of the splendid varieties that have been introduced during the past two or three years, but they do not preponderate, for at Finsbury Park no difficulty is experienced in the production of incurved flowers of the highest quality. Chief amongst the Japanese varieties were Eugenie Pourque, a very fine variety of a rich orange-red colour; Thunberg, bright yellow, desirable in its shade of colour; Fanny Bouchardet, blush white, flowers very large and of grand quality; La Charmeuse, bright rosy purple, distinct and desirable; Flambeau, bright crimson, very telling in colour; Comte de Germiny, an immense flower, with broad incurved petals of a pleasing shade of buff, not particularly attractive in colour, but desirable for its bold and distinct character; Mdle. Anna Delaux, white, long, and beautiful; La Nymphe, bright pink; Rob Roy, red; Constance, bright red, an elegant flower with narrow petals; Cœur Fidele, orange red, distinct and attractive; Kry Kwang, lilac; Soleil Levant, bright yellow, fine; Dr. Andignier, purple, rich in colour and fine in form; Gloire de Toulouse, purple, also good, and distinct from the variety immediately preceding it; and Criterion, a well-known orange-coloured flower. Those popular and most useful varieties, Elaine and James Salter, are, it need hardly be said, in strong force, but, as an act of justice, be stated that some dozens of flowers might be cut that would grace a stand of twelve.

Several of the reflexed flowers, such as Dr. Sharpe and Chevalier Damage, contribute their full share to the attractions of the display, and demonstrate their usefulness for decorative purposes.

MESSRS. S. DIXON AND CO., AMHURST NURSERY, HACKNEY.

Good as have been the displays of Chrysanthemums in previous years in the nursery of this well-known firm, it will be perfectly safe to describe the exhibition of the present season as the best that has yet been held. From end to end the immense span-roof house in which the chrysanthemums are usually arranged is filled with plants evincing cultural skill of the highest class, and bearing blooms of immense size, splendidly coloured, and highly finished. The exhibition is not only attractive, but is highly interesting and instructive, for it includes all the newest varieties that have been introduced to cultivation, and affords an exceptionally favourable opportunity to cultivators

for making their acquaintance and determining then their value in comparison with those of older date.

First to claim attention are the varieties being offered for the first time, for not only do they form a rather large group, but are so distinct and good that a considerable proportion will undoubtedly take a leading position amongst exhibition flowers. Of those in bloom two or three days since, the following should have the special attention of cultivators: François Delaux, bright crimson-red, the flowers large, and the petals long and drooping; Sonree d'Or, bright golden yellow, quite distinct from any of the other yellow flowers and of grand quality; J. Hillier, rich amaranth, a medium-size flower of good quality and valuable for its rich colour; Chinaman, deep purple, a grand flower in its line of colour, and indispensable to the exhibitor; R. Ballantine, bright reddish purple, large and very fine; Mr. J. Starling, bright rosy-lilac. Very fine among the varieties introduced previous to the foregoing are: Agreements de la Nature, bright golden yellow; Rubra striata, red and yellow; Fanny Bouchardet, a beautiful blush-white flower; Red Gauntlet, deep red; George Gordon, a very large, broad-petalled flower of a brilliant crimson hue, and unequalled in its shade of colour; Mons. Ardene, lilac; Kämpferi, bright orange-yellow, large and in the way of Criterion, on which it is a great improvement; Rex Rubrorum, deep crimson; King of the Crimson, an immense reflexed flower of much the same colour as Julia Lagravere, and of the highest possible value for exhibition purposes. Lady Selbourne, a beautiful white sport from James Salter, was flowering away as freely as the latter, and it was not surprising to hear that it is unsurpassed in value for the supply of cut flowers at the commencement of the chrysanthemum season.

It is not necessary to say that the incurved includes all the varieties generally, but those who take a special interest in them may be reminded that they will see an abundance of blooms of Queen of England, James Salter, Venus, Refulgence, Mr. Bunn, Prince Alfred, and other standard varieties of the highest quality.

INNER TEMPLE.

The chrysanthemums grown by Mr. W. Newton, the able chief of the Inner Temple gardens, are again arranged in the glass structure erected near the entrance from the Thames Embankment, and so fine a lot are they that they do something more than sustain the traditions of the gardens. The plants, of which the number is very large, have been admirably grown, and are no flowering most satisfactorily, many hundreds of superb blooms being already developed.

The incurved varieties, although they will be very briefly referred to, occupy an important position; and of such fine varieties as Prince Alfred, Empress of India, White Venus, Pink Venus, Barbara, White Globe, White Queen, Golden Queen, Golden Beverley, Mrs. W. Shipman, Mrs. George Rundle, and Alfred Salter there is an abundance of blooms of high-class quality. There are a goodly number of those fine reflexed flowers, Chevalier Damage and Dr. Sharpe, and we made note of Mdle. Moulise, a medium-sized flower of a creamy white and delightfully fragrant, in the latter respect differing widely from all the other chrysanthemums at present in cultivation.

There is a strong muster of Japanese flowers, which are flowering in grand style, and contain several of the best of the newer forms. Noteworthy amongst the latter are Curiosity, lemon yellow shaded brown, distinct and effective; Rosa Bonheur, bright purple, very fine in its line of colour; Rose Mignonne, delicate rose, very pleasing; Constance, bright crimson, very telling in colour; La Charmeuse, rosy purple; Kämpferi, orange yellow, large and fine; Bonquet National, creamy white, distinct and pleasing; Dr. Macary, delicate rosette pink, very beautiful, and highly desirable; Rex Rubrorum, rich red-crimson, back of petals yellow; Reverie, orange-scarlet, very brilliant and effective; Lord Beaconsfield, deep crimson, reverse of petals buff yellow, a bold and handsome flower. There are but few of the older forms unrepresented, and therefore the exhibition affords the visitor every facility for arriving at correct conclusions respecting the relative merits of the recent additions to the list.

STUD SHEEP.—At the annual sales of stud sheep held in Melbourne, Australia, in September of this year, higher prices were obtained for stud sheep than on any previous occasion. One ram of the merino breed, from Sir Samuel Wilson's Mount Bute estate, sold for 650 guineas; another of the same owner's, from the Ercildoune flock, brought 400 guineas. His four best sold for an average of £451 10s. each. His eight best brought an average of £275 12s. 6d., and his twenty best averaged £155 8s. The sales continued for three days, and excellent prices were also obtained by other owners. The total amount realized by the sales was over £50,000.

THE ORIGIN OF CULTIVATED PLANTS.—A work on this subject from the pen of M. de Candolle has recently appeared. It treats of 247 species. The author has utilized evidence from Swiss lake dwellings, from ancient Egyptian monuments, and from Chinese works (better interpreted by Dr. Bretschneider than by his predecessors). He has examined many herbaria, consulted travellers, &c. Of all the 247 species, except three, he has been able to say whether they come from the old or the new world, and to specify with certainty of high probability the country of their origin. The exceptions are two species of the genus *Cucurbita* and the ordinary kidney bean (*Phaseolus vulgaris*). There are many species, however, that have not yet been certainly found in a wild state. Where the country of origin has been little visited by botanists this is not surprising; but the case is sometimes otherwise. Certain species very long cultivated seem to be in course of extinction or extinct; they have not been found wild or have been met with only once, perhaps, in a single locality in their native region, though the latter has been well explored. Probably, too, their ancient home has been more or less of wide extent, considering the extension of their cultivation among people that had little connexion with each other. M. de Candolle counts 44 species of the old world which appear to have been cultivated more than 4,000 years, and five of the new, probably cultivated as long. Of these 49, six or seven seem to be extinct or in course of extinction. Maize has never been found in the wild state. The bean and tobacco (*Nicotiana tabacum*) have been found only once; the chick pea, the lentil (*Ervum lens* and *Ervum ervillia*), and wheat have only been found very rarely and under conditions doubtful as to the spontaneous quality. Most of these species present the character of seeds filled with starch, without any protection against rodents and insects, who seek them eagerly; and it is not wonderful that they should perish in the struggle for existence. With tobacco (which has been found with certainty in the wild state only at one point of the Republic of Ecuador by M. André) the case is different. Since the natives smoked or chewed tobacco from Peru to the United States, it is probable that the habitat of the plant was once much wider.

Calls at Nurseries.

MR. W. M. CROWE'S, THE BOLEYN NURSERY, UPTON, ESSEX.

Of the newer nurseries of a first-class character within a short distance of the metropolis, none are better known to cultivators throughout the country, none are managed with greater ability, and none likely to occupy a more prominent position amongst kindred establishments than the Boleyn Nursery, which has been formed at Upton by Mr. Crowe, the spirited proprietor. Originally established for the production of market stock, it is now largely devoted to providing for the requirements of private customers, a very considerable change in the trade having taken place within the last three or four years. Indeed, the change has been so great and so rapid that market culture will probably in a comparatively short period be entirely displaced; but whether that will be the case or not, it now occupies a secondary position, although as compared with what is done by the majority of market growers it is of very large extent, many thousands of the choicer kinds of ornamental leaved plants, forsythias, palms, and other subjects being despatched from the nursery annually. Within the boundaries are to be found a series of spacious and substantial plant houses, covering a large area, and containing immenso stocks of plants of nearly all descriptions, and in a condition that bespeaks cultural skill of the highest order and a due consideration for the requirements of purchasers.

How many of these spacious structures there are we cannot undertake to say exactly, but the number is considerable, and they are all uniform in size and arranged with remarkable judgment. The length of each of the houses is sixty feet, the breadth twenty-six feet, and the height allows plenty of head room, without being such that any portion of the stock is far removed from the glass. They are indeed some of the most judiciously arranged plant-houses that have yet come under our notice, and the heating and ventilation, as in the case of the other details, are all that could be desired. The existing houses are, in consequence of the extension of trade, being supplemented by four other large span-roofs in course of erection; and from the arrangement of the two boilers with which the new houses are to be heated it is evident that further extensions are contemplated. To say that the immense stocks of plants which have a place in the several houses comprise everything to be found in a first-class nursery would be to do Mr. Crowe an injustice. He does not, so it appeared in walking through the structures, attempt to grow everything for which there is likely to be a demand; but he does grow, and that too in immense numbers and with signal success, all the finest kinds of the respective subjects; and by this course he is able to supply amateurs and other customers with the finest of the stove, greenhouse, and soft-wooded plants at rates that would otherwise be impossible. The idea appears to have been to select half a-dozen or so of the most distinct and effective of the crotons, a like number of dracaenas, a score or so of palms, and other classes of stove and greenhouse plants in similar proportions, and to propagate each one by hundreds and thousands, as the case may be. As a case in point, the first house on the right hand of the main walk running through the nursery is occupied with azaleas. On entering it we notice first that the house is so well filled that its holding capacities are taxed to the utmost with plants of various sizes in a splendid state of health and so well set with buds that in due season they will be solid with bloom. We then note that instead of the collection containing examples of every possible variety, it consists of about twenty of the best, such as Bernard Andreas alba, a superb white variety of much value for forcing; Comtesse de Flandres, Mdle. Marie Lefebvre, Roi de Holland, Souvenir de Prince Albert, and Sigismund Rucker. It may be mentioned, as a point of some interest, that considerable attention has of late been devoted to the propagation of azaleas from cuttings to meet the requirements of a large body of customers at a distance, who obtain the whole of their supplies of plants through the post, and a glance at the catalogue suggests the idea that some of the kinds are raised with but little more difficulty than verbenas. Camellias, like the azaleas, occupy an important position in the nursery, and consist exclusively of the best varieties in commerce. Ericas are represented by about twenty of the most effective kinds; such cheap, free-growing and effective varieties as Gracilis, Hyemalis, and Wilmoreana being grown in immense quantities. Epacris are not overlooked; in fact, they are so well grown that those which remain until the flowering season will show visitors how attractive they are when they have justice done them.

Outside, the deservedly increased popularity of the varieties of *Azalea mollis* is demonstrated by the immense stocks of plants of various sizes, the great bulk being suitable for forcing, and admirably set with buds. Practical cultivators and trade growers are fully alive to the immense value of these azaleas for the decoration of the conservatory early in the spring, and it would be well for amateurs to turn their attention to them. They have the merit of flowering very easily, with but little assistance from fire heat; their flowers afford the most beautiful shades of red, salmon, orange, yellow, fawn, and rose; and, what to many is a point of no small importance, they are comparatively inexpensive.

In passing through the plant stoves, the attention is arrested by the magnificent stocks of *Dracaena terminalis*, *D. striata*, and *D. amabilis*. Of the two first-mentioned there must be many hundreds of plants, ranging in height from eighteen inches to two feet, and all feathered with foliage down to the soil, and most so splendidly coloured that it would be safe to say that to surpass them would be impossible. There are very large numbers of the more delicately but attractively coloured *D. amabilis*, which also is grown with exceptional success. This form, which has large leaves feathered with creamy rose-tinted variegation, is the most effective when from two feet to thirty inches in height, and plants between these two sizes are the most highly-esteemed by those decorators who have work choice enough to admit of the employment of such fine plants. Amongst the green-leaved forms *D. congesta*, which possesses much value for living rooms because of its suffering but little from the most adverse influences, and *D. gracilis*, remarkable for its extreme elegance, occupied a leading position, and were represented by stocks of surprising extent. *Aralias*, for which also the demand appears to be large, are extensively grown, more especially such kinds as *A. leptophylla* and *A. gracillima*, which rank high for table decoration. *Pandanus Veitchii* still holds its own amongst plants with silvery variegation, and the demand is evidently not wanting in briskness. To ensure well-coloured examples several plants were some years since selected for the effectiveness of their variegation, and reserved specially for propagating purposes. They are now of immense size, and yield annually an abundant supply of side shoots. Noticeable also in the stoves are the gardenias, of which many thousands of plants are distributed annually, for they are in the most luxuriant condition, and perfectly free from the pests so extremely partial to them. *Stephanotis floribunda* forms quite a speciality, and it was

interesting to hear that the demand by private growers for this delightfully fragrant climber is not only very large but steadily increasing.

Palms and ferns form two features of great importance and interest, both being grown in quantities that are simply immense, and with success of the highest order. The palms are especially noteworthy, and such kinds as *Areca lutescens*, *A. Verschaffeltii*, *Coccothrinax Weddelliana*, *Euterpe edulis*, *Latania borbonica*, *Phoenix dactylifera*, *P. reclinata*, and *Scaevola elegans* are each represented by some thousands of examples; whilst others like *Geonoma gracilis*, *Kentia Fosteriana*, and *Phoenix rupicola*, are grown by the hundred. Ferns, which abound in tens of thousands, comprise the choicest of the adiantums, *davallias*, *gymnogrammas*, and other leading genera, not a few of the newer kinds having a place amongst them. Mr. Crowe considers that the exquisitely beautiful *Adiantum Victoriae* will prove one of the most useful of all the dwarf ferns for decorative purposes, an opinion that it will be quite safe to endorse.

Space will not admit of full justice being done to the many matters of interest in the cool houses. We made note of the fact that the collections of such important classes of plants as zonal pelargoniums and fuchsias are extensive, and contain all the finest varieties, including the most recent of both English and Continental productions. *Bouvardias* are very largely grown, the two favourite varieties being *Jasminoides* and *Hogarthii*; and rapidly passing into the resting state were some thousands of *gloxinias*, which have been grown in small pots during the past season to meet the demand for dry corns during the winter, which is a very convenient way for amateurs who have no convenience for raising seedlings to obtain a stock. Tree carnations form a speciality upon which Mr. Crowe justly prides himself, for the stocks are large, all the leading varieties are represented, and the plants are in the best possible health. Amongst them are two superb new varieties, named *Prince Imperial* and *Sarah Bernhardt*, the flowers of the first-mentioned being dark red and of the second buff flaked with crimson. There was one other novelty which must be mentioned, and that is *Abutilon Anne Boleyn*, a splendid variety with flowers of the most perfect form and beautifully veined with crimson on a deep orange ground. *Chrysanthemums* will shortly afford much attraction, for they are not less extensively or successfully cultivated than most of the other subjects that receive attention at the hands of Mr. Crowe.

NEW PLANTS AND FLOWERS.

CERTIFICATED DURING THE TWELVE MONTHS ENDING
SEPTEMBER 30, 1882.

(Concluded from page 584.)

HYDRANGEA.

JAPONICA TRICOLOR (C. Lee and Son), F.C.C., R.H.S., May 23, 1882.

IRIS.

KOLPAKOWSKIANA (G. F. Wilson), F.C.C., R.H.S., January 10, 1882.

KENTIA.

COSTATA (B. S. Williams), B.C., R.B.S., May 17, 1882.

LÆLIA.

ANCIENT VEITCHI (J. Veitch and Sons), F.C.C., R.H.S.; January 10, 1882.

LANTANA.

PHOSPHORÉ (Lemoine), F.C.C., R.H.S., July 7, 1882.

LASIA.

STIPULATA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

LASTREA.

MONTANA CORONANS (Stansfield), F.C.C., R.H.S., August 8, 1882.

LAVATERA.

ARBOREA VARIEGATA (Smith), F.C.C., R.H.S., May 23, 1882.

LEEIA.

AMABILIS (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; B.C., R.B.S., March 29, 1882.

LILIUM.

AURATUM VIRGINALE (J. Veitch and Sons), F.C.C., R.H.S., July 7, 1882.

ELEGANS ROBUSTUM (T. S. Ware), F.C.C., R.H.S., June 13, 1882.

THUNBERGIANUM CUCUTUM (T. S. Ware), F.C.C., R.H.S., July 11, 1882.

LOBELIA.

FINSBURY PARK BLUE (J. Veitch and Sons), F.C., R.B.S., July 5, 1882.

PUMILA INGRAMI (Wood and Ingram), F.C.C., R.H.S., June 13, 1882; F.C., R.B.S., July 5, 1882.

LYCASTE.

DEPPEI PUNCTATISSIMA (B. S. Williams), F.C.C., R.H.S., June 28, 1882; B.C., R.B.S., July 5, 1882.

MASDEVALLIAS.

HARRYANA STRIATA (Spyers), F.C.C., R.H.S., June 13, 1882.

IGNEA MASSANGIANA (J. Veitch and Sons), F.C.C., R.H.S., December 13, 1881.

IMPERIALIS (R. Warner), F.C.C., R.H.S., April 28, 1882.

SHUTTLEWORTH (Woolfield), F.C.C., R.H.S., March 25, 1882.

VEITCHI GRANDIFLORA (Coningsby), F.C.C., R.H.S., May 23, 1882.

MEDINILLA.

AMABILIS (W. Bull), B.C., R.B.S., April 26, 1882.

MIGNONETTE.

DOUBLE WHITE (Balchin), F.C., R.B.S., May 17, 1882.

NASTURTIUM.

EMPERESS OF INDIA (J. Carter and Co.), F.C.C., R.H.S., July 25, 1882.

NEPENTHES.

MADAGASCARIENSIS (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

MASTERSIANA (J. Veitch and Sons), F.C.C., R.H.S., June 13, 1882; B.C., R.B.S., July 5, 1882.

RAJAH (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

NERIUM.

MALONNI GRANDIFLORUM (Huber et Cie.), F.C.C., R.H.S., July 7, 1882.

MONS. BALAGUER (Huber et Cie.), F.C.C., R.H.S., July 7, 1882.

SEUR AGNES (Huber et Cie.), F.C.C., R.H.S., July 7, 1882.

ODONTOGLOSSUMS.

- ALEXANDRE GIGANTEUM (R. Warner), F.C.C., R.H.S., May 23, 1882.
 CERVANTESI DECORUM (Woolfield), F.C.C., R.H.S., March 28, 1882.
 CORDATUM AUREUM (H. James), B.C., R.B.S., July 5, 1882.
 HALLI NIGRUM (W. Bull), B.C., R.B.S., March 29, 1882.
 LAMELLOIDUM (Coningsby), F.C.C., R.H.S., May 23, 1882.
 LEBANUM (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882.
 PISCATOREI ALBUM (W. Bull), B.C., R.B.S., March 29, 1882.
 PISCATOREI VEITCHI (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882;
 B.C., R.B.S., March 29, 1882.
 TRIPUDIANI AUREUM (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 VEXILLARIUM COBBIANUM (Cobb), F.C.C., R.H.S., June 13, 1882.

ONCIDIUMS.

- FORBESI CARDERI (Read), F.C.C., R.H.S., December 18, 1881.
 STELLIGERUM (Spyers), F.C.C., R.H.S., July 25, 1882.

OSMUNDAS.

- JAPONICA CORYMBIFERA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882;
 F.C.C., R.H.S., July 11, 1882.
 JAVANICA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

PANSIES.

- ECLIPSE (H. Hooper), F.C., R.B.S., May 17, 1882.
 GENERAL GARFIELD (H. Hooper), F.C., R.B.S., May 17, 1882.
 JESSIE DUNLOP (Dickson and Co.), F.C.C., S.P.S., June 23, 1882.
 LORD WAVENY (H. Cannell and Sons), F.C.C., R.H.S., July 11, 1882.
 MAY TATE (Downie and Laird), F.C.C., S.P.S., June 23, 1882.
 MRS. MCCOMBE (McCombe), F.C.C., S.P.S., June 23, 1882.
 MRS. LAING (Hooper), F.C.C., R.H.S., April 25, 1882; F.C., R.B.S., April 26,
 1882; F.C.C., C.P., May 20, 1882.
 MRS. LLEWELLYN (Hooper), F.C.C., R.H.S., April 25, 1882; F.C., R.B.S.,
 April 26, 1882.
 RALPH SAUNDERS (Thompson), F.C.C., S.P.S., June 23, 1882.

PAPHINIA.

- RUGOSA (B. S. Williams), F.C.C., P.S., June 28, 1882.

PELARGONIUMS.

- ADVENTURER (Foster), F.C., R.B.S., July 5, 1882.
 AGLAIA (H. Little), F.C.C., P.S., June 28, 1882; F.C.C., R.H.S., July 7,
 1882.
 ATALA (Pearson), F.C.C., R.H.S., July 7, 1882.
 BELLE DE JOUR (Lemoine), F.C.C., R.H.S., July 7, 1882.
 BRIDESMAID (H. Little), F.C., R.B.S., April 26, 1882.
 CANDIDISSIMUM PLENUM (Pearson), F.C.C., R.H.S., July 7, 1882.
 COMTE HORACE DE CHOISEUL (Lemoine), F.C.C., P.S., June 27, 1882;
 F.C.C., R.H.S., July 7, 1882.
 COMTESSE HORACE DE CHOISEUL (Lemoine), F.C.C., P.S., June 13, 1882;
 F.C.C., R.H.S., July 7, 1882.
 DIADUM (Foster), F.C.C., P.S., June 28, 1882; F.C., R.B.S., July 5, 1881.
 DUCHESS OF ALBANY (Saltmarsh and Sons), F.C.C., P.S., June 27, 1882.
 EDITH PEARSON (Pearson), F.C.C., P.S., June 27, 1882.
 EVA (Pearson), F.C.C., R.H.S., July 7, 1882.
 EURYDICE (H. Cannell and Sons), F.C.C., R.H.S., May 23, 1882.
 GAMBETTA (H. Little), F.C.C., P.S., June 27, 1882.
 GOLD MINE (J. and J. Hayes), F.C.C., P.S., June 13, 1882.
 GOT (Lemoine), F.C.C., R.H.S., July 7, 1882.
 GRAND CHANCELLOR FAIDHERBE (H. Little), F.C.C., P.S., June 27, 1882.
 GRATITUDE (G. Smith), F.C.C., R.H.S. and P.S., June 13, 1882.
 IMPROVED WHITE CLIPPER (H. Cannell and Sons), F.C.C., P.S., June 27,
 1882.
 IRENE (C. Turner), F.C.C., P.S., June 27, 1882.
 KLEBER (Lemoine), F.C.C., R.H.S., July 7, 1882.
 LADY BROOKE (Stacey), F.C.C., R.H.S., June 28, 1882.
 LITTLE PET (H. Little), F.C.C., P.S., June 27, 1882.
 LOVELY (Catlin), F.C.C., P.S., June 27, 1882.
 LUMEN (Pearson), F.C.C., R.H.S., July 7, 1882.
 LYNETTE (Catlin), F.C.C., P.S., June 27, 1882.
 MADAME HARMANT (Lemoine), F.C.C., R.H.S., July 7, 1882.
 MADAME MARIE KNECHT (C. Turner), F.C.C., P.S., June 27, 1882.
 MISS BLANCHE (George), F.C.C., P.S., June 27, 1882.
 MISS HAMILTON (Pearson), F.C.C., R.H.S., July 7, 1882.
 MORNING (Foster), F.C.C., P.S., June 27, 1882.
 M. HARDY (Lemoine), F.C.C., R.H.S., July 7, 1882.
 MRS. GORDON (Pearson), F.C.C., P.S., June 27, 1882.
 MRS. MILLER (J. Laing and Co.), F.C.C., C.P., May 20, 1882.
 OLIVE CARR (Pearson), F.C.C., R.H.S., July 7, 1882.
 ROSE SUPERB (H. Little), F.C., R.B.S., July 5, 1882.
 ROSSINI (Lemoine), F.C.C., R.H.S., August 16, 1882.
 ROYAL REVIEW (Foster), F.C.C., P.S., June 27, 1882.
 SISTER OF MERCY (Foster), F.C., R.B.S., July 5, 1882.
 VESUVIUS (W. Brown), F.C.C., P.S., June 27, 1882.
 VETERAN (Foster), F.C., R.B.S., July 5, 1882.

PENTSTEMON.

- VIRGINALE (Lemoine), F.C.C., R.H.S., August 16, 1882.

PISCATOREAS.

- JAYANA (Salter), F.C.C., R.H.S., June 28, 1882.
 KLACHORUM (B. S. Williams), B.C., R.B.S., May 17, 1882.
 LEHMANNI (Spyers), F.C.C., R.H.S., May 9, 1882; (Vavaert), B.C., R.B.S.,
 May 17, 1882.

PETUNIA.

- MRS. DUNNETT (J. Carter and Co.), F.C.C., R.H.S., August 8, 1882.

PICOTEEs.

- MRS. GORTON (Douglas), F.C.C., N.C.S., July 25, 1882.
 MURIEL (Dodwell), F.C.C., N.C.S., July 25, 1882.

PINGUICULA.

- CAUDATA (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; B.C.,
 R.B.S., March 29, 1882.

PILAGELIA.

- CAMPANULATUS (W. Thompson), F.C.C., R.H.S., July 25, 1882.

PHALANGIUM.

- ELEGANTISSIMUM (B. S. Williams), B.C., R.B.S., May 17, 1882.

PHALÆNOPSIS.

- STUARTIANA (H. Low and Co.), F.C.C., R.H.S., March 28, 1882; B.C.,
 R.B.S., March 29, 1882.
 STUARTIANA NOBILIS (H. Low and Co.), B.C., R.B.S., March 29, 1882.
 TETRASPIS (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 VIOLACEA SCHRÖDERI (Ballantyne), F.C.C., R.H.S., August 8, 1882.

PLEOPELTIS.

- FOSSA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882; F.C.C., R.H.S.,
 July 11, 1882.

POLYPODIUM.

- ORNATUM (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 VULGARE CORNUBIENSE FOWLERI (Stansfield), F.C.C., R.H.S., August 8, 1882.

PRATIA.

- ANGULATA (J. Veitch and Sons), B.C., R.B.S., May 17, 1882.

PRIMULAS.

- CROUSI FL. PL. (Paul and Son), F.C.C., R.H.S., March 28, 1882; F.C.,
 R.B.S., March 29, 1882.
 GILBERT'S HARRINGER (Gilbert), F.C.C., R.H.S., February 14, 1882.
 LATIFOLIA (Dean), F.C.C., R.H.S., April 11, 1882.
 OBCONICA (J. Veitch and Sons), B.C., R.B.S., March 27, 1882.
 SINENSIS HOLBORN GEM (J. Carter and Co.), F.C.C., R.H.S., January 10,
 1881.
 SINENSIS PRINCESS OF WALES (H. Cannell and Sons), F.C.C., R.H.S.,
 January 10, 1882.
 SINENSIS VARIEGATA (J. Veitch and Sons), F.C.C., R.H.S., November 12,
 1881.

RENANTHERA.

- MATUTINA (Spyers), F.C.C., R.H.S., July 25, 1882.

RESEDA ODORATA.

- GOLDEN QUEEN (Benary), F.C.C., R.H.S., July 7, 1882.
 PYRAMIDALIS GIGANTEA (Vilmorin), F.C.C., R.H.S., June 28, 1882; F.C.C.,
 R.H.S., July 7, 1882.

RHODODENDRONS.

- ALICE MANGLES (Mangles), F.C.C., R.H.S., April 25, 1882.
 AURORA (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882.
 BALSAMIFLORUM (J. Veitch and Sons), F.C.C., R.H.S., June 13, 1882.
 BALSAMIFLORUM ALBUM (J. Veitch and Sons), F.C., R.B.S., July 5, 1882;
 F.C.C., R.H.S., July 11, 1882.
 BALSAMIFLORUM AUREUM (J. Veitch and Sons), F.C., R.B.S., July 5, 1882;
 F.C.C., R.H.S., July 11, 1882.
 FAVOURITE (J. Veitch and Sons), F.C.C., R.H.S., March 28, 1882; F.C.,
 R.B.S., March 29, 1882.
 FORTUNEI (Aslett), F.C.C., R.H.S., May 9, 1882.
 FOSTERIANUM (J. Veitch and Sons), F.C.C., R.H.S., April 11, 1882.
 LADY ALICE FITZWILLIAM (Fisher, Son, and Sibray), F.C.C., M.R.B.S., April
 4, 1882.
 QUEEN VICTORIA (J. Veitch and Sons), F.C.C., R.H.S., February 14, 1882.
 STAR OF INDIA (J. Veitch and Sons), F.C., R.B.S., July 5, 1882.

ROSES.

- DUCHESS OF CONNAUGHT (Noble), F.C.C., R.H.S., July 11, 1882.
 HER MAJESTY (H. Bennett), F.C.C., R.H.S., March 28, 1882.
 QUEEN OF QUEENS, II. P. (W. Paul and Son), F.C., R.B.S., May 17, 1882.
 RIENE MARIE HENRIETTE (R. T. Veitch), F.C.C., R.H.S., May 23, 1882.
 ULRICH BRUNNER (W. Paul and Son), S.C.C., R.H.S., May 9, 1882.

SARRACENIAS.

- COURTI (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 MELANORRHODA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.
 PORPHYRONEURA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

SCOLOPENDRIUMS.

- VULGARE CRISTUM MULTIFIDUM (Stansfield), F.C.C., R.H.S., August 8, 1882.
 VULGARE KELWAYI DENSUM (Kelway and Son), B.C., R.B.S., May 17, 1882;
 F.C.C., C.P., May 20, 1882.

SELAGINELLA.

- GRANDIS (J. Veitch and Sons), B.C., R.B.S., July 5, 1882; F.C.C., R.H.S.,
 May 23, 1882.

SOBRALIA.

- XANTHOLEUCA (J. Veitch and Sons), B.C., R.B.S., July 5, 1882.

SPERGULA.

- PISIFERA AUREA (R. Dean), F.C.C., R.H.S., May 23, 1882.

STATICE.

- FLORIBUNDA (C. Lee and Son), F.C.C., R.H.S., May 23, 1882.

SWEET PEA.

- BRONZE QUEEN (Eckford), F.C.C., R.H.S., August 8, 1882.

TRICHOPILOIA.

- BACKHOUSIANA (Dorman), B.C., R.B.S., May 17, 1882.

TROPÆOLUM.

- BEDFORD RIVAL (Dean), F.C.C., R.H.S., August 16, 1882.

TYDEAS.

- CYBELE (Vallerand), F.C.C., R.H.S., August 16, 1882.
 MAGICIEN (Vallerand), F.C.C., R.H.S., August 16, 1882.

VANDA.

- HOKERI (E. Hill), F.C.C., R.H.S., September 12, 1882.

VERBENAS.

- AUGUSTE REUZ (H. Cannell and Sons), F.C.C., R.H.S., August 16, 1882.
 KENTISH BEAUTY (H. Cannell and Sons), F.C.C., R.H.S., August 16, 1882.
 PHLOX (H. Cannell and Sons), F.C.C., R.H.S., August 16, 1882.
 STARS AND STRIPES (H. Cannell and Sons), F.C.C., R.H.S., April 11, 1882.

VERONICA.

- HULKEANA (J. Douglas), F.C.C., R.H.S., May 23, 1882.

VIOLA.

- CHAMPION (Heath and Son), F.C.C., R.H.S., June 13, 1882.

WELLINGTONIA.

GIGANTEA PENDULA (W. and J. Brown), F.C.C., R.H.S., February 14, 1882.

ZYGOPETALUM.

CLAYI (B. S. Williams), B.C., R.B.S., March 29, 1882.

ABBREVIATIONS.—R.H.S., Royal Horticultural Society; R.B.S., Royal Botanic Society; M.R.B.S., Manchester Royal Botanic Society; P.S., Pelargonium Society; C.P., Crystal Palace; S.P.S., Scottish Pansy Society; F.C.C., First-class Certificate; S.C.C., Second-class Certificate; F.C., Floricultural Certificate; B.C., Botanical Certificate.

NEW FRUITS AND VEGETABLES.

CERTIFICATED DURING THE TWELVE MONTHS ENDING SEPTEMBER 30, 1882.

FRUITS:—

APPLE.

PRINCE ALBERT, K. (H. Lane and Co.), F.C.C., R.H.S., November 12, 1881.

FIG.

NEGRO LARGO (J. Veitch and Sons), F.C.C., R.H.S., August 8, 1882.

MELON.

WILLIAM I. (C. Howe), F.C.C., R.H.S., May 23, 1882.

PEAR.

TYSON (Rivers), F.C.C., R.H.S., September 5, 1882.

VEGETABLES:—

BROCCOLI.

LATEST OF ALL (Ledsham), F.C.C., R.H.S., May 9, 1882.

PEAS.

ALFRED THE GREAT (Laxton), F.C.C., R.H.S., July 7, 1882.

GLADIATOR (J. Veitch and Sons), F.C.C., R.H.S., July 7, 1882.

LYE'S FAVOURITE (Lye), F.C.C., R.H.S., July 7, 1882.

STRATAGEM (J. Carter and Co.), F.C.C., R.H.S., July 7, 1882.

TURNER'S EMERALD (J. Carter and Co.), F.C.C., R.H.S., July 7, 1882.

POTATOES.

ADIRONDACK (Bliss), F.C.C., R.H.S., November 3, 1881.

ALDERMAN DE KEYSER (Fenn), F.C.C., I.P.E., September 20, 1882.

BROWNELL'S No. 11 (Bliss), F.C.C., R.H.S., November 3, 1881.

CLARKE'S No. 2 (Clarke), F.C.C., R.H.S., September 5, 1882.

CRITERION (Ross), S.C.C., R.H.S., November 3, 1881.

FORTYFOLD WHITE (Farquhar), F.C.C., R.H.S., November 3, 1881.

JAMES ABBISS (Fenn), F.C.C., I.P.E., September 20, 1882.

QUEEN OF THE VALLEY (Bliss), F.C.C., R.H.S., November 3, 1881.

RAND'S No. 12 (Bliss), F.C.C., R.H.S., November 3, 1881.

RAND'S No. 30 (Bliss), F.C.C., R.H.S., November 3, 1881.

RANN'S 39½ (Bliss), F.C.C., R.H.S., September 5, 1882.

RECORDER (Dean), F.C.C., I.P.E., September 20, 1882.

RICHTER'S IMPERATOR (The Lawson Co.), F.C.C., R.H.S., September 5, 1882.

SIR PATRICK (Daniels), S.C.C., R.H.S., November 3, 1881.

SIR WALTER RALEIGH (Ross), S.C.C., R.H.S., November 3, 1881; F.C.C., I.P.E., September 20, 1882.

TROPHY (Bliss), S.C.C., R.H.S., November 3, 1881.

VERMONT CHAMPION (Bliss), F.C.C., R.H.S., November 3, 1881.

VICAR OF LALEHAM (Dean), S.C.C., R.H.S., November 3, 1881.

VICTORIA ALBA (Donaldson), S.C.C., R.H.S., November 3, 1881.

VICTORIA KIDNEY (Edwards), F.C.C., R.H.S., November 3, 1881.

WHITE ELEPHANT (Daniels), S.C.C., R.H.S., November 3, 1881.

ABBREVIATIONS.—R.H.S., Royal Horticultural Society; I.P.E., International Potato Exhibition; F.C.C., First-class Certificate; S.C.C., Second-class Certificate.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

THE management of the tender bedders during the winter season is generally an important matter in small gardens, as well as large ones, because the small gardener has not always the same convenience at command. However that may be, there are a few rules that must be followed in all cases, and to these I shall briefly refer.

WATERING.

In the first place the plants should be watered with great care, as in many cases damp is a greater enemy than cold. To give the plants water whether they want it or not will be sure to end in disappointment. The only satisfactory way of watering the plants in winter is to examine them all carefully three times a-week, and to give water to those plants only that are dry, or rather the soil in which they are growing. It does not matter whether the plants are in pots, large pans, or boxes, the soil must be allowed to become somewhat dry before any more water is given, and the larger the body of soil the less frequently will it be necessary to water. There is another rule that nearly always holds good, and that is, the more roots there are, whether in a large pot or small one, the more frequent must be the waterings. Another important matter is to give in all cases a less quantity of water to each individual plant in the winter than in the summer. That is to say, the soil in the pot should not be so thoroughly soaked with water in the dull days of winter as during the summer months when the days are bright and hot. Generally speaking, during the latter season a plant uses up in a few hours all the moisture that the soil may contain. It is not so in winter, especially with plants that have only a few roots. Stated briefly, sufficient water to moisten the soil in the pot is all that is necessary. When should the watering be done? is a very proper question to ask; and the safest reply would be to the effect that it should as far as practicable be done on the morning of fine days. It is quite certain if it is raining, or the morning foggy, the plants will not suffer even if the soil about the roots is dry by the watering being left until the next day. In all probability they would be all the better

for it. Bedding plants that are kept in pits and frames require less water than those kept in houses, but properly heated houses are the best place for them, and then a fire can be lighted for an hour or two to set the air in motion to dry up any excess of moisture about the plants or on the floor or stages.

CLEANLINESS.

Next to careful watering comes cleanliness, which is a very important part of the management. Before the plants are put into their winter quarters the house and stages should be painted, if required, but if painting is not necessary a thorough cleaning of all parts of the interior is sure to be required. The glass should be made clean, and the stages scrubbed with hot water and soap, and the floor cleansed. All the pots that are green and dirty must be washed before they are brought into the house, and all decaying leaves and dead flowers must be removed. Everything in the shape of dirt or decaying matter creates damp, and the more cleanly the surroundings the more chance will there be of the plants passing safely through the winter.

AIR-GIVING.

The ventilation of all houses or pits that contain bedding plants is another important part of the management. A judicious supply of air on suitable occasions will do as much as anything else to keep the plants in health: it will not only impart a healthy appearance, but it will assist in drying up superfluous moisture that may hang about the leaves and other parts of the plants, and therefore assist in keeping them healthy. As a rule there are not many days in the most severe winters when it is absolutely necessary to keep the house quite close from eleven a.m. till two p.m. This refers especially to the ventilators at the top of the structures, which should always be opened when the weather permits. In the majority of cases if the top ventilators are, from November till the end of February, opened in doubtful weather at ten a.m., and closed again at four p.m., the ventilation will be sufficient to keep the plants healthy; but at other times, when the air is soft, the front ventilators should also be opened, but cold currents of air must be avoided. It should be understood, as tending to create a healthy condition in the plants, that ever so small an admission of air into the house causes a movement of the atmosphere, which it is desirable to secure at all times, as a stagnant atmosphere overcharged with moisture is fatal to a healthy growth.

FIRE HEAT.

To effect a movement in the air of the house and to dry up damp, it is desirable to light a fire early in the morning of still damp days. The heat given off from the heating apparatus will soon set the air in motion, and if there is a ready means of escape the whole atmosphere within the house will soon be changed. Many inexperienced people are often perplexed in determining when it is necessary to light a fire and when not to do so, nor can I profess to tell them. But as a fire will for the most part be required to keep out frost, I may tell them that the only safe guide is to keep a thermometer inside the house, and to watch it and observe the appearance of the weather. Because it feels a bit chilly in going into the open air from a warm room is no reason why the fire should be lighted. It will be better to consult the glass, and if this stands at 45 deg., and there is no appearance of frost, it will be better to leave the fire unlighted. The best advice I can give in a short space is to recommend keeping the thermometer in the house as near 45 deg. as possible. In this temperature, whether by night or day, the plants will take no harm, but to do this be as sparing of the firing as possible until the days begin to lengthen, and then a few degrees higher will do no harm. This statement must be qualified by saying that if the plants are well rooted in the autumn they will not want more artificial heat than is necessary to dry up damp and to keep out frost.

THE BEST FUEL.

It is often a perplexing question in small gardens as to which kind of fuel is the best to use. A satisfactory answer mainly depends on the kind of furnace used. For all kinds of upright boilers coke is undoubtedly the best, provided it is broken up into pieces not larger than a hen's egg. For boilers of the saddle pattern coke is also as suitable as any fuel, and I doubt if there is anything cheaper to be had. But these boilers will also burn wood and cinders, and also breeze, which is to be obtained from the furnaces of some of the large factories. In the old-fashioned flues almost any kind of fuel may be burnt, but where all the fuel has to be purchased it is doubtful if there is anything cheaper than a mixture of three parts of coke and one part of fine coal.

COVERING PITS AND FRAMES.

In most gardens there are pits and frames that require protection during the winter, and it may be of some service to point out the best kind of material adapted for the purpose. After many years' experience I have no hesitation in saying that Russian mats are the best. They are capable of resisting a good deal of frost, and with care they will last as long as any other kind of covering. When wet they should be dried again as quickly as the weather permits. Where only two or three frames have to be covered it is a good plan to have two sets of mats, one in use and the other hanging in an open shed to dry, as one dry mat will resist as much frost as two wet ones.

JASMINUM NUDIFLORUM is now flowering freely in many parts of London, and is scarcely welcome, because every flower that appears now will count against the total of the crop that is eagerly looked for when winter is melting into spring.

ADIANTUM BOURNEI.

At the meeting of the Floral Committee of R.H.S. on May 23 last a remarkable adiantum was placed on the table, and obtained a first-class certificate by acclamation. It was named *Adiantum Bournei*, and it came from Mr. J. Smith, Eltham Road, Lee. It was understood to be an English-raised seedling, and probably a natural hybrid. In all its characters it is unique, but its governing feature is in the exceeding multitude, closeness, and imbricated arrangement of the pinnules. To say that it is like parsley is scarcely to elevate it by the comparison, and such a lovely thing should not be depreciated by any comparison. And yet, in a certain sense, it suggests the peculiar richness of parsley, as it also suggests the deliciously dense foliage of some of our mosses. Perhaps in this case comparisons are odious, and *Adiantum Bournei* can stand on its merits, as our faithful figure will in some degree aver.

POLYANTHUS NARCISS.

Narcissus tazetta.

ONE of the smaller shadows that fall upon the garden of daffodils is the fact that the polyanthus narciss is not quite hardy enough for association with the

and prepare for flowering; and if they are wanted in flower late, they must be kept cool, so that the top growth will be retarded. Prepare for the business a compost, consisting of turfy loam three parts, leaf-mould or rotten dung (or both) one part, and sharp sand one part. The pots should be clean within and without; if new, all the better. For all general purposes 6-inch pots are to be preferred; in these place three bulbs of tazettas, or four of jonquils. If 8-inch pots are used, put in them five bulbs of tazettas, and eight of jonquils. The pots must be crocked with care to insure perfect drainage; the soil must be slightly pressed to make it firm, and the bulbs should be covered with just enough soil to hide them from view, but with their necks visible, say, for an inch or less. When potted, pack the pots together on a hard pavement in a sheltered, but cool place, and cover them two or three inches deep with cocoa-nut fibre refuse, or with coal ashes or with sand. If they are to be forced, you will be compelled to take them out in time to be in flower when wanted, but if to be flowered in a cool conservatory in their own time you must keep a watch that they do not make any great amount of top growth in the plunge bed. As soon as any begin to peep through, remove the material they are covered with, and put them into a frame or very cool house. If in a frame, shade with mats or canvas for a few days; if in a house, put them on the floor. The object in exposing them to a very subdued light is to assist the healthy colouring of the blanched portions without undue haste; but as the plants acquire a healthy green colour the shading must be removed, and they must be placed near the glass.

It now rests with the cultivator, to a great extent, to have a succession of flowers, or to have all in flower at once, or nearly so. When we talk of *forcing*,



ADIANTUM BOURNEI.

trumpet, the incomparable, and the poet's narciss. These are all so hardy that it is quite a rare occurrence for frost to touch them; but the polyanthus or tazetta section are often crippled when just ready to bloom, and are therefore not to be depended on as border flowers, save in the very favourable climates of the southern and western counties. There they are safe enough, and any good soil will suit them; but they require a somewhat shaded situation, for strong sunshine distresses their somewhat succulent leafage at the time when the flowers are being formed in the bulb for the next year. Even in London, however, the tazettas may be grown with success during a series of years, provided the winters are not late and not particularly severe. We have seen them on our heavy land on the northern side of the metropolis doing well for half a dozen years in succession. Then came a terrible winter, and many were killed, and the survivors flowered poorly, or did not flower at all.

It happens fortunately that as these daffodils require pot culture to be quite safe, so they are particularly well adapted for pot culture, and amongst the most valuable of our early conservatory flowers. And as the jonquil narciss is equally worthy of pot culture, a brief essay on the management of these two flowers may prove useful.

The bulbs should be potted as soon as they can be obtained, and the time of flowering of any or all can be in great part determined by the cultivator, who will regulate the treatment in accordance with his requirements. All bulbs should have as long a season as can be allowed for them to make roots

we usually make a distinction between that and *forwarding*, for all culture of hardy plants under glass consists in forwarding, even when no heat is employed. It should be understood, then, to prevent disappointment, that the tazettas and jonquils bloom in the most satisfactory manner when they are simply forwarded and not forced. In fact, the *Paper White Narciss* and the *Roman Narciss* are the only two kinds that force well, no matter how skilful the treatment may be; but all the kinds, including the hardiest of the trumpets and incomparables, may be forwarded in what may be called a "comfortable" temperature, without the heat of the stove or forcing pit. Keep them safe from frost, give them water liberally, keep them near the glass, and they will give you less trouble to flower them well than would a pot of chickweed or pimpernel; and even these might be worth growing in pots under some circumstances. As a matter of fact, we have seen both these British weeds grown in pots and exhibited, and we have had to adjudicate officially on their merits.

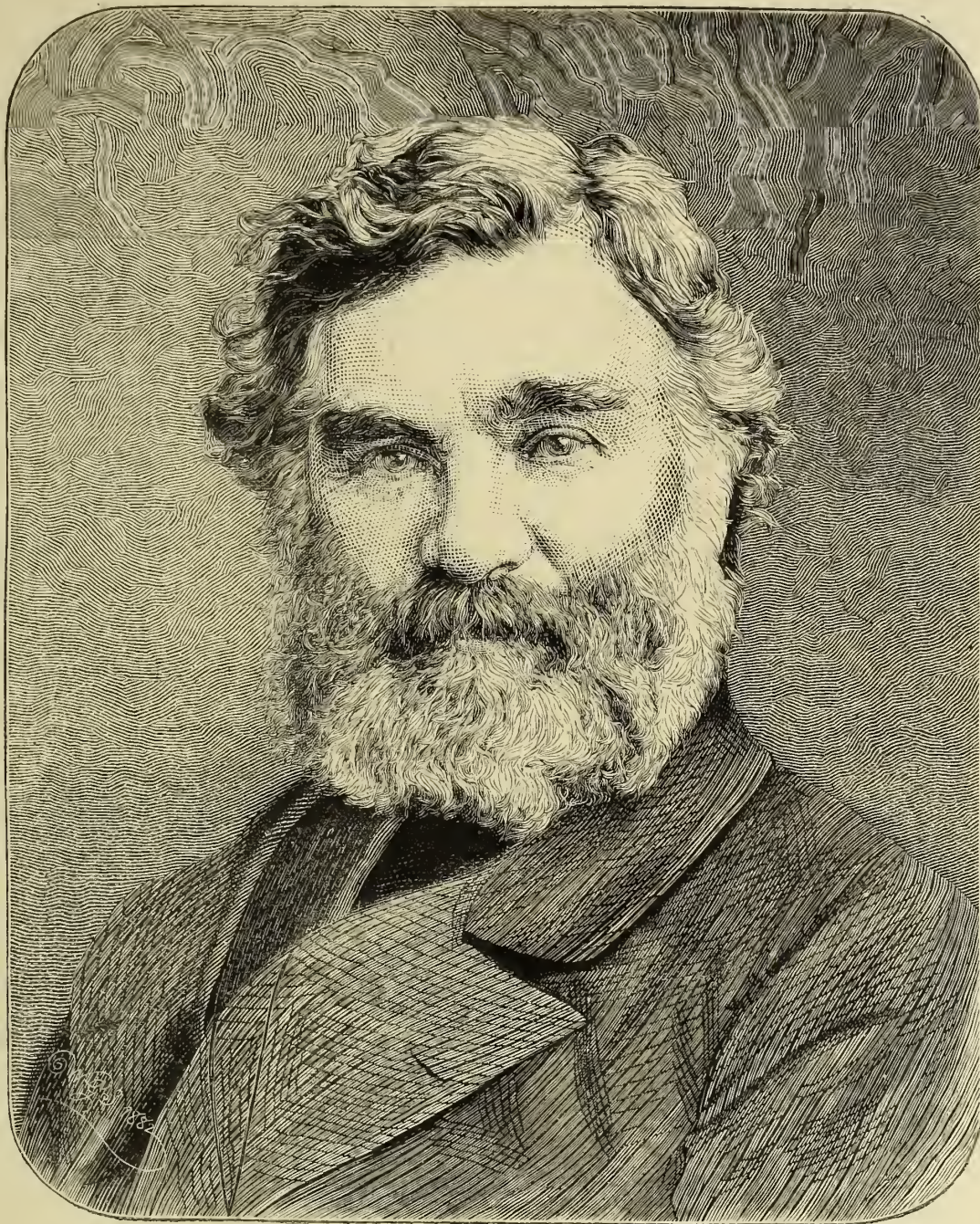
In the selection of varieties, the following should have first consideration amongst the thirty or more tazettas that are in cultivation:—*Bathurst*, primrose, with orange cup; *Bazelman major*, white, with yellow cup; *Grand Monarque*, white, with citron cup; *Groot Vorst*, white, with citron cup; *Jeune Suprême*, pure yellow; *Paper White*, pure white, very early; *Sulphurine*, sulphur, light yellow cup; *Roman*, double white, orange cup; *White Pearl*, pure white, primrose cup.—*Familiar Garden Flowers*.

DR. ROBERT HOGG.

ONE of the best known and most respected of representative horticulturists of the present date is Robert Hogg, LL.D. and F.L.S., editor of the *Journal of Horticulture*, and author of the "Fruit Manual" and the "Herefordshire Pomona." In presenting a portrait of this gentleman to our readers, both for their gratification and in testimony of our own respect for his person and his labours, we are reminded that a kindly human face associated with honourable memories makes the cheerfulness of pictures, whether in a gallery or a book. Dr. Hogg has but recently retired from some years of service as honorary secretary of the Royal Horticultural Society, an office he accepted at a time when all men knew that it was beset with difficulties and perils, and needed constant devotion and many sacrifices to ensure even a shadow of satisfaction to the agitated constituency that was to be represented. But Dr. Hogg saw the society rise once more to honour and usefulness, and we all know

In the year 1854, in conjunction with the late Sir Joseph Paxton, Mr. John Spencer, and Mr. Rivers, Dr. Hogg started the British Pomological Society, which had for secretary an able but unfortunate man, the late J. W. Davidson. This society rendered a much-needed service to one of the most important departments of horticulture. It not only discussed the merits of varieties and systems of cultivation, but collected a series of valuable statistics and reports which were embodied in the "Proceedings," these constituting at the present time a proper element of a pomological library. The society terminated its career in a way to prove beneficial to a growing corporation without ceasing to be useful to the public, for it became the Fruit and Vegetable Committee of the Royal Horticultural Society, thus continuing in a larger field the labours and the plans of the fathers of modern British pomology.

Prominent amongst Dr. Hogg's public labours must be reckoned the secretaryship of the great International Horticultural Exhibition of 1866, which most of our readers will remember. He was official reporter in horticultural sections at the Paris Exhibition of 1867, and one of the appointed delegates of the British Government at the great exhibition at Petersburg, in the year



ROBERT HOGG, ESQ., LL.D., F.L.S., &c.

that his guiding hand, governed by true horticultural instincts, and strengthened by great practical experience and knowledge of the world, was impressed with healthy vigour on the whole machinery, and to him must be the chief praise for the resuscitation.

Dr. Hogg was born at Dunse, in 1818, and his education, commenced in his native town, was completed at Edinburgh. He began life with singular advantages, being in the midst of horticultural industries and activities from an early age, and more or less associated with the men who were then leading the public in healthy ways in matters relating to botany and gardening.

Having written on several subjects, more particularly a "Handbook of Hardy Annuals," Dr. Hogg, in conjunction with the late Mr. G. W. Johnson, of Winchester, in the year 1848, started the "Journal," which we all look for on Thursdays for the earliest news of horticultural events. The sixty-eighth volume of this favourite periodical is now on the eve of publication, and the series constitutes a grand horticultural library that will be for ever useful, and for purposes of reference will increase in value as years go by.

1869, when the Emperor presented him with a malachite table in token of appreciation of his services.

Referring to our bookshelves, we find there Dr. Hogg's treatise on "The Dahlia," his "Vegetable Kingdom," "Fruit Manual," "British Pomology," and other works of permanent importance and value, that on the dahlia being especially prized by us, because it brings our esteemed friend into the ranks of the florists, and enables us to make the remark that in the order of nature flowers stand before fruits, and we take it that Dr. Hogg's tastes in early life were floral rather than pomological.

Youth knows but little of hard work, but manhood becomes accustomed to it, and time speeds as our labours accumulate. Nevertheless we expect much of Dr. Hogg in the future, and for the present watch anxiously for the successive parts of the "Herefordshire Pomona," which is the grandest fruit book of modern time. It is a comfort to meet the worthy author in his chosen field of activities, and to note that freshness and firmness of character correspond with his clear, definite, and forcible style of writing.

THE DAHLIA.

A PECULIAR interest is attached to an old Spanish book published in 1651, "The History of Mexico," by Hernandez, for we there find the first mention of the South American wild flower now known as the dahlia.

The original type was a single purplish flower of the composite order, with eight petals and a large yellow centre. Hernandez describes the flower in his book, and gives a drawing of it by which we can identify our favourite. The plant to which it belonged grew in profusion on the sandy elevated plains of Mexico, and all over the mountainous parts of the Spanish settlements of South America. We do not hear of its being found in a wild state in any other part of the world. The first cultivator of the dahlia whose name has come down to us was a Spanish botanist bearing the illustrious name of Cervantes, the curator of the Mexican Botanic Gardens. In the year 1798 he sent a plant to the Botanic Gardens of Madrid. The following summer it was seen in blossom there by the Abbé Cavanilles, Professor of Botany at Madrid. Cavanilles may be said to be the godfather of the dahlia, for he described it scientifically, and named it in honour of his friend and fellow botanist, Professor Dahl, of Stockholm.

In 1802 Cavanilles sent roots of his "*Dahlia*" to the Jardin de Plantes at Paris, and two years later the plant was introduced into England from seed sent from Madrid.

In 1804 Humboldt went to Mexico, where he found the dahlia growing wild, and collected seeds, which he sent to Berlin and Paris. He described three native varieties; *D. coccinea*, *D. Cervantesii*, and *D. variabilis*. From the seeds raised from Humboldt's plants came the dahlias of our gardens.

The first dahlias grown in England were gathered in 1806, and the first double dahlias were seen at Berlin in 1809. For some years the Germans got the start of us; then the French took up the flower and improved it; but for the last fifty years our English gardeners have succeeded in distancing all competitors. I think we may safely say that such names as Cannell, of Swanley; Keynes, of Salisbury; and Turner, of Slough; have no counterparts abroad.

It was very soon perceived that the Spanish flower was worth taking pains with, on account of its special merit of adaptability, and its surprising readiness in improving under cultivation.

Here therefore was as good a hobby as the florists could take up, and a few enterprising men in this country and on the Continent turned their attention to the dahlia, and determined to bring it to perfection.

Where botany ends floriculture begins, and the new plant grew under the hands of the gardeners till it became what we now see it.

There is nothing more noteworthy in the whole chronicles of horticulture than the care and attention which have been bestowed upon the cultivation of the dahlia, which is, from its history and associations, one of the most interesting plants in the garden. The taste for beauty certainly increases with the spread of education, and nothing is more curious than to notice the scant appreciation which those we now consider our most beautiful flowers received from some of our early writers. One old garden manual complains that the gladiolus increases too fast, and another tells us that the dahlia is a vulgar, gaudy flower, only worth growing because it comes out late in the year, when noblemen return to their country seats! (Who among those who attended the drawing-room held by Queen Dalila at the Crystal Palace last month was thinking of noblemen or their country seats?) In "*Flora Domestica*," published in 1823, a pleasant little book written with the feeling of a scholar and a genuine love of flowers, we read that "the double dahlia is as magnificent as the pæony itself!"

Several new forms have been introduced from Mexico during the last twenty years.

D. imperialis is a gigantic plant about 12 ft. high, with white drooping flowers. It is not quite hardy on account of blooming so very late, and must therefore be grown in a large tub and flowered in a conservatory. Introduced by M. Roezl in 1863.

D. arborea is another tall plant, 10 ft. high, with lilac blossoms something like anemones. Introduced in 1870.

D. gracilis is small and elegant, with finely-cut leaves and slender stems; the blossoms are orange-scarlet. Introduced by M. Roezl in 1873.

D. Juarezii, also called the Cactus dahlia, a singular and striking flower with flat pointed petals. It is semi-double, and the colour is a dazzling scarlet. Introduced in 1874 by Mr. Van der Berg, and first grown in England by Mr. Cannell, at Swanley, in 1879.

The Dahlia is not a difficult plant to grow, but requires and deserves unremitting care and attention. Being the result of horticultural skill and perseverance, it only pleases us when well grown, and an inferior dahlia is a disgrace to a garden.

The routine is pretty simple, but there are a few precautions that must not be lost sight of, such as staking the plants firmly, and keeping the roots dry and warm in winter. The best soil is a strong rich loam, well-manured and lightened with sand and leaf-mould.

The young plants are raised in heat, and planted out in the open ground when all danger of frost is over, which will be about the first week in June. If the weather is chilly, it is as well to cover up the little green plants for the first few nights with large flower-pots, which must be quite clean and dry.

Dahlias do not transplant well, so it is best to place them at once where they are intended to remain in a sunny sheltered position. After they have grown sufficiently three or four stakes should be placed round each plant, to which the leading stems should be secured, as they are hollow and therefore liable to be snapped off by the wind. The roots should not be more than four inches below the surface, and the soil should not come more than one inch above the collar. There is not much to be expected from the first few blossoms. Not only should all weak and imperfect flowers be at once removed, but all

side shoots should be ruthlessly nipped off to throw the whole strength into a few well-developed shoots. Some varieties begin blooming in August, but the flowers are not at their best till the hot weather is over. In September and October the Dahlia is in full glory, and the flowering season continues till the stems are cut down by the frost about the end of November. I keep a Dahlia plant in my garden as a thermometer. As long as the leaves continue fresh and green I know there has been no frost to signify.

When the leaves die down the tubers ought to be carefully taken up, left to dry in the air for a few hours, and then stored away in boxes full of sand in a place secure from frost, which injures the dry roots as much as the green plants.

When we remember the truly Darwinian process of development undergone by the Dahlia, we see in it a striking exemplification of the doctrine of evolution and the survival of the fittest.

Every autumn brings us some new conquest, so that there is really no limit to the progressive improvement of this noble flower, which is becoming year by year more beautiful. There is always one that we prefer before all others, and we can sympathize with the enthusiastic florist who exclaimed on seeing a new Dahlia of surpassing beauty, "This is the colour I have been looking for for years."

He was bound to find the colour he wanted at last, for there they all

are in harmonious contrast and exquisite combination—primrose, mahogany, lilac, maroon, pink flushed with carmine, mauve flaked with purple, crimson clouded with black, sulphur flamed with vermillion, silvery peach bordered with bright cherry, but there are not words enough in the English language to do justice to the colours of this marvellous flower.

I may mention in conclusion that I once heard of a blue Dahlia. It was seen by my mother many years ago in the south of France at a flower show organized by the priests in aid of a charity.

In the fervour of their zeal, these ingenious ecclesiastics had endeavoured "to gild refined gold, to paint the"—*Dahlia!*

October 21.

G. LAYARD.

CHRYSANTHEMUMS IN A LONDON GARDEN.

THE chrysanthemum is so peculiarly a London flower, and has been the subject of so much writing, and talking, and ecstasy, that at a first casual glance upon the subject I appear now to have dropped into a commonplace groove, and what I have to say may be forecasted to the last word. Yes, it appears so; but it will appear otherwise before the present story is finished. The man who knows absolutely nothing about London gardening may talk glibly about the chrysanthemum, and gain assent to propositions that, if put to any proper test, would prove to be ridiculous. It is quite an easy matter to say that the chrysanthemum is the favourite London flower because it thrives in a smoky air, and is not particular as to soil, and it flowers gaily when the summer is over, and therefore it is the very first thing to be secured in quantity and variety when a garden is newly made or newly furnished within the bills of mortality. Observations extending over full forty years, during thirty of which I have been a grower of the chrysanthemum, prompt me to say that instead of it being the first it should be about the last, that should be taken in hand of the man

good things that are adapted to beautify a London garden. In a certain garden of mine thirty years ago there was a collection of these flowers, comprising all that John Salter could supply, and they were added to as the new varieties came out, and there was no expense or trouble spared to do justice to them during a run of happy years. They were grown in pots and borders: they had every attention they could require, and in the flowering time a selection of the best pot specimens was arranged in a roomy orchard house for the annual home exhibition. It was a time of delight: there were friends expected from afar; there was eating and drinking and much talking; and occasionally perhaps a trifling catarrh or sneezing fit might serve as a salutary rebuke to the enthusiasm of the promoters. The chrysanthemum was at that time somewhat of a new thing, for the original chrysanthemum society was in its infancy, and there was much to be learned about the flower that by this time has been learned perfectly, although perhaps, as writers follow each other like sheep, the truth has not been made public as distinctly as seems desirable. It used to be assumed that chrysanthemums were so well adapted for London gardens that no one could have too many of them; and yet if you will now look about in London gardens you will see very few of them, and those few, perhaps, will be no particular credit to their owners. The fact is, the flower is not well adapted for London gardens except under peculiarly favourable circumstances, for the first requirement of good cultivation is a roomy glass house of some sort in which to flower the specimens. Without this aid there is always a strong probability of a failure; and with this aid there is wanted also systematic and spirited management, for when chrysanthemums are left to take care of themselves they but rarely realize the expectations of their owners.

To go back to the early days of the flower, when as yet it was but partially understood. It was the dream of those days that we should be enabled to fill the beds and borders with the large flowering and pompon varieties at discretion, and have glorious displays of colour in October and November. The good John Salter kept that dream always in his head, and he planted the beds and borders at the famous "Versailles Nursery," Hammersmith, to carry the dream into effect. Thirty-five years have elapsed since the late Dr. Denny entered upon his duties at the old dispensary near the Wesleyan Chapel in the High Street, Stoke Newington. His horticultural hobbies then were gooseberries, strawberries, and chrysanthemums. In respect of the latter he indulged the dream of an outdoor display, and was amongst the regular visitors to Hammersmith, where all was done that could be done to establish the chrysanthemum as a proper garden flower. But John Salter failed, and Dr. Denny failed, and the writer failed, and it seems to be a settled thing that without the aid of glass and systematic management with a view to flowering the plants under cover, failure will occur too frequently to permit us to regard the chrysanthemum as, in a general way, a desirable border flower.

In this department of London gardening success may always be ensured up to a certain moment. The plants grow freely, and in due time show a fine crop of flower buds, and are quite ready to expand their flowers, but they are now, in their humble way, in a position parallel with that described by Wolsey when, from his proud height of glory, he sank suddenly to ruin and disgrace—

"This is the state of man: to-day he puts forth
The tender leaves of hopes; to-morrow blossoms,
And bears his blushing honours thick upon him;
The third day comes a frost, a killing frost,
And, when he thinks, good easy man, full surely
His greatness is a-ripening, nips his root,
And then he falls, as I do."

Nor is the probability of a frost the only reason for hesitation and a second consideration of the matter. Heavy rains and dense fogs are scarcely less destructive, for they destroy with dirt, and in short, the climate of London is for the business before us altogether discouraging. During a run of five successive years Dr. Denny did not secure one good show of bloom on his outdoor chrysanthemums. As for John Salter, he continued to grow a lot in borders until the railway company turned him out, but it was only on rare occasions that he invited his friends to see them, because the mishaps they encountered kept them in a sort of permanent eclipse.

It follows that to begin well with chrysanthemums we must have the aid of glass. With this aid the cultivation is greatly simplified, and a good bloom is ensured. Moreover, having the flowers, we also have in the shelter they enjoy the convenience for admiring them without any terrible battle with the elements. And this brings before us an interesting subject, for we do not see much glass in London gardens, and it is not often advisable for occupants of London houses, even if the needful outlay is of no great consequence to them, to indulge in glass to any great extent. The fact is, as a rule, a few green trees make a better prospect than a range of plant-houses, but it is not well to ignore glass and its uses, and a capital return for outlay may be ensured by such as love chrysanthemums. It scarcely matters what classes of plants the house is filled with during ten months of the year, provided they are not stove plants, for they may all be provided for by make-shift methods during the two months the chrysanthemums are in flower. A considerable proportion may be put under the stages, others may be stowed away in pits, and very many will weather the storm in a paved yard where there are protecting walls and rough shelters at hand to ward off heavy rains and frosts. As the chrysanthemum goes out of flower they will be removed from the house and cut down and stowed away in a pit or frame to be operated upon when convenient, with a view to the growth of the next year. If there is no such shelter for them, they may be packed together in the driest and most sheltered place that can be found, and in the event of very severe weather a little litter or some

old mats may be thrown over them to save their lives. The chrysanthemum is a hardy plant and not easily killed. The reason we must have glass for reasonable enjoyment of it is that the weather is often unkind at the time of its flowering, and we may be sorely disappointed in respect of the beautiful display that should be the reward of our labour.

When the weather is kind in the chrysanthemum season, those in the open borders present such a cheerful appearance that one cannot but regret the nonconformity of the flower to the rules that govern the carnation, the pink, the phlox, and the pyrethrum, which need no aid of glass, but deck the common soil with their garlands, having first taken care to choose for their gala the very best of the summer season. The very best out-door display, *pur et simple*, that I can now call to mind has been many times seen in a garden in my own district, where the circumstances are somewhat peculiar. There is a long gravel walk connecting a house at one end with a garden at the other. The walk is broad and airy, and well favoured by sunshine, considering that it is bounded on both sides by brick walls about five feet high. The chrysanthemums are planted in narrow borders next the walls, and they are trained to the walls by lengths of tarred string, attached at intervals to strong staples, aided here and there with nails and shreds. The walls help them in times of severe frost and heavy rain, and even when dense fogs prevail those that are close to the wall are less soiled than those that lean away from it. But with these particularly favourable considerations, a good annual bloom is not secured; it is so much a matter of weather at a time when the elements are given to jangling.

The pompones offer materials for proper garden decoration, and were they to be fully trusted it cannot be doubted we should see them in the parks and public gardens in all parts of London during the dull November. The best examples of bedded pompones are undoubtedly those to be seen in the Temple Gardens, and we can so ill afford to spare them that we prefer, in this connection, to look at the bright side of the subject only. When they bloom well they are indeed beautiful, and they seem to crown with glory a sunny November day, when the asthmatic Londoner can find the courage to turn out of Fleet Street and devote half-an-hour to the two gardens which appear to have been designed from the beginning of the world for the accommodation and vindication of this particular flower. But the Temple pompones are not to be regarded as affording examples for practice in private gardens. The late Mr. John Dale, who brought the thing to the highest possible perfection in the little garden of the Middle Temple, allowed the pompones to occupy the beds the whole year round. They were replanted, with new arrangements as to colours, every spring, and thus the beds were flowerless all the summer. And at the end of the story the weather had to determine for flowers or no flowers, and occasionally it determined the wrong way. Thus, the best experiment does not justify the words of those who declare the chrysanthemum to be the most useful of all the London flowers; and yet the truth remains that it is a grand thing and a comfort and joy when handled with skill and provide with glass for the season of flowering. MOSES.

The Household.

THE SOUP MAKER.—No. I.

THE subject of soups, like many another subject, may be considered under two heads, the general and the particular. The first should serve as the foundation on which the other is to be constructed. There are certain features common to all soups, or to nearly all soups, and these must be understood before any special or peculiar soups should be attempted. The writer is of opinion, whether rightly or wrongly, that the humblest as well as the most elaborate dinner may be regarded as a proper occasion for serving soup. At thousands of middle-class and working men's tables soup never appears, and it is too often regarded as a troublesome superfluity. But the truth is, it holds an important place in a nourishing dietary, and all who can accomplish it should make it a rule to include soup in the daily bill of fare. It helps the frame quickly, because it is easily assimilated, and when wisely managed it renders nutritive and savoury many scraps that are habitually wasted in homes where soups are unknown. It is quite sad to see bones transferred from the larder to the dust-bin for the advantage of the rats, instead of being first stewed down to make a wholesome soup. Many other sources of this kind of food are wasted in like manner, such as lumps of gristle, the trimmings of joints, and remainders of chickens, for these last are rarely finished up after the best of the meat has been taken from them.

Those who are unaccustomed to soup-making look upon it as a very great business, and perhaps more trouble than it is worth. The fact is, the task is an extremely easy one; it should cost nothing for firing, very little for material, and should result in a most welcome addition to the daily dinner, and occasionally to the supper also.

The very first idea should be to turn to account all possible waste, and we begin with a stock pot having a lid which fits with a twist, and is practically air-tight when in operation. In all the hours when the kitchen fire might be earning nothing this stock pot is at the side of the fire melting bones and trimmings into gravy.

It may be that the stuff put into the pot was extra good—say some slices of leg of beef, a mutton bone, a ham bone, and some scraps of chicken. In this case it will be good practice to turn it out through a colander into a basin, and put on a second water and start it simmering again. In this case it may be put over the fire when the house is shut up to cook as long as it can over the embers, and the cooking may be continued next day, for all good meat—leg of

beef especially—will bear two cookings with advantage, and should, in fact, be stewed to rags before being thrown away; and then—if you have no particular use for it—the best way is to put the rags in the fire, for it is a question if even a dog can get anything out of them, and prompt destruction saves it the trouble of becoming offensive.

The first stock should be a strong jelly, with a film of fat or oil upon it. The second, when cold, will be a weaker jelly and of a paler colour. If made from mutton or lamb only it may be like thin white gruel. In any case the fat should not be removed until the stock is to be used, and then it should be removed completely. You may mix two lots of stock together, or you may use them separately for different kinds of soups; but you very rarely need have a strong stock, for heavy soups rather stop one's eating, whereas light piquant soups may be sufficiently nourishing and yet may provoke rather than destroy appetite. We will take a quart of our stock for a quickly-made family soup. It must be free from grease and from scraps, and of the strength of a light jelly. To finish it we mix in a basin one tablespoonful of flour with one tablespoonful of Worcester sauce and one of ketchup, with a very little pepper and salt. The flour must be beaten quite smooth, and a little stock added if the sauce is not sufficient to properly moisten it. Add this to the stock, boil it up, stirring occasionally to prevent burning, and you have a savoury and useful soup, costing very little, and in some circumstances costing almost nothing at all.

To make a better soup will entail but little more trouble. Take four pounds of leg of beef, and add any bones you can find. Cut up one turnip, one carrot, and one large onion, cover with two quarts of water, and let it come to the boil very slowly, the slower the better, and when it boils remove the lid and skim it well. Then put on the lid and draw it away from the fire, so that it will simmer slowly. At the end of two hours turn it all out into a colander, standing in a large bowl. Then return all the meat and vegetables to the pot, cover again with two quarts of water, and let it cook until it is reduced to rags, taking care to add a little water to make amends for what is lost by evaporation. The first stock will, when cold, be a clear bright jelly of a golden brown colour. Take some vermicelli and break into short lengths as much as will twice fill a table spoon. Put this in a small enamelled pot, cover with cold water, and put it over the fire. The moment it boils pour away the water, and you have what is called "washed vermicelli," as white as snow. This will suffice for one quart or three pints of the stock. Add two tablespoonfuls of Worcester, a nugget of Liebig extract the size of a walnut, half a table spoonful of vinegar, a very little salt, and a shadow of cayenne pepper. When nearly boiling serve. In taking the stock for this do not dig down to the bottom of the bowl, but having removed every scrap of the surface grease, take all the jelly from the top, and you will have a beautifully bright soup with white threads of vermicelli, the flavour piquant, the quality beyond reproach. If macaroni is preferred to vermicelli, break up a few sticks and boil in clear water, with a little salt, for twenty minutes. It must be quite tender, but not split. Then drain them thoroughly and put them in the soup. In place of these you may add tinned peas or a little finely minced carrot, cooked just enough to be tender.

The second stock and the bottom of the bowl of the first stock will come in well for pea-soup, and any other thick soup. In the case of pea-soup you want a celery flavour; therefore, if intending the second stock for this purpose, add, when putting on the meat for the second cooking, a few of the outer tough sticks from a head of celery, or a little celery seed, or half a dozen stems of Alisander, which is an old-fashioned cottage garden vegetable that gives a very spicy celery sort of flavour to soup. The tedious system of stewing down peas for pea soup may be evaded by using pea flour. Mix in a bowl three tablespoonfuls of the pea flour with one tablespoonful of ketchup and one of Harvey's sauce; or if these are not at hand, mix with stock, and add a dessert-spoonful of moist sugar, a rather liberal allowance of black pepper and salt, and boil up with one quart of stock. As pea flour does not readily burn it will only be needful to stir it once or twice, and it will be quite smooth, and a very savoury soup. Some people like a little dried mint powdered in it, but it is not needful.

X. Y. Z.

EUGENE VERDIER'S GLADIOLI OF 1882-83.

ABRICOTE.—Flowers large, with finely rounded segments; colour rosy orange, shaded with lilac. A beautiful variety, late and vigorous.

A . . . P . . .—Flowers of full size; colour very bright scarlet, spotted and bordered with creamy white. Very distinct.

BAYARD.—Flowers large and of beautiful form; colour bright red-carmine shaded with lilac, and marked with a white line down the middle of the petal. Very vigorous in growth.

BICOLOR.—Flowers of full size; colour bright rosy salmon, except the two lower petals, which are ivory-white, suffused with rose at the edges. Remarkably distinct.

FATIMA.—Flowers very large and of beautiful shape; colour ivory-white, striped and washed with bright rosy salmon and spotted with violet. Dwarfish growth.

FEU FOLLET.—Flowers large and of superb form; colour ivory-white, very beautifully tinted and striped with carmine-red towards the edge of the petals.

GLOIRE DE FONTAINEBLEAU.—Flowers large and of fine form; colour rose-carmine, striped and feathered with red at the border, and with a white line down the centre of the bottom petal.

GRAND ROUGE.—Flowers very beautifully formed; colour red-scarlet, marked with a small violet coloured spot. Magnificent and effective variety.

NERIDE.—Spike long and stout; flowers of full size and with fine petals; colour bright rose, shaded with lilac and spotted with clear violet. Very charming.

PEPITE.—Spike of medium size; flowers of good form; colour golden yellow, striped with carmine at the edge of the petals. A pretty little variety.

The House, Garden, and Apiary.

SWEET AND SOUR.

Sweet is the Rose, but grows upon a brere;
Sweet is the Junipero, but sharpo his bough;*
Sweet is the Eglantine, but pricketh nore;
Sweet is the Firbloomo, but his branches rough;
Sweet is the Nut, but bitter is his pill;†
Sweet is the Broomefloure, but yet sowre enough;
And sweet is Moly, but his root is ill.
So every sweets with soure is tempred still,
That maketh it be coveted the more;
For casio things that may be got at will
Most sorts of men do set but little store.
Why then should I account of little payne,
That endlesse pleasure shall unto me gaine?

EDMUND SPENSER.

THE HOUSE.

STORE rooms must have careful attention at this season of the year, and all stores should be looked over, and all store rooms well cleaned out. Whatever old stuff is worth using should be set aside for use at the earliest opportunity, and what has become worthless should be destroyed. As a matter of course a regular washing down of shelves and floors will be part of the routine of this rummage. But it is open to question whether it is a good feature. It all depends. The clear out is certainly needed at this time of year, but a place that is liable to become damp in winter should not be wetted, and it can be kept clean and swept without the customary soap and water. Having swept out all dust, and brushed the walls, let the shelves and floor be vigorously rubbed with a coarse cloth a little damp, but not wet. This will take up all the dirt that has escaped the broom, and will effect a thorough cleaning without introducing the dangerous element of moisture. Store rooms should, if possible, be dark as well as dry, but on that point it is difficult to speak with decision, because the persons who use the room must have light to a certain extent.

THE GARDEN.

ASPARAGUS may be forced by the roughest of methods where there are plenty of leaves and large deep pits. Make up a forcing bed on a plot of spare ground by means of a few boards to form the boundary of the pit, or turf walls where turf is plentiful. Five or six feet of leaves, without manure, will do very well, and when the roots are planted rough boards put aslope to carry off rain and snow may be used to cover in lieu of glass frames. During hard weather any amount of dry litter may be heaped over, and a supply of this delicious vegetable be had for the mere cost of the roots in the first instance. Asparagus should have air and light when the shoots appear, as it is valueless unless the tops have two inches or so of green growth.

CAULIFLOWERS will be turning in now, and possibly those coming forward will be all the better off for being covered with a leaf to protect the heads from frost. If the barometer rises steadily and the wind goes round to north or north-east, cut all the best Cauliflowers and put them in a shed or any out-of-the-way place safe for use.

FORCING to be commenced now, and in accordance with hints already given preparatory to it. First clean the glass to make sure of the utmost possible amount of light; then collect the fermenting materials—leaves and sweet dung chiefly—and over this lay six inches of tan or spent hops to plunge the pots in. Put in nothing but what has been prepared for the work, and has ripe wood and well-formed flower buds.

ORCHIDS at rest to be kept moderately dry and ventilated. Endeavour to make them rest completely, as if they do not enjoy a season of complete repose they will not bloom so satisfactorily next season. Those that do not naturally rest to have the warmest positions, but even these are not now to be encouraged to grow more than sufficient to keep them in health.

PEAS.—The sowing of Peas now is not recommended for cultivators generally, but for those only who are so circumstanced that they may adopt the practice with some prospect of success. If it is determined to sow, select for the purpose a nice, dry, light, well-drained sunny border safe from mice, slugs, and not overmuch frequented by sparrows. Any of the first earlies will serve the purpose, and it will be advisable to sow two or three sorts rather than one only.

ROSES planted now, though with leaves still on them, will begin to make fresh roots at once. In any case make the ground ready by manuring liberally where roses are to be planted. Plant firm and stake at once.

SUCCULENT PLANTS must now be arranged in their winter quarters. In a mixed collection the best place for them is a top shelf in the full light, and where they are not likely to suffer by the drip. The requirements for their winter safety are a dry position, plenty of light, air when needful, and security from frost. Give them no water from this date, or at most water with caution only such as obviously need it; and any in active growth or flower keep warm until they go to rest.

TRENCHING VACANT PLOTS is one of the most important operations now requiring attention, and it may be well to state that the most excellent results may be ensured by deeply trenching the soil and laying it up in ridges to be fully exposed to the weather. Many really bad soils become good soils when broken up deeply and mixed with a portion of the subsoil, even though that subsoil may be by itself as bad as the other. On deep yellow loams trenching two spits deep is equal any time to a dressing of manure, and generally of far more importance than any amount of manuring. Old garden soils are often sick and sour with manure, but a deep stirring brings into action the fresh untilld earth beneath, with all its dormant powers ready for useful action under the influence of the atmosphere. It will always pay when labour is scarce to make work for labourers in deep tillage of garden and allotment grounds; the process is nothing less than a complete renewal of the soil wherever the material exists below for the purpose. Of course where there is only a thin layer of vegetable earth over hard rock or gravel the case is different, but very often some of this unpromising material improves the staple when broken and mixed with it.

* Pronounced as buff.

† Peel, or rind

THE APIARY.

The bees are now in a very quiet state, and in apiaries that have been judiciously managed very little work will be necessary until the end of February. A few matters, however, require attention, and one of the first that should be attended to is the placing of the hives in their winter quarters; where it has not been already done. Those who have a preference for placing the hives in houses or bee sheds for the winter months should take them under cover at once, for they ought not to be much longer exposed to the weather without receiving efficient protection. But it is decidedly better for the bees to place the hives on stands in suitable positions in the garden, and allow them to remain in them throughout the year, with such protection as may be found necessary. It is of the highest importance that the bees should not be subjected to great changes in the weather, or be exposed to the injurious effects of damp. Therefore the materials with which the outdoor hives are covered should be warm and able to throw off the rains. It is a good plan to wrap old felt carpets, old sacking, or some other warm material, about the hives and then cover with tarpaulin to throw off the wet; but in every case the openings for ventilation must be left quite free. Failing the tarpaulin the hives may have coverings of metal or earthenware, should such be available.

Notes of Observation.

WHERE ARE THE GOOD POTATOES?

IN reply to "One who," &c., I should say, "In lots of places"; and I am very glad he did not ask, Where are the good cooks? because then, perhaps, I should have to reply, "Nowhere." Like him, I used up my stock of delicate early potatoes because they were too good to be left to fester; and then, like him, I trusted to the nearest shop. Then I had one day good and the next day bad potatoes, and I asked my cook what she meant by crying potatoes with variations, and she told me that she did her best, for she sent her kitchen-maid daily to Mr. Sprout's to pick and choose, and she picked the handiest she could find. Then I remembered a proverb that it appears Solomon never thought of, but which my mother more than once has whispered in my attentive ear. It will perhaps startle "One who," for the words are, "If you want a thing done do it yourself." So being in town the next day I called at the Civil Service Stores, and asked, "What sort of potatoes are you selling now?" To which the youth urhanely answered, "Myatt's," and thereupon showed me a capital sample, which I at once recognized as our grand old man the Magnum Bonum. I ordered a sack, which cost 11s., and the deed was done. I am perfectly content. My guests say, "What nice potatoes!" and I say, "Yes; you really want two things to make a comfortable dinner—a good potato and a good cook, and being blest with both I am the happiest of the happy."

ALPHABETAGAMMA.

ALISANDERS, OR ALEXANDERS.

It is commonly believed that this old potherb has long been extinct, but in many Midland districts, especially where mining is a leading industry, it will be found in the cottage gardens, and is regularly employed in the flavouring of soups. Amongst a similar class on the Continent the plant is in equal favour, and, in fact, it takes the place of celery where this latter plant is not grown. It is a British plant that may often be met with on waste ground near the sea, and seems partial to ruins. It is the *Smyrniun olusatrum* of the books, a plant of ancient renown for its mild aromatic flavour. When in vigorous growth the leaves reach a height of two to three feet, the stems are stout and deeply furrowed, the leaves alternate, a vivid green colour, the whole plant very closely resembling celery. It does not flower the first year, but in the second puts up a head of yellowish-green umbels, which are followed by black seeds or nuts. Although belonging to the suspicious umbelliferous order, every part, root included, is perfectly wholesome, and when put into soup communicates a flavour similar to that of celery.

W.

PLANT LABELS AT KEW.

In walking through the Royal Gardens at Kew a few days since I was struck by the defective labelling. Perhaps I should have thought less of the matter had I not heard Mr. Hibberd's recent lecture on the subject, which instilled in my mind certain principles, number one on his list being the imperative need for legibility. In the rockery legibility is very much wanted. Only those who know the plants, or, at all events, are very familiar with plant names, are likely to be able to read the labels. Some nice zinc labels, evidently of the cheapest sort, have been inscribed with highcloride of platinum, and would answer admirably if more plainly written. I noticed that the wood labels were written from the bottom instead of from the top, so that the first letter will go first instead of the last when decay begins. The permanent labels on the big trees are ancient and often obscure. I quite agree with our Editor that a printing press should form part of the "plant" in the labelling department of every important garden.

W.

CHRYSANTHEMUMS IN OCTOBER.

It may interest many of your readers to have a note on chrysanthemums that have been flowering here for some weeks past. During the month of October I cut from 400 plants about 3,000 blooms, a very large proportion of which were good enough for a stand of twenty-four or twelve. The varieties comprised Red Dragon, Criterion, Peter the Great, Bouquet Fait, Sarnia, Fulgore, George Gordon, La Charmeuse, Fair Maid of Guernsey, Mdme. B. Rendatler, Mr. Bunn, White Beverley, Golden Beverley, Aurea Multiflora, Beethoven, Elaine, Chang, Harlequin, Mons. Crousse, Alba Plena, Ethel, James Salter, Mrs. George Rundle, Mr. Cobay, Plantagenet, Yellow Perfection, and Prince of Wales.

St. John's Nursery, Putney.

G. STEVENS, F.R.H.S.

TOMATO "NISBET'S" VICTORIA.

Those who cultivate Tomatoes under glass should make note of this very prolific and fine flavoured variety. The first week in June last I planted twenty-four plants from large sixties in a narrow border made up of ordinary potting compost in a span-roofed house that is used for wintering bedding plants; they have made a vigorous but short jointed growth, setting fruit most abundantly about the size of a Victoria Plum in large bunches, some of the bunches with as many as twenty fruits and upwards each. The enormous crop produced in the short space of room and time has astonished many visitors who are interested in the cultivation of this wholesome and useful fruit. Even at this late period of the season the fruit continues to set freely, and without doubt would so continue for several months to come had the house not been required for other purposes.

R. B. M.

BEGONIA "LOUISE CHRETIEN."

Lovers of ornamental foliage plants will find this begonia one of the very best among the large number now in cultivation; it is of a nice compact habit, and the colouring of the foliage is exceedingly rich; it is very effective for indoor decoration, either used singly or grouped among other plants.

R. B. M.

DAVALLIA MOOREANA.

This noble species, introduced from Borneo some years since, still ranks as one of the best ferns in cultivation. As a large specimen it is a most desirable fern in the exhibition collection. Small well-grown plants in five-inch pots will be found most useful for indoor decorations, and the cut fronds of a moderate size have a charming effect in the arrangement of cut flowers, lasting fresh for a considerable time.

R. B. M.

THE WINTER CHERRY.

The little herbaceous plant known as *Physalis alkekengi*, the winter cherry, is the real fire-fly of the rockery now. My plants are literally loaded with the crimson-scarlet glowing globes that pass for cherries, although, instead of being filled with sweet pulp, they are full of wind. To grow this beautiful herb is easy enough, as it may be raised from seed with ordinary frame treatment, and may be planted out in early summer to remain and weather the winter, for it is quite hardy. As a plant for skeletonizing it is invaluable, but as a "winter cherry," or a heap of red hot coals, it is glorious in the garden at this time of year.

W.

THE WOOLLY ANDROSACE.

Almost alone on the rockery, this lovely alpine still keeps in flower, and obtains attention because the competition is reduced. A few armerias and polygonums show dots of colour, but can scarcely be said to be in flower. But this androsace is fresh, and showing flowers in plenty of a delicate lilac-rose colour on a mat of glaucous grey leaves. It has been flowering since the first week of August.

W.

PELARGONIUM LORD CARLINGFORD.

One of the most desirable among the silver variegated section for hedging purposes; the habit compact, and the rich crimson flowers produced in good trusses above the silvery foliage, have a very pleasing effect.

R. B. M.

CHRYSANTHEMUM MADAME DESGRANGE.

I quite agree with Mr. Orchard respecting the Chrysanthemum Madame Desgrange. It made one of the best beds at Hampton Court Gardens this autumn. I thought the carpet bedding there very good. I missed the blue lobelia, the purple verbenas, and the calceolarias we used to see some years back. I have seen some good heds of them in the past season, and another good hed I fancied was Sutton's dwarf cockscomb; but this I did not see at Hampton Court. It lasts a long time in flower, and the colour is rich. I do not think we ought to let these old things die out, because of the variety of colour they give.

JAMES HUNTER.

Chertsey.

ROSE TEA-SCENTED CANARY.

The lovely buds of this rose are always eagerly sought after for button-holes, yet how often we hear many express their regret at their inability to grow it successfully out of doors on account of its delicate constitution. I have a plant of it doing remarkably well among a collection of tea-roses planted against the low wall of a greenhouse with a south aspect, not trained in any way, but merely treated as a dwarf bush; it withstood the severe winter of 1880-81 with no other protection than about four inches of coal ashes placed round the plant to guard off any excess of moisture.

The Nursery, West Drayton.

R. B. MAKOWSKI.

Replies to Queries.

Names of Plants.—In paper box, No. 1, not sufficient for identification; 2, *Sedum verticillatum*; 3, *Rivina humilis*.

Carnations.—Novice.—The plants are evidently in a bad state at the roots, owing probably to a sour state of the soil. We would advise the watering to be done with the greatest care.

Mount Gambier.—The current pronunciation of cyclamen is *sick-la-men*, but it is scarcely improper to put the accent at the second letter and give a full vowel sound, as of *sigh*, to the first syllable—*cy-clamen*. But the first is the strictly proper way.

Pompones in Beds.—Victor would be likely to err if selecting from catalogues, unless a general mixture is required. But if it is intended to plant the beds with a geometric arrangement of colours, then the varieties should be selected when in flower, not only to be certain as to their shades of colour, but as to their flowering simultaneously. If Victor will refer back to some of our reports on the late Mr. Dale's mode of planting the heds in the Middle Temple gardens he will obtain the best of information ever gathered upon this subject, for Mr. Dale had more complete success than any other man before or since.

Caladiums.—J. S., Yorkshire.—Unless you are much pressed for room allow the corms to remain in the soil in which they were grown during the past summer, as there is less risk in wintering the corms in that way than in shaking them out and storing in dry sand. The pots should be laid on their sides under the stages of the stove, for a moderately high temperature is not less essential to the preservation of the corms in a sound condition during the season of rest than an abundance of heat and moisture during the growing period. From 55 deg. to 60 deg. is the safest temperature for caladiums throughout the winter.

Rhubarb.—Single handed.—The forcing of rhubarb may be commenced very shortly after the leaves have died down. Select a few good roots, according to the supply required, dig them, and let them lie on the surface of the ground for a week or so, with a covering of leaves or loose litter over them, then place them in large boxes with soil packed firmly about them, and place in a structure in which the temperature is about 60 degrees. It is not an important matter whether the rhubarb is in a structure in which it receives the full light or is in darkness; but it is of the finest flavour when produced in a subdued light, such as of a house of which the roof is covered with cumcumbis or grape vines. The water supply should be abundant, without being excessive, after new growth commences, and previous to that the soil should be maintained in a nice moist state. Rhubarb, as you are doubtless aware, may also be forced in the heds with the aid of fermenting materials. In forcing it in heds, turn some rather small casks, from which the ends have been knocked out, over the crowns, and heap over them either manure or leaves, or a mixture of the two. Whether forced in heds or under cover a fresh batch should be started about every three weeks up to Christmas.

Woodlice in Mushroom House.—H. F. M.—The woodlice may be readily trapped with small pots, lightly filled with dry hay. Employ five-inch pots in a perfectly dry state, and fill them somewhat loosely with hay, which also must be quite dry, and then lay them on their sides on the bed and about the house. The woodlice will congregate in the pots, and may then be shaken into a vessel of hot water. The most expeditious way of disposing of the pests that are trapped is to take the pot in one hand and with the other withdraw the hay and shake the woodlice into the water. It is also a very good plan to pour boiling water into all the crevices within the house in which the woodlice are likely to take refuge.

Plants for Corridors.—W. L.—For covering the walls of the corridor, which you represent as occupying a rather dark corner, you will find the camellias most useful. They will not cover the wall space at a very rapid rate but they can be depended upon to make steady progress, to bloom satisfactorily, and to present a pleasing appearance at all times. Few other plants would remain long in a satisfactory condition for any length of time in consequence of the deficiency of light. The roof should not be covered with a dense canopy of foliage, but instead be very lightly festooned, the best plants for the purpose being the red and the white *Lapagerias*. These two beautiful climbers thrive under much the same conditions as the camellias, and, like them, require but little artificial heat during the winter to keep perfectly safe.

Lily of the Valley.—B. W.—The single crowns are much better than the clumps for early forcing, and those of Berlin growth are preferable to those from Holland, as they start more readily when subjected to artificial heat, and come quickly into bloom. They can be grown in pots of any size you choose, but those five and six inches in diameter are the most suitable. From fifteen to twenty crowns will be required for each pot; the number to be relatively greater for pots of larger size. The crowns can be started almost immediately they are potted, and they should be covered with leaves, cocoanut fibre refuse, or some other loose material, until the foliage and flower spikes are pushing freely. A brisk hot-bed will be of great assistance; in fact, will be imperatively necessary in the production of flowers for mid-winter.

Monochætums.—W. F.—These are warm greenhouse plants, and may, without difficulty, be had in bloom during the autumn and the greater part of the winter. The proper course is to raise a stock of plants from cuttings struck in the spring, and to grow them during the summer in a warm and rather close pit or house. They will require stopping two or three times and be shifted twice. They must not have too much pot room because of the delicate character of the roots. When large examples are required, put the young plants, when taken from the cutting-pot, in three-inch pots, four plants in each, and shift them on without separating them. By this plan good examples can be produced with but little trouble in stopping and training. The most suitable compost is one consisting of fibrous loam, turfy peat and leaf-mould in equal proportions, and a rather liberal sprinkling of sand. The flowers of the different kinds are of various shades of rosy purple.

Lawn.—Subscriber.—The uneven surface of the lawn may soon be remedied, and this is a capital time for dealing with the matter, as turf moved now will hardly feel the removal, provided it does not remain rolled up for any length of time. The first step will be to carefully pare off the turf in strips of a convenient size for handling and roll it up and place in heaps in convenient positions. The next step will be to level the surface, and in doing this the soil placed in the hollows must be made as firm as possible, otherwise it will sink and leave depressions. When this has been done lay down the turf with perfect regularity and well beat it with the back of the spade or one of the wooden beaters generally used. As you have not had much experience the best course will be to call in the aid of a neighbouring nurseryman, as few ordinary labourers could properly level the ground without the supervision of someone skilled in ground work.

Autumn Sown Peas.—J. B., Chippenham.—Once upon a time peas were commonly sown in autumn in gardens, but comparatively few follow the practice now, owing to the frequency of failure. The seed will generally start well, but then it has to contend with frost, wet, and vermin. We think failures are often attributable to early sowing, the plants making too much soft growth in the warm autumn days and suffering proportionately from frost later on. The conditions needful to success are an open situation, a dry seed-bed on a well-drained soil containing no recent manure, the seed to be sown from the last week of November to the middle of December, and a winter not more severe than what we call an average. For the last condition you must take your chance. As for the others, you must use your discretion. In any case, it is sheer waste of seed to sow peas before the turn of the year on heavy land unless the drainage is perfect and the situation high and dry. As regards sorts, earliness is everything—it will stand before quality; still the higher the quality the better. Ringleader, or Dickson's First and Best, may prove serviceable. Hooper's Earliest of All would be a perfect pea for market if it came through the winter well, and it is as hardy as any of the white peas, and altogether better. The best crops of winter sown peas we have seen in the open field were William the First, and they paid prodigiously, for they were grown for seed when the price was high; the winter did not touch them, and they ripened off in good time for turnips. In our own practice we have not often had good luck with winter sown peas, our land being too heavy and too damp. But we have occasionally secured early gatherings by selecting a very open spot and laying the land up on broad ridge and furrow, and sowing on the tops of the ridges. From the time the briard appeared, we dusted with wood ashes occasionally. Ringleader and Sangster's No. 1 answered well this way, but Advancer perished, so that when the growing season came there was not a plant left out of about a hundred yards' run. But making note of the work through a series of years we have found that on heavy land peas sown from February 25 to March 25, as a rule pay the best.

Chrysanthemum Exhibitions.—Country Gardener.—There are public exhibitions of chrysanthemums this season, as we have already intimated, in the Temple Gardens and Finsbury Park, and both may be readily reached from any part of the metropolis. The exhibition in the gardens of the Inner Temple is already open, and that in the Middle Temple will doubtless be opened in a few days. The most convenient way of reaching the Inner Temple exhibition is from the Thames Embankment, and the show in the gardens of the Middle Temple by the Middle Temple Lane. The exhibition in Finsbury Park is within from ten to fifteen minutes' walk of Finsbury Park Station on the Great Northern Railway, the Stamford Hill Station on the Great Eastern Railway, and the Green Lanes Station of the Midland Railway. You should also see the displays in the nurseries of Messrs. J. Veitch and Sons at Chelsea, and of Messrs. S. Dixon and Co., at Hackney, the last-mentioned nursery being within five minutes' walk of the Hackney Downs Station, G.E.R.

Storing the Roots of Cannas.—Amateur.—The roots of some of the hardiest of the cannas can be left in the ground throughout the winter with perfect safety if the ground is rather light and thoroughly drained, and a covering applied to the beds to prevent the frost penetrating deep enough to reach the roots. The choice hybrids of recent introduction cannot be left in the beds without great risk, and should therefore be invariably taken up and stored under cover. Generally speaking, the best course is to lift all the roots and store in a cellar or shed. Take them up with a moderate quantity of soil, and place them on the floor of one of the fruit houses for a few days to allow the soil to become dry, and then place in a cool cellar or shed and cover to a depth of twelve inches or so with dry sand or soil, the former being preferable to effectually exclude the air. In March remove from the store, and put them in pots or boxes in readiness for starting into growth.

Abutilons.—Young Gardener.—The majority of the new race of dwarf glowing Abutilons are of much value for winter decorations and supplying cut flowers, but, like the bouvardias, the zonal pelargoniums, and cyclamens, they require during the winter more warmth than the ordinary greenhouse affords. A small cucumber or melon house is a capital place for plants requiring an intermediate temperature, as they can be readily afforded the requisite degree of warmth, and at the same time occupy a place within a short distance of the glass. Strong bushy plants well established in five or six inch pots will with careful management yield a plentiful crop of flowers between now and March next, and to obtain these it is necessary to strike the cuttings early in the summer, and to grow them on vigorously until the autumn. A few of the best are Boule de Neige, white; Aureum globosum, bright yellow; Marie, rose; Fire Fly, bright red; Lemoinei, light yellow; Princess Fire King, orange-red, veined with deep red; Lemoinei, light yellow; Princess Marie, rose; Fire Fly, bright red; Crimson Banner, rich crimson. Small plants purchased now and shifted on in February and then placed in a brisk temperature would furnish a supply of cuttings in the spring. They would be much better than plants purchased in the spring.

Markets.

COVENT GARDEN.

FRUIT.	
Apples.....per ½ sieve	3s. 0d. to 6s. 6d.
Cob Nuts.....per lb.	0s. 6d. „ 0s. 9d.
Grapes.....per lb.	1s. 6d. „ 3s. 6d.
Lemons.....per 100	5s. 0d. „ 8s. 0d.
Pears.....per 100	1s. 0d. „ 2s. 6d.
Pine-apples, Eng.....per lb.	3s. 0d. „ 4s. 0d.

VEGETABLES.	
Artichokes, Globe, per dz.	3s. 0d. to 4s. 0d.
Beet.....per doz.	1s. 0d. „ 2s. 0d.
Brussels Sprouts, per ½ sv.	2s. 0d. „ 3s. 6d.
Cabbages.....per doz.	0s. 9d. „ 1s. 6d.
Carrots.....per bunch	0s. 4d. „ 0s. 6d.
Cauliflowers, Eng., per dz.	2s. 0d. „ 4s. 0d.
Celery.....per bun.	1s. 6d. „ 2s. 0d.
Coleworts.....per doz.	2s. 0d. „ 4s. 0d.
Cucumbers.....each	0s. 8d. „ 1s. 0d.
Endive.....per doz.	1s. 0d. „ 2s. 6d.
Garlic.....per lb.	0s. 10d. „ 1s. 0d.
Herbs.....per bunch	0s. 2d. „ 0s. 4d.
Horse-radish.....per bun.	3s. 0d. „ 4s. 0d.
Leeks.....per doz.	0s. 3d. „ 0s. 4d.
Lettuces.....per doz.	1s. 0d. „ 2s. 6d.
Mushrooms.....per basket	1s. 0d. „ 2s. 0d.
Onions.....per bushel	0s. 4d. „ 0s. 6d.
Onion Spring.....per bunch	0s. 4d. „ 0s. 6d.
Parsley.....per bun.	0s. 1d. „ 0s. 3d.
Radishes.....per bun.	1s. 0d. „ 1s. 6d.
Salsafy.....per bun.	0s. 3d. „ 0s. 4d.
Small Salading.....per bun.	2s. 0d. „ 3s. 6d.
Spinach.....per bushel	0s. 9d. „ 1s. 0d.
Tomatoes.....per bunch	0s. 4d. „ 0s. 6d.
Turnips.....per bunch	0s. 4d. „ 0s. 6d.

FLOWERS.	
Abutilons, per doz. blooms	0s. 2d. to 0s. 4d.
Bouvardias.....per bunch	0s. 9d. „ 1s. 6d.
Camellias.....per doz.	3s. 0d. „ 5s. 0d.
Chrysanthemums, per doz. blooms	2s. 0d. „ 6s. 0d.
Chrysanthemums, per doz. bunches	4s. 0d. „ 8s. 0d.
Eucharis.....per doz.	3s. 6d. „ 7s. 6d.
Gardenias, per doz. blooms	3s. 6d. „ 7s. 6d.
Heliotropiums.....sprays	0s. 6d. „ 1s. 6d.
Lapagerias, per doz. blms.	2s. 6d. „ 5s. 0d.
Lilac.....per doz. bun.	3s. 0d. „ 10s. 6d.
Marguerites, per doz. bun.	3s. 0d. „ 5s. 0d.
Mignonne.....per doz.	2s. 0d. „ 6s. 6d.
Pelargoniums, Zonal, per doz. trusses	0s. 4d. „ 0s. 8d.
Primulas, double, per bun.	1s. 0d. „ 2s. 0d.
Roses.....per doz.	1s. 6d. „ 4s. 6d.
Roses, Tea.....per doz.	1s. 6d. „ 3s. 6d.
Stephanotis, per dz. sprays	5s. 0d. „ 7s. 0d.
Tropeolum.....per doz.	1s. 3d. „ 3s. 6d.
Violets.....per doz. bun.	1s. 0d. „ 1s. 6d.

HAY MARKET.

WHITECHAPEL.	
Prime Clover.....per load	100s. to 125s.
Inferior do.....	60s. „ 95s.
Prime Meadow Hay ..	90s. „ 105s.
Inferior do.....	50s. „ 90s.
Straw.....	30s. „ 45s.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.	
Magnum Bonums.....per ton	90s. to 100s.
Regents.....	80s. „ 90s.
Champions.....	70s. „ 80s.
German Reds.....per bag	4s. 6d.

CORN.—MARK LANE.

Wheat, Red.....per qr.	36s. to 41s.
Wheat, White.....	37s. „ 41s.
Flour, London nom. top price, per sack of 280lbs.....	—s. „ 43s.
Flour, town-made whites.....	37s. „ 39s.
Flour, households.....	34s. „ 33s.
Flour, country households, best makes.....	35s. „ 37s.
Flour, Norfolk and other seconds.....	30s. „ 31s.
Barley, Maltling.....per qr.	35s. „ 48s.
Barley, Grinding.....	24s. „ 32s.
Malt, English.....	32s. „ 40s.
Malt, Scotch.....	33s. „ 43s.
Malt, English, old.....	28s. „ 35s.
Malt, brown.....	28s. „ 33s.
Oats, English.....	22s. „ 31s.
Oats, Irish.....	22s. „ 27s.
Oats, Scotch.....	22s. „ 32s.
Rye.....	40s. „ 42s.
Tares.....	52s. „ 56s.
Beans, English, Mazagan.....	37s. „ 40s.
Beans, Tick.....	39s. „ 41s.
Beans, Winter.....	37s. „ 40s.
Peas, Grey.....	30s. „ 37s.
Peas, Maple.....	42s. „ 47s.
Peas, White.....	40s. „ 45s.

METROPOLITAN MEAT MARKET.

Beef, inferior.....per 3lbs.	3s. 0d. to 3s. 4d.
Beef, middling.....	3s. 8d. „ 4s. 0d.
Beef, prime.....	4s. 10d. „ 5s. 6d.
Beef, American killed fore-quarters.....	3s. 6d. „ 3s. 8d.
Beef, American killed hind-quarters.....	4s. 10d. „ 5s. 2d.
Mutton, choice.....	6s. 6d. „ 6s. 0d.
Mutton, inferior.....	3s. 8d. „ 4s. 4d.
Mutton, middling.....	4s. 8d. „ 5s. 4d.
Mutton, prime.....	5s. 8d. „ 6s. 4d.
Veal, inferior.....	3s. 6d. „ 3s. 8d.
Veal, middling.....	4s. 0d. „ 4s. 4d.
Veal, prime.....	4s. 10d. „ 5s. 2d.
Pork, inferior.....	3s. 4d. „ 3s. 8d.
Pork, middling.....	4s. 0d. „ 4s. 4d.
Pork, prime.....	5s. 0d. „ 5s. 2d.

COAL MARKET.

Wallsend, Hetton.....per ton	20s. 0d.
„ South Hetton.....	19s. 6d.
„ Lambton.....	19s. 6d.
„ Hawthorn.....	17s. 9d.
„ Hetton Lyons.....	17s. 6d.
„ Wear.....	17s. 6d.
Ravensworth West Hartley.....	16s. 6d.

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Reduced 3 per cent.....	101½ „ 110½

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DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Descriptive Catalogue of Roses.*
LOUIS VAN HOUTTE, GHENT, BELGIUM.—*Catalogue of Hardy Herbaceous and Alpine Plants, Roses, Fruit Trees, &c.*

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LAMPLUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sore or Bilious Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff coloured wrapper. 113, Holborn, London.—[ADVT.]

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			Rises.	Souths before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DFG.		1882		
12	S	23rd Sunday after Trinity.	7 14	15 42	4 10	8 43	5 17	2 25	2 42	11 50	—	42° 8'	Abutilon Boule de Neige, G.	White.	216
13	M	Britius, Bishop.	7 16	15 34	4 14	9 39	6 8	3 0	3 17	0 7	0 25	42° 5'	Abutilon Lemoinei, G.	Yellow.	217
14	Tu	C. Sinouu died, 1836.	7 18	15 24	4 12	10 28	7 9	3 35	3 55	0 42	1 0	42° 3'	Bouvardia Dazzler, G.	Scarlet.	218
15	W	Machutus.	7 19	15 14	4 11	11 11	8 15	4 12	4 32	1 20	1 37	42° 2'	Bouvardia President Garfield, G. ..	Pink.	219
16	Th	Rubens born, 1577.	7 21	15 3	4 10	11 47	9 27	4 52	5 15	1 57	2 17	42° 1'	Cattleya labiata, s.	Rose.	220
17	F	Hugh, Bishop of Lincoln.	7 23	14 52	4 9	After.	10 42	5 38	6 5	2 40	3 3	42° 0'	Oncidium varicosum, s.	Yellow.	221
18	S	Cardinal Wolsey died, 1530.	7 25	14 39	4 8	0 44	11 59	6 30	7 0	3 30	3 55	41° 9'	Salvia splendens Bruntii, G.	Scarlet.	222

The Gardeners' Magazine.

SATURDAY, NOVEMBER 11, 1882.

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CLOTH CASES for binding the year's numbers can be had of the publisher, price 2s.

EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES 143 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Exhibitions and Meetings for the Ensuing Week.

MONDAY, NOVEMBER 13, AND TUESDAY, NOVEMBER 14.—STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

MONDAY, NOVEMBER 13, TO WEDNESDAY, NOVEMBER 15.—BOROUGH OF LAMBETH CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

TUESDAY, NOVEMBER 14.—WALTON AND WEYBRIDGE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

TUESDAY, NOVEMBER 14.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting, 3 p.m.

TUESDAY, NOVEMBER 14.—PUTNEY CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

TUESDAY, NOVEMBER 14, AND WEDNESDAY, NOVEMBER 15.—SOUTHAMPTON HORTICULTURAL SOCIETY.—Exhibition of Chrysanthemums and Fruit.

THURSDAY, NOVEMBER 14, AND WEDNESDAY NOVEMBER 15.—GRAVESEND CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

WEDNESDAY, NOVEMBER 15, AND THURSDAY, NOVEMBER 16.—BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—Annual Exhibition, Royal Aquarium, Westminster.

WEDNESDAY, NOVEMBER 15, AND THURSDAY, NOVEMBER 16.—BRISTOL CHRYSANTHEMUM SOCIETY.—Annual exhibition.

THURSDAY, NOVEMBER 16, AND FRIDAY, NOVEMBER 17.—KINGSTON AND SURBITON THUCHRYSANTHEMUM SOCIETY.—Annual Exhibition.

FRIDAY, NOVEMBER 16, AND FRIDAY, NOVEMBER 17.—TUNBRIDGE WELLS CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

FRIDAY, NOVEMBER 17, AND SATURDAY, NOVEMBER 18.—CROYDON HORTICULTURAL SOCIETY.—Exhibition of chrysanthemums.

SATURDAY, NOVEMBER 18.—LEICESTER CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

Auction Sales for the Ensuing Week.

MONDAY, NOVEMBER 13.—Mr. C. J. Stevens, at 38, King-street, Covent Garden, W.C., imported and established orchids; bulbs from Holland.

TUESDAY, NOVEMBER 14, AND FOLLOWING DAYS, AT 12 NOON.—Messrs. Protheroe and Morris, at Osborn's Nursery, New Hampton, out-door nursery stock.

WEDNESDAY, NOVEMBER 15, AT 1 P.M.—Mr. J. A. Smith, at the Bridge Nursery, Barnes, Surrey, nursery stock.

WEDNESDAY, NOVEMBER 15.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C., hardy plants and bulbs.

THURSDAY, NOVEMBER 16.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C., imported orchids.

FRIDAY, NOVEMBER 17, AT 11.30 A.M.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse-yard, E.C., lilies, &c.

SATURDAY, NOVEMBER 18.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C., hardy plants and bulbs.

THE CHRYSANTHEMUMS will be somewhat late this season, but they will be a good average in quality, and no doubt will satisfy the cultivators and gratify the general public. The present generation has not witnessed a more interesting phase of floriculture than that in which the chrysanthemum plays the leading part. Every flower has its votaries, and every flower has its ups-and-downs in respect of relative popularity. It may be said, for example, that the hollyhock has had its day, though no one can say that it will not have another day, for we see flowers that have fallen in public esteem rise again to high favour, and some of the revivals are of a curious nature. The dahlia appeared to be lost and forgotten, but the single dahlias were dug up from what the poets call the "dead past," and the fervour that ensued upon their re-introduction to society overflowed and compassed the grand old double dahlias of the florists, and one result was a great dahlia show at the Crystal Palace, and the re-establishment of the flower in the list of leading favourites. Auriculas and carnations and picotees have undergone revivals, as the result, in the first instance, of personal interest and

effort in their behalf; and it is said that our sweet old friend the pink is to come forth from its obscurity and initiate a new sensation to the great advantage of all mankind. In respect of its position in public estimation the chrysanthemum does not rank with any of these. It is not an ancient flower, for there are men living who remember its first appearance on the floral stage, and can tell us all the steps of its progress to the pinnacle where it is now seated, high above all the flowers of the season, and conspicuously apart from the flowers of all seasons. There cannot be a revival of interest in the chrysanthemum, because the interest has never suffered a shadow of decline, but has been always growing and intensifying from the day the flower first came to us to this present pleasant exhibition season.

It is particularly worthy of notice that the chrysanthemum has not been greatly favoured by those who are regarded as the arbiters of taste and the leaders of fashion. It is not a poor man's flower, for a poor man cannot grow it properly. It is not a rich man's flower, for those who indulge in grand gardening do not, as a rule, take any special interest in its history or its beauties. The head centre of horticulture in general, and in part also of floriculture, is beyond doubt the venerable R.H.S. It matters not what may be the ultimate strength of parties and interests, we all look to South Kensington for help and guidance, and for opportunities of giving as well as receiving light. But the chrysanthemum never found favour there; the Floral Committee have certificated a number so few that we might doubt the existence of the flower had we only the records of that body to guide us in tracing its history. Neither at South Kensington, nor Regent's Park, nor the Crystal Palace, nor in any other resort, either of the fashionable world or the masses of the people, have exhibitions of chrysanthemums acquired any degree of importance whatever. The "amalgamated" exhibition held some years ago at the Agricultural Hall was an abnormal thing, and both in its strength and its weakness proved the position of the flower to be of an essentially domestic character. And that is the reason, mainly, that it is comparatively unknown in gatherings that may be regarded as cosmopolitan; while, on the other hand, there is no flower so thoroughly popular and attractive in the local circles, where it is understood and remains in association with its proper domestic surroundings. It is the people's flower *par excellence*. It is not adapted for great exhibitions, the merits of the flower demanding more studied inspection than is possible when great spaces are covered, and the local feeling that goes with it, like the breath of humanity, is lost in a great crowd, but is all retained and pleasingly illustrated while its relations with its local origin are unbroken. This same association with places and persons underlies the popularity of many florists' flowers and a few special fruits. But the chrysanthemum stands out conspicuously as the homely flower and the special pet of the middle classes. It suits the tastes of thousands who cannot touch orchids or command spacious landscape scenes. It demands much care, patience, and perseverance, and in proportion as these are bestowed upon it the beauties of the flower are revealed, and it comes fully within the range of those affections that make an English Home something more than a phrase or an idea. We hear of a stir in a certain quarter in behalf of a great "aggregate" gathering of chrysanthemums next year. We really think the proposed aggregation calculated to do more harm than good. By gathering the flowers to a general centre, no matter by what persuasions, the proper local centres will be weakened, and the aggregated flowers will fail of the effect required. They are best seen and most enjoyed in their several parochial and district assembly rooms, for they have the advantage there of the local atmosphere and associations; they are conveniently placed for near inspection, and there are no vast spaces to dwarf them and dilute their colouring, as does happen, and ever will happen, when they are staged in great halls and disconnected from all the sources of local interest.

It is gratifying to observe that the severe notions of the old florists have, in one respect, been modified advantageously to the flower and the interest it should awaken wherever it is fairly presented. Time was when the cultivators of chrysanthemums regarded it as something akin to sacrilege to associate with them in an exhibition any other subject whatever. Floriculture has often suffered through the operation of such inexplicable prejudices; but happily the tendency of thought and taste for some years past has been in the direction of breadth; and if public intelligence is want-

ing in depth it is not wanting in generosity. And the florists have shared in the general advancement, so that, after battling for a time in behalf of exhibitions consisting of chrysanthemums exclusively, they now not only tolerate but welcome other flowers of the season, and are not above the aid that may be derived from fruits and fine foliage plants to heighten the élat of their particular favourite. The best general effect of a special culture is the improvement of public taste; of its effect on the individual it is less easy to speak, for he, perhaps, is too happy in the study of one particular form of floral beauty to enter into any general considerations whatever. But when flowers are brought before the public we are bound to speculate on the probable effect of the display beyond that of affording entertainment for the hour or the day. So long as a man grows flowers of his own choice in his own way, no one has the right to question him as to his aims and his hopes and his expectations. A man's amusements are scarcely less sacred than his religion, so long as he offends no one in the pursuit of them. But when he takes part in an appeal to the public, whether for approbation of his taste, or for any tangible advantage, there will arise the question, *cui bono*? It strikes us that the question will occasion but little difficulty in generous minds. One public benefit may always be calculated on. A good chrysanthemum exhibition will tend directly to augment the number of cultivators of this delightful autumnal flower. As a matter of fact, the cultivators have increased at a rapid rate within the past fifteen years or so, and their number, already great, is likely to increase at a more rapid rate in the future than at any time in the past. That is one great and good end secured. And another and a larger result doubtless is that a taste begotten for the chrysanthemum may expand into a taste for gardening in general, or, in other words, for horticulture, which includes floriculture as one of its many departments. We can wish for no better results. The towns are growing, the country shrinks away from the townsman's reach, and the garden is the surest antidote to the evils that accompany the social centralization that is so striking a feature of the present age. If the wise people who make their wisdom manifest by depreciating the aims of the florists could only see one inch beyond the extreme terminus of their nasal promontories they would "moderate the rancour" of their pens. It may not be too late to tell them that to thousands of worthy horticulturists floriculture was the stepping stone to higher things. Knowledge and taste are closely related, and a healthy passion is as much the subject of growth as the weed that bears only leaves to day but to-morrow will flower and gladden the world.

AYLESBURY CHRYSANTHEMUM, VEGETABLE, AND FRUIT SHOW will take place on Thursday, November 23.

A GREAT HORTICULTURAL EXHIBITION, comprising implements, appliances, hardy trees and shrubs, spring flowering bulbs, ivies, hollies, window boxes, and table decorations, will be held in the Agricultural Hall, Islington, from March 15 to March 24, 1883. The schedules are now ready, and may be obtained from Mr. J. H. Rafferty, Agricultural Hall, London, N.

MANCHESTER BOTANICAL SOCIETY.—The Royal Botanical Society of Manchester will hold six exhibitions in the year 1883, in the following order: March 20, Town Hall; April 24, Town Hall; May 11, National Whitsun Show, the Gardens at Old Trafford; July 21, Rose Show, the Gardens; Sept. 8, Cottagers' Show, the Gardens; Nov. 20, Chrysanthemum Show, the Gardens.

TUNBRIDGE WELLS CHRYSANTHEMUM AND FRUIT SHOW, on Thursday and Friday next, will be held in the Skating Rink, and on each evening that immense building will, through the kindness of Dr. Siemens, be lighted by electricity. This will, so far as we are aware, be the first time of a chrysanthemum show being illuminated by the electric light, and the Tunbridge Wells exhibition, which for many years past has been unsurpassed both for its extent and the high quality of the productions, will this season possess more than the ordinary degree of interest.

THE VALUE OF LAND.—A new valuation list for the sixteen Bedfordshire and Buckinghamshire parishes comprising the Leighton Buzzard Union district has just been completed by a Yorkshire firm of assessors. The last valuation was made in the year 1866, and amounted in the gross to £123,596, the rateable value being £104,999. The entire district is purely agricultural; yet, notwithstanding the six disastrous years that have preceded this, and the consequent depression of trade and depreciation of the value of land, the valuers have raised the gross value to £177,811, and the rateable value to £142,405—making an increase of £54,215 and £40,403 respectively.

GENERAL HORTICULTURAL COMPANY (JOHN WILLS) (Limited).—In the Chancery Division on Saturday last before Mr. Justice Chitty the petition presented by a creditor for the winding up of this company, which carries on a general horticultural business in Regent Street and also in South Kensington was brought up. The petition has on several occasions stood over for the purpose of giving the company opportunities of continuing its business. It was now stated that this was impracticable, although a profit had been made. His lordship made the usual winding-up order. Mr. Buckley, Mr. Crossley, Q.C., Mr. Gazdar, Mr. Whitehorn, Q.C., Mr. Seward Brice, and Mr. Bramwell Davis were the counsel appearing.

Calls at Nurseries.

MR. CHARLES TURNER'S, SLOUGH.

FOR many years past the cultivation of chrysanthemums has received special attention in the Royal Nurseries, Slough, and the annual displays of these flowers have of late acquired so much importance that they have been anticipated with more than an ordinary degree of interest by cultivators and others. But extensive and excellent as have been the exhibitions in previous years, they are quite surpassed by that of the current season, and no more successful demonstration of the immense value of the chrysanthemum could possibly be had or indeed desired. The immense span-roof structure which during the spring months is occupied with pot roses no longer suffices for the accommodation of the chrysanthemums. It is as closely packed with plants, which are splendidly-grown and bearing flowers of the most magnificent character, as in any previous year, and the examples for which no room could be found suffice to fill three or four other spacious structures. Therefore we have at Slough this year several distinct displays, each of which would do more than repay the journey from London, or, indeed, double the distance. The exhibition is indeed so extensive and so good that Mr. Turner has, in compliance with the wishes of his friends, consented to illuminate the houses in which the chrysanthemums are arranged on Monday evening next, and throw them open to the public, a boon which we are well assured will not fail to be highly appreciated by the residents of Slough. The hours during which the houses will be open will be from 6 to 9 p.m.

The plants in the principal exhibition house, which is about one hundred feet in length by twelve feet in breadth, are arranged to form two sloping banks to the right and left of a central walk, and the effect produced by the thousands of flowers, which are all more or less good, from either end of the structure is of surpassing richness and beauty. The effectiveness and interest of the display will steadily increase during the next ten days or so, for many of the darker varieties are hardly out, and the size and appearance of the buds now rapidly expanding show that the flowers of these will be equal in size and quality to those already developed. In a second span-roof house are several hundred plants which are rather too tall for the exhibition house, and on these are being produced some of the very finest of the flowers in the collection. Numerous plants ranging from two to three feet high and densely furnished with flowers and buds in a third house are interesting as illustrating a capital style of plant for conservatory decoration, and a peep into the structure should not be omitted. There are two or three houses filled with Elaine and other white varieties furnishing flowers of special value for decorative purposes in a cut state, and one spacious structure is devoted to the attractive collection of pompones, which, it may be added, hardly receive so much attention from the general body of cultivators as they deserve.

In the Slough collection all the leading varieties in the several sections are represented, and to do more than note a few of the best that were in perfection when we saw them a few days since is now out of the question. If we give but few names we would assure the cultivator that he will find representatives of any particular variety in which he may happen to be interested. Amongst the incurved varieties of special merit mention must be made of Antonelli, an old and well-known salmon-red flower; George Glenney, too well known to need comment; Refulgence, the deepest coloured of all the purple flowers, and very telling when well done; Mr. Bunn, a much improved Golden Beverley, and indispensable to the exhibitor; Princess Beatrice, delicate rosy-pink; Cassandra, bluish white tipped rose, very pleasing; Mr. Corbay, flowers deep red and the same build as those of Prince of Wales, from which it is an excellent sport; Caractacus, delicate bluish, early and good; Hereward, rosy-purple, distinct and good; Lady Hardinge and its fawn coloured sport, Mrs. W. Shipman; Aurea multiflora, a small but showy variety; Barbara, valuable for its effective shade of amber; Prince Alfred, one of the most useful of the purplish flowers because of its excellent shape and constancy; Jardin des Plantes, one of the richest of all the yellow incurved flowers; Bronze Jardin des Plantes, a telling flower when caught right; Mottled Beverley, a form in which the flowers are of a pleasing delicate rosy colour; Novelty, an old and well known light flower; Beauty, a fine deep bluish variety, the flowers of good size and shape; and last, but not least, White Globe, Empress of India, and Queen of England, a trio which test the skill of the cultivator more than any other.

The Japanese or tasselled varieties contribute their full share to the splendour of the display in the principal house, but they do not unduly predominate. Special mention must be made of La Charmeuse and La Frisure, which have purple and rose coloured flowers respectively, for their earliness and value for associating with Elaine, Mrs. George Rundle, and others that commence flowering about the middle of October, as well as for their intrinsic merits. Others that were made note of are Alba Plena, white, large and good; Gloire de Toulouse, deep purple, rather early, and rich in colour and grand in quality; Soliel Levant, deep yellow, fine; Orphée, bright red with yellow tips, very effective; Meteor, orange-yellow, large and elegant; Cité de Fleur, deep purple, good; Constance, deep red, a very elegant and effective flower; Dr. Audigier, deep maroon crimson, valuable for its colour; Madame Bertier Rendatler, orange-yellow, showy; and the Cossack, still one of the brightest of the red flowers.

The reflexed flowers at their best comprised Chevalier Damage, deep yellow; Dr. Sharpe, rich purple; Comte de Mory, a bright shade of rosy purple of the same style as Progne, but earlier.

Chief amongst the pompones was Sœur Melaine, a variety of immense value for decorative purposes; the flowers are of the purest white, and so large that its proper place is probably with the intormedates. Very fine also was Miss Bateman, an amber-coloured sport, secured by Mr. W. Greenaway a few years since, of which it would be difficult to speak too highly. Mention must be made of Madame Pepin, bright orange red, very free and fine; Helena, rosy purple; Marabout, a beautiful white flower, with elegantly-cut petals, admirably adapted for decorative purposes in a cut state; Madame Rouelou, deep rose, very free and pleasing.

A feature of considerable importance and much interest is formed by the tree or perpetual-flowering carnations, which occupy several houses, and contain a very large number of new varieties under name, and not a few seedlings.

Specially noteworthy amongst the newer flowers were Amazon, buff-edged with scarlet; Coomassie, buff striped with red; Firefly, brilliant scarlet; Mrs. George Hawtry, bright yellow self; Mrs. MacLaron, a beautiful crimson bizarre; Nimrod, scarlet; Rubens, deep maroon; Reverso, scarlet, occasionally striped; Warrior, deep red-scarlet; The Queen, pure white; and Worthington

Smith. These, with but two exceptions, have been raised in the Slough nurseries, and differ from the older varieties in their vigour of growth, greater freedom of flowering, the larger size of the blooms, and the greater brilliancy of colouring. They are indeed so superior to the older varieties in the respective hues, that a very considerable proportion of the latter have been discarded.

MESSRS. J. VEITCH AND SONS, KINGS ROAD, CHELSEA.

As in past years, the display of chrysanthemums in the Chelsea nurseries of Messrs. J. Veitch and Sons is very extensive and of the most splendid character, and at the present moment is a source of great attraction to all classes of visitors, more especially to those who are much interested in the flowers, because of the large number of fine novelties represented. The orchid-houses are rich in colour and in interest, for, associated with the orchids, odontoglosses, and calanthes, now well known, that are flowering in great profusion, several novelties of great importance. The intermediate houses devoted to the bouvardias, tree carnations, and other subjects, are now gay with colour, and show that where the conveniences and the requisite skill exist there is no difficulty in having an abundance of flowers now over and above those furnished by the chrysanthemums. Camellias, of which the collection is remarkably good, both as regards its extent and the condition of the individual plants, are coming freely into flower, and promise to bloom most satisfactorily.

The chrysanthemums are arranged in the large camellia house, which forms the entrance from the Brompton Road, and in a large span-roof structure almost adjoining it, and in both houses the effect is of the most pleasing character. The plants are in the most excellent condition, and although they have not been severely disbudded, and are carrying a comparatively large number of flowers, the blooms are of full size, and well finished. In the collection are, it need hardly be said, the splendid tasselled or Japanese varieties recently introduced by the firm, which are rapidly making their way into general cultivation; and there are several unnamed flowers, of which eight or nine were made note of as being so good that it would be perfectly safe to predict the highest degree of popularity for them when they pass into the hands of cultivators. To particularize them until they have had distinctive names attached would serve no useful purpose, but it must be mentioned that there are two reflexed flowers amongst the novelties which may be regarded as most valuable acquisitions to their section. One is a beautiful yellow striped with orange, and the other pure white, the petals broad, flat, and nicely rounded at the points. Very striking amongst the unnamed tasselled varieties is one with large well-formed flowers of the brightest vermillion, and so effective that it at once arrests attention. Turning to those distributed by the Messrs. Veitch during the two past years, special reference must be made to Purple King, a grand reflexed flower, of a rich purplish-crimson colour, for the section is so small that any really good addition well deserves a hearty welcome. This variety has been met with on one or two occasions this season under the designation of King of the Crimson, a fact of which cultivators will do well to take note. Foremost amongst the new tasselled flowers of last year are Lord Beaconsfield, Rex Rubrorum, and Mary Major, all of which are decided acquisitions in their several lines of colour. Lord Beaconsfield has large, deep red flowers, the petals broad and incurved, and show at the points the yellow back, the intermixture of colour producing a very striking effect. Rex Rubrorum has flowers of large size and the richest crimson colour, and is equally valuable for exhibition and decorative purposes. Mary Major has pure white flowers of much the same character as those of James Salter, but the petals are broader and stouter, and it may be described as a much improved Lady Selborne, but it hardly comes into competition with that variety, as it is later. The six tasselled flowers introduced by the firm in 1881 are all so good that already they have become widely distributed. Bend Or and Thunberg are two splendid rich yellow flowers, Kämpfer is a fine bronzy yellow flower in the way of Criterion, but far superior in size and quality. Delicata and Duchess of Connaught are two exquisitely beautiful light varieties, and Comte de Germiny is a bold and very distinct variety, the flowers large, with broad incurved petals. A new variety, under the name of Tisiphon, is remarkable for its distinctness; the flowers are of medium size, the petals are long and thread-like, and curl over and form compact balls which may be likened to tufts of hair.

The number of really distinct and good pompones is not so large that we can afford to overlook the four fine varieties introduced in the spring of the current year. These are Anastasio, rosy pink; Brunette, bright amber; Inimitable, deep amber yellow, very telling in colour; and Virginia, pure white, and of much value early in the chrysanthemum season.

In a rapid run through the orchid houses we made note of the fact that Odontoglossum Alexandræ, Oncidium Forbesi, O. Rogersi, O. ornithorhynchum, remarkable for its delightful perfume, Cypripedium villosum, C. insigne, Calanthe Veitchi, and C. vestita were represented by a very large number of examples in flower, and produced a beautiful display in the several structures. In one of the East Indian houses, Vanda tricolor and V. suavis were flowering in splendid style; there were several fine spikes of the lovely V. cærulea, and the true V. insignis was represented by several examples in bloom. Flowering freely in other houses were Cypripedium selligerum majus, a splendid variety, remarkable for the large size of the flowers; C. calurum, a fine hybrid, with deep rose-coloured flowers; C. Harrisianum superbum, C. Arthurianum, C. cardinale, deep rose-pink; Cattleya fausta delicata, C. fausta snperba, Lælia Philbrickiana, and Dendrobium endocharis, all of which are hybrids of great beauty that have been raised in the Chelsea nurseries.

OXFORDSHIRE CHRYSANTHEMUM AND FRUIT SHOW will be held in the Corn Exchange, Oxford, on Thursday, November 23, instead of Tuesday, 21, as announced some time since.

THE RAISING OF CHRYSANTHEMUMS FROM SEED is now receiving increased attention in this country, and the results so far are eminently satisfactory. The collection of chrysanthemums in Messrs. J. Veitch and Sons' nurseries at Chelsea contains a large and important group of novelties raised by Mr. Alfred Salter, the majority of which are of a high degree of excellence; and in Mr. Turner's nurseries at Slough we saw the other day several thousand seedlings, of which a few will probably bloom this season. The latter have been raised from seed specially saved in a suitable climate from a large collection, and it is to be hoped they will include a few good incurved flowers, for, with the exception of a few sports, no additions of importance have been made to the section for many years past.

Exhibitions and Meetings.

BRIXTON HILL CHRYSANTHEMUM SOCIETY, NOVEMBER 9 AND 10.

No more fitting opening of the exhibition season of the chrysanthemum could well have been had, or indeed desired, than the show of the long-established and ably-conducted society which has its head-quarters at Brixton Hill. Large in extent, varied in character, and excellent in quality, it fully sustained the reputation of the society, did honour to the cultural skill of the neighbourhood, and afforded doubtless not a little pleasure to the subscribers and visitors generally. From the first the Brixton Hill Society has afforded encouragement to all classes of plants and flowers suitable for the embellishment of the plant stove and conservatory and the decoration of the indoor apartment at this season of the year, and it has also made liberal provisions for the more important classes of fruits and all descriptions of vegetables. As the result of this wise policy the exhibitions are invariably good and so thoroughly representative as to appeal to the sympathies of a much larger circle than those which are confined exclusively to the chrysanthemum, or indeed any one class of flowers. The committee were again successful in obtaining the use of the lecture hall of the Congregational church, a building, which if not any too large, is admirably adapted for the purpose to which it was put on this occasion, and sufficiently spacious to afford accommodation for more than enough plants and flowers to produce a splendid display. That it was filled to its utmost limits need hardly be said, for on no occasion since the society has been established, excepting perhaps the first year or so, have the members failed to fill the building in which the show has been held to its fullest possible extent. Chrysanthemums in specimen form and in a cut state occupied, as a matter of course, a leading position, and other good features were formed by the ornamental-leaved plants, the orchids, the primulas, the ferns, the fruits, and the vegetables. The fruits, which consisted chiefly of grapes, apples, and pears, produced, in conjunction with the table decorations, a most attractive display in one of the large rooms forming part of the lecture hall; and the remarkably fine collections of vegetables, which were placed in the large gallery, if somewhat less attractive to the general body of visitors than the fruits, were not less interesting or important, and afforded plenty of work for the judges, so closely matched were many of the entries. As in previous years, the arrangements were in the highest degree satisfactory, and reflected much credit upon Mr. W. Hall, the able and courteous secretary, and the members of the executive committee.

SPECIMEN CHRYSANTHEMUMS were grandly shown, more particularly the large-flowered varieties. In the leading class for six varieties with large flowers, Mr. Cherry was first with large well-trained and splendidly-flowered examples of Mrs. Haliburton, Barbara, Prince of Wales, Venus, Mrs. Dixon, and Faust. For three, Mr. Cherry was first with Hero of Stoke Newington, John Salter, and Princess of Teck, of which the flowers were so superbly developed that a considerable proportion would have graced a stand of twelve. The other successful exhibitors in these classes were Mr. Howes, Mr. C. Salter, and Mr. E. Gates, all of whom it need hardly be said staged collections of a highly-meritorious character. There was a spirited competition in the class for three specimens, and limited to those who had not previously taken a prize for specimen chrysanthemums, and the first and second awards were made in favour of Mr. C. Salter and Mr. W. Clark, Streatham, both of whom exhibited remarkably well. The pompones required a few more days for the development of the flowers, but the whole of the specimens staged were of large size and nicely trained, and gave promise of producing a fine display of flowers later on. The most successful exhibitors were Mr. Cherry, Mr. Sadler, Mr. Howes, and Mr. Weston. The prizes for pyramidal pompones were awarded to Mr. C. Livermore, who was first both for three and six, and Mr. Cherry. Standards in triples were presented in capital style by Mr. Livermore and Mr. W. Clarke, who were first and second respectively.

CUT BLOOMS made a splendid display, for the whole of the numerous classes were exceedingly well filled, and the flowers were of a high order of merit. There were six competitors in the great class for twenty-four incurved flowers, and the prizes were awarded to Mr. J. Holmes, Mr. A. Holmes, and Mr. C. Salter, who staged flowers remarkable alike for their large size and splendid finish. The varieties forming the first prize stand, from Mr. J. Holmes, were Princess of Teck, Baron Beust, Empress of India, Princess Beatrice, Jardin des Plantes, John Salter, White Beverley, Nil Desperandum, White Globe, Lady Hardinge, Mr. Bunn, Prince Alfred, Mrs. Haliburton, Alfred Salter, Mr. Brunlees, Hero of Stoke Newington, Barbara, Prince of Wales, Princess of Wales, Mrs. Heales, White Venus, Lady Slade, Cherub, and Queen of England. The competition was even more severe in the class for twelve incurved flowers, and the first and second places were occupied by Mr. A. Holmes and Mr. J. Holmes respectively. The flowers represented in the first prize stand were Golden Empress of India, White Globe, Lord Derby, Queen of England, Prince of Wales, Lady Hardinge, Prince Alfred, Mrs. Heales, Baron Beust, Bronze Jardin des Plantes and White Beverley. Mr. A. Holmes was first with six, and staged Prince of Wales, Lady Hardinge, Queen of England, Empress of India, Mrs. Heales, and Prince Alfred in capital style, Mr. C. Salter and Mr. Sadler were second and third respectively.

Japanese flowers were equally as plentiful as the incurved, and made a very attractive display. For twenty-four, Mr. J. Holmes was first, closely followed by Mr. J. Young, there being not more than two points between the stands; Mr. W. Clark third. Mr. A. Holmes, Mr. W. Green, and Mr. Cherry were the successful competitors in the class for twelve, and staged flowers deserving of the highest praise. The first prize stand of twenty-four comprised blooms of Kry Kwang, Red Gauntlet, Dr. Macary, Curiosity, James Salter, Bronze Dragon, Hiver Fleuri, Soleil Levant, Gloire de Toulouse, Red Dragon, Elaine, Plantagenet, L'Incomparable, Baronne de Prailly, Peter the Great, Magnum Bonum, Fair Maid of Guernsey, Fulgore, Guillaume Delaux, Sarnia, Criterion, Rosa Bonheur, and Nuit d'Hiver. The first-prize twelve contained blooms of Dr. Macary, Kry Kwang, Bronze Dragon, Red Gauntlet, Elaine, Triomphe de Chatelet, Sarnia, L'Incomparable, Rosa Bonheur, Curiosity, Comtesse de Beauregard, and Bouquet Fait. In the class for six blooms of any one variety, Mr. Sadler was first with magnificent blooms of Elaine, and Mr. A. Holmes and Mr. Howes were second and third. In the "Maiden" class for twelve blooms the first and second awards were made in favour of Mr. J. Salter and Mr. C. Preston.

Anemone flowers were not numerous, but those staged were remarkably good. For twelve large anemones, Mr. J. Swain, Mr. J. Young, and Mr. C. Livermore, were the prizetakers in the order of their names; and for twelve anemone-pompones, Mr. Howes and Mr. Livermore were first and second respectively.

ORCHIDS were simply magnificent, and formed a striking feature. For six. Mr. C. Salter was first with fine examples of *Odontoglossum grande*, *Coelogyne ocellata*, *Dendrobium heterocarpum*, *Vanda cœrulea*, *Cypripedium Harrisianum*, and *Oncidium crispum*. The same exhibitor was first in the class for a single specimen, with a large and beautifully-flowered example of *Masdevallia tovaronsis*. Other successful exhibitors of orchids were Mr. J. Young, Mr. A. Holmes, Mr. W. Poole, and Mr. J. Sadlor. Mr. C. Salter also staged a large and attractive group not for competition.

STOVE AND GREENHOUSE PLANTS in bloom and remarkable for the beauty of their foliage were largely represented, and the most successful exhibitors in the classes provided for them were Mr. J. Young, Mr. H. Wright, Mr. W. Clark, and Mr. Cherry. These exhibitors also occupied a leading position in the classes for ferns, which were presented in capital condition. Plants for the decoration of the dinner-table were admirably shown, more especially by Mr. Austin, Mr. Cherry, and Mr. C. Salter, who were the prizetakers.

FRUITS were remarkably good. For three dishes of dessert pears Mr. W. Hall was a capital first, and Mr. Sandy was a good second. In the class for dessert apples, Mr. W. Collins was first, Mr. Sandy second, and Mr. J. Cocks third. And in the corresponding class for culinary apples, Mr. Gates, Mr. Plumbridge and Mr. Sandy were the prizetakers in the order of their names. Grapes were admirably shown by Mr. R. Holmes, Mr. Howes, Mr. J. Salter, and Mr. Rockell, who were awarded the prizes in the two classes provided.

VEGETABLES were shown in large quantities, and in high-class condition, the most successful competitors being Mr. J. Young, Mr. Sandy, Mr. J. Swain, Mr. Gates, and Mr. Collins.

The judges were Mr. Todman, Mr. J. Wright, and Mr. George Gordon.

MR. WALKER'S ROOT SHOW, THAME, OXON, NOVEMBER 7.

ON the above date Mr. Walker held his fourteenth annual show of roots, &c., grown from seeds supplied by him during the present season; and, taken as a whole, it proved a success. For many years Mr. Walker assisted at this annual exhibition by submitting roots grown as "tests" in his nursery plots, but this season he has not been able to spare the amount of ground usually occupied by agricultural roots. The display was held in the street, and, being contiguous to the market, was visited by the large concourse of farmers and graziers who attend this ancient town on each succeeding Tuesday.

The number of roots entered in competition was just under three hundred specimens, and as these had been drawn from small acreages were certainly of good all-round quality and size, turnips and swedes specially so. The schedule comprised two classes—one for cultivators of not less than six acres of roots; the other class being open to those growing any quality less than the above. Messrs. R. Parsons-Guy, The Grange, Ickford, Bucks, and S. Fields, Thame Park Farm, made the awards.

The following is the list of winners, and aggregate weights of each lot: Division 1.—Six Long Red Wurzels: 1st, Mr. R. Kimble, Worminghall, Bucks, 149 lbs.; 2nd, Mr. Stevens, Buck County Asylum, Stone, 102 lbs. Six Globe Wurzels: 1st, Mr. Timothy Dodwell, Long Crendon, Bucks, 121 lbs.; 2nd, Mr. H. P. Deverell, Coptcourt, Oxon, 100 lbs. Six Swedes: 1st, Mr. Hitchman, Little Milton, Oxon, 78½ lbs.; 2nd, Mr. Baker, Haddenham, Bucks, 79½ lbs. Six Turnips: 1st, Mr. Wilks, Worminghall, 113½ lbs.; 2nd, Mr. R. Kimble, 78 lbs. Division 2.—Three Long Red Wurzels: 1st, Mr. R. Sawyer, Worminghall, 98 lbs.; 2nd, Mr. Roberts, Bledlow, 60 lbs. Three Globe Wurzels: 1st, Mr. Smith, South Weston, 71½ lbs.; 2nd, Mr. R. Sawyer, 71½ lbs. Heaviest Long Red Wurzels in the show, 35 lbs.; Globe Wurzel, 33 lbs.; Turnips, 20½ lbs.; Swede, 18½ lbs.

As an extra Mr. H. Hewitt exhibited a dozen very symmetrical and weighty globe mangels and a number of fine well-buttoned Brussels sprouts; Mr. Walker made a display of apples, representing varieties of trees for sale grown at his nurseries, Thame and Chilton, viz., Alfriston, Golden Spire, Hanwell Souring, Cat's Head, Blenheim Orange, Ecklinville, Stone Pippin, Stirling Castle, Old Russet, Cox's Pomona, Warner's King, Beauty of Kent, Norfolk Beauffin, Wellington, King of the Pippins, Lady Henniker, Sykehouse Russet, Cox's Orange Pippin, Nonpareil, Golden Noble, Baden Pippin, French Crab, Cornish Gilliflower, Prince Albert, and Mere de Menage.

Oxford.

WILLIAM GREENAWAY.

Exhibitions and Meetings, 1882.

NOVEMBER.

TUESDAY, NOVEMBER 21. — MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Exhibition of Chrysanthemums.

TUESDAY, NOVEMBER 21. — OXFORDSHIRE CHRYSANTHEMUM SOCIETY. — Annual Exhibition.

TUESDAY, NOVEMBER 21, AND WEDNESDAY, NOVEMBER 22. — LIVERPOOL HORTICULTURAL ASSOCIATION.—Exhibition of Chrysanthemums, &c.

TUESDAY, NOVEMBER 21, TO THURSDAY, NOVEMBER 23. — BRIGHTON AQUARIUM.—Exhibition of Chrysanthemums, Fruits, and Table Decorations.

WEDNESDAY, NOVEMBER 22, AND THURSDAY, NOVEMBER 23. — NORTHAMPTONSHIRE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

WEDNESDAY, NOVEMBER 22. — WIMBLEDON HORTICULTURAL SOCIETY.—Chrysanthemum Exhibition.

WEDNESDAY, NOVEMBER 22, AND THURSDAY, NOVEMBER 23. — BIRMINGHAM CHRYSANTHEMUM SOCIETY.—Annual exhibition.

THURSDAY, NOVEMBER 23. — AYLESBURY HORTICULTURAL SOCIETY.—Exhibition of chrysanthemums, &c.

THURSDAY, NOVEMBER 23. — OXFORDSHIRE CHRYSANTHEMUM SOCIETY.—Annual exhibition.

THURSDAY, NOVEMBER 23. — STAINES CHRYSANTHEMUM SOCIETY.—Annual exhibition.

SATURDAY, NOVEMBER 25. — CHEETHAM HILL AND CRUMPSALL CHRYSANTHEMUM SOCIETY.—Annual exhibition.

WEDNESDAY, NOVEMBER 29, AND THURSDAY, NOVEMBER 30. — SOUTH SHIELDS CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

DECEMBER.

TUESDAY, DECEMBER 12. — ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting 3 p.m.

CABBAGES AND KALES AT READING.

AMONGST the many interesting crops grown for purposes of comparison in Messrs. Sutton and Sons' trial ground at Reading, the cabbages and kales are at the present time conspicuous, as they are in full maturity, and, for the most part, manifest their distinctive characters so that he who runs may read. There are several trial plantations of pure grasses and of mixtures that are of interest now, and will be of still greater interest hereafter. The trial root crops have been lifted and scrutinized for comparison of their distinctive characters, as also to determine the relative values of stocks obtained from various quarters. There is, indeed, much bustle in the trial grounds preparatory to the clearance of the summer produce, and the planting out of crops that are to face the winter; of these the lettuces and onions are not the least important.

There are three plantations of kales and cabbages, forming three complete sets of the same sorts on three different qualities of ground. A few notes on these may prove useful, and it will be seen that while there are not many new sorts demanding notice, there are old sorts not yet beaten, and it is as well to be confirmed in our faith of a good thing as to be persuaded to look with favour on a new thing. These vegetables rank with apples and potatoes in relative importance; the world consumes them in prodigious quantities, and if they do not represent much money in detail, they do in the bulk represent commercial interests of enormous magnitude. This will in great degree account for the scrupulous care bestowed in the selection of sorts and stocks, for in the returns of a crop profit or loss will turn very much on the fidelity of the sample to its name, the difference between a true and a spurious stock, though grown under the same name, having perhaps to be measured in tons in the aggregate produce.

THE KALES are extremely beautiful now, with their crisped and curled heads of brilliant green or purple or crimson leafage. The *Old Tall Scotch Kale* is a serviceable vegetable, but is often so badly grown for seed that the produce in gardens is not what it should be, the plants being generally lean and wiry and making no great weight of produce. But when a well selected strain is secured the tall variety is handsome and useful. The best of this section, however, that we could find in the trial lot was *Sutton's Extra Curled Scotch*, a well selected stock of Dwarf Curled, which in its turn, is a selection from the Tall Curled. This *EXTRA CURLED* is dwarf, compact, stout, with ample head, the leaves densely crisped and curled, and the colour a most brilliant golden green. It is very hardy, and highly productive, as it makes full sized sprouts from the ground line, and they are well protected by the massive leaves from snow and frost. *Imperial Hearting* is a good old variety, not so beautiful as the *Extra Curled*, but perhaps as profitable; at all events, it must be marked as serviceable. The *Cottager's Kale* stands well in this trial; there is perhaps no better winter green in cultivation, all things considered; but to be convinced of its goodness one must grow it many years, so as to see it come through hard winters unhurt, and find it pay well on bad ground where some other winter greens come to nought. It does not win esteem suddenly, because it has no beauty. A very distinct variety is *Buckman's Hardy Winter Green*, probably a cross between the Scotch and the Cottager's Kales. It is vigorous and leafy, the stalks and midribs purple, the leaf blade dark glaucous green. This is hardy and productive. *Chou de Russie* is a curiosity that may prove useful, as it is reputed to be hardy enough to withstand any freezing likely to occur here. As we have tasted a little winter of late years, it is well to note a winter green that is said to be used to it. This kale is all points and spikes, the leaves being chopped and jagged in a most fantastic manner; the colour is dull glaucous green. *Labrador Kale*, obtained from the place it is named after, is very dwarf, spreading, and probably not profitable enough for the English garden. The colour is dull purple. Of its exceeding hardness no one will doubt. The *Thousand Headed* should be classed as a kale, although it is often classed as a cabbage. It is here grown from seed in a common-place way, and it appears to put on the ground as great a dead weight of first rate green food as the space can bear. As a fodder plant it is invaluable; and it makes as good a dish of greens for the table as one can wish for with a juicy joint on a frosty day. The ornamental kales are strikingly handsome; it is in fact a pity that we must call them by their right names. The *variegated, fringed, purple*, and other strains that are kept pure by careful selection are admirably adapted for decorative purposes in large places, and have only to be cleared off at the proper time to be useful to the four-footed beasts that never ask to have their cabbages cooked, or refuse a bit of sweet kale of any colour.

BRUSSELS SPROUTS do not vary much from the old type when regarded from the botanical point of view, for in fact it seems difficult to make a better plant by any kind of hybridizing. But from the horticultural point of view the variations are many, and they run from bad to better and best. It is not uncommon to see in gardens long-legged lean things that are considered quite perfect, although the buttons they make are but few and small. Now, it is worthy of note that when the winter sets in early and severe the long-legged sprouts are quickly crippled, and this once accomplished they never recover. There is therefore a twofold benefit in growing a first-class strain, and it is that you augment the total produce—perhaps double it and have better quality also—and you are safer against the assaults of early frost. Amongst many strains of sprouts here, the one we noted as best of all is called *Reading Exhibition Sprouts*. The plant is peculiarly short and stout, with a full fat head and robust spreading leaves that afford the best of protection. As for the buttons, they are packed on the stem in just the same way that onions are put on ropes, so that on one of these short stems we shall find the equal in bulk of three or four stems of the ordinary tall Brussels sprouts, and the quality far superior, every button being as round as a ball and as hard with the good meat that is in it. The *Aigburth* and *Scripmer's Giant* are good and have the same self-protecting quality as the *Exhibition* variety, being dwarf, with spreading heads. *Sandringham Sprouts* has the appearance of Brussels sprouts spoiled, and the same may be said of some other cross-bred sorts.

SAVOYS do not vary in any great degree, and we may look far to find a better thing than the *Early Ulm*, which must take the lead for profit. For a gentleman's table *Tom Thumb* is to be preferred, but it is not profitable, for although you may plant close you cannot take from the ground anything like the dead weight obtainable from *Early Ulm* or *Drumhead*, the last-named being a favourite with market-growers. A good dwarf savoy, named *Panclatier de Couraine*, comes between the *Ulm* and *Tom Thumb*; it is compact, hoarding well, smallish, and early. The *Golden Globe* is a pretty variety, showing large hearts of a pleasing yellow colour, but it is of no account for profit, though pretty enough, and in some cases worth growing for its appearance.

CABBAGES may be classified in various ways, but, after all, most people will

class them as big, little, and middling. The biggest is the *Drumhead*, a good selection of which should have a leading place where first-class cattle feed is wanted. Sown in March, we may expect to cut heads of twenty pounds each in October, and the breadth of ground covered is small, considering the dead weight of food produced. Turning to the market sorts, we find the *Imperial*, *Nonpareil*, and *Enfield Market* holding their ground well as profitable vegetables, and the grand thing in respect of their perpetuation is not to cross them, but to keep the stocks pure and well up to a high standard of quality. These all turn in well with compact, roundish, or slightly conical heads, and they may be used for many purposes. A good selection of *Enfield* will, with a little management, supply cabbages and collards the whole year round, for it may be pulled small for bunching, or planted out for cabbaging, and when headed and left for sprouts will last long, and pay as well as anything in the garden. These large sorts are often as useful as the *Drumhead* for cattle and sheep feed, and a surplus stock can generally be sold advantageously. The old *Sugar Loaf* is in capital form in this trial, the hearts being nicely rolled up, with a quite moderate proportion of expanding leafage. The old *Early York*, which like the *Sugar Loaf* is somewhat out of favour, is carefully treasured in the best form possible, and there is a good garden form of it called *Dwarf York*, with pretty oval hearts closely folded. This is an early sort, and may often prove useful as a stopgap. *Reliance* is a market cabbage, rather loose in the heart, but of excellent quality. A Continental variety, named *Dur*, merits attention, because of its large size, fine green colour, and lateness, for late cabbages have their uses, and often pay better than early ones. *Early Oxheart* is of good market pattern, and of importance for earliness, for it turns in during August, and may be cleared off the ground in time for some other planting.

The smaller sorts can hardly claim the *Rosette Colewort* as a typical representative, for we should regard the *Brunswick* as a better type. But the *Rosette Colewort* is the very best cabbage of its class, though in a certain sense it is unprofitable. In the furnishing of a good table it is invaluable, but a poor man's cabbage it is not, and a market grower must understand his market ere he ventures to put it down in any quantity. Of all the cabbage tribe it makes the sweetest and most elegant dish when skilfully handled, and it does not seem possible to equal it in quality by taking any more profitable sort. But there is a more profitable cabbage at command combining much of the high quality of the sort we have so much faith in, and, unlike that, suitable for any and every purpose that can be thought of as proper to a cabbage. This is called *Reading All-Heart*, and the name is justified by the growth. It is dwarf and compact, and may be planted closely. The colour is bright green, the hearts are round or roundish oval, very prettily finished as they become mature, so that we have exhibition quality combined with every other good quality. This turns in a fortnight in advance of the general crop, and it lasts well if not cut when ready. However, the profitable way is to clear it off and to follow with another planting, for in the middle of August when this cabbage is ripe the ground is warm, and there is time for the growth of something on it before the winter puts a stop to progress.

To return to the *Brunswick* for the sake of an intermediate type, we have here a very distinct race of cabbages, which might be called miniature drumheads, so compact and solid and flattened are they in their concentrated lumps of vegetable meat. The *Brunswick* has a long leaf stem, and its relations take after it in this respect. The head is flattened and round, and a little loose in the folding, and of a lightish glaucous colour. It is a good head, for there is something in it. The *Small Nantes* is in this flattened round-headed glaucous section; it is a first-rate second early. *Ellam's Early Dwarf Forcing* is worthless, and there is some comfort in that, for were it possessed of any good qualities one might be tempted to force it, and forcing a cabbage seems almost as ridiculous as forcing a lock: at all events, cabbages for forcing will have to be forced somewhere else than in these pages. *McEuen's Early* is good in its way, but nothing particular. It makes a nice round heart, and finds favour in the North.

The curiosities of the cabbage garden are but few in number, and a few of them are quite superfluous. For example, here is *Constance*, a cabbage with leaves beautifully striped with white veins radiating from the stalk and forming a quite handsome pattern. And that is all it can do, poor thing; it cannot tempt one to eat it. But the curiosities are not all foolishness. Here is a cabbage called *Cleopatra's Needle*, as distinct as any cabbage would wish to be, the heart rising up like a distaff high above the spreading leaves, the colour vivid grass green. This is said to be very sweet when cooked, in fact, quite a special thing for the epicure's table, that is, supposing it possible for an epicure to eat a cabbage. A variety called *Winningstadt* is in the same style, but the colour is dark glaucous. And finally, we have *Couve Tronchuda*, a cabbage not enough appreciated, for the fat white leaf-stalks make a distinct and delicious dish, serving at this time of year, or say, through September, October, and November, purposes similar to those of sea kale and asparagus during the winter and the spring. The *Couve Tronchuda* has been much improved of late years, the object of the seed-growers being to enlarge the white, marrowy, delicate-flavoured leaf-stalk; for this, being served as sea kale, will enable anyone with a healthy appetite to resist the suicidal persuasions of foggy November, and to live on and be merry in a world that abounds with enjoyments for the wise and good.

THE BRIEF BIOGRAPHY OF DR. HOGG that appeared in our issue of last week is incorrect in one particular. Reference is made to the "late" Mr. G. W. Johnson, founder of the *Cottage Gardener*. It is with great pleasure we learn from the *Journal of Horticulture* that Mr. Johnson is in good health, and enjoying the repose he has earned by his past activities. May his days be many and his troubles few.

THE FLORIST AND POMOLOGIST for November is particularly interesting, for the floral plate is filled with figures of five new varieties of heaths raised by Mr. Turnbull, of Bothwell, whose fame in this department of hybridizing has long since gone to all the ends of the earth. The varieties figured are *Mooreana*, clear, low-toned, coral-red; *Douglasi*, a lighter tone of coral-red, with distinctly white limb; *Lady Douglas*, a rich, full-tone of coral-red, with smallish white limb; *Lady Mary Scott*, pure white, with thin pencil lines of red the length of the tube, delicate and beautiful; *Countess of Home*, rich full coral-red, with white limb dashed with red. The general style of the flowers, as regards form and size, may be said to rank with *Marnockiana*, *Aitoniana*, and *Turnbulli*. The fruit selected for special honour is *Schoolmaster* apple, a showy, roundish fruit, adapted for either the table or the kitchen.

POTATO POISONING.

FROM the opinion of an eminent analyst, it appears that decided symptoms of poisoning result more frequently than we are aware of from any considerable consumption of potatoes. Among the poorer classes, who live largely on potatoes, such symptoms are said to be common, more particularly when the tubers are very young or very old. Such potatoes, we are told, contain considerably quantities of solanine. The poison was found in very unmistakable quantities in the stomach of a man who had been for two or three days previous to his death living on nothing but raw unripe potatoes, and there seems to have been no room for doubt that this diet accounted for the presence of the poison. It is said to be found chiefly, if not entirely, in the skin of the potato, and is soluble in boiling water, and we may suppose that a very young or very old potato boiled in its skin must be to some extent permeated with solanine, and must be unwholesome to an extent that may become serious if partaken of in large quantities. To this it will be of interest to add that another unsuspected source of poison is maize, or Indian corn. A disease as fatal in Italy as consumption is in this country is attributed entirely to the exclusive use of this cereal, which is thought to be especially dangerous if ground in a damaged condition—damaged, we suppose, by incipient decay, though that is not stated. There is said to be one remarkable fact connected with the disease which is thought to have its origin in this source—the disease known as pellagra. Sufferers from it who commit suicide always do so by drowning, a fact explained by the pleasure afforded by the sight or touch of water, which constitutes a symptom of this disorder.—*Pharmaceutical Journal*.

[As regards the poisoning by maize, we have to say that as it was produced by the consumption of grain in a "damaged condition," the grain *per se* is as regards its fair fame in no way damaged by the story. As regards the potato poisoning, there can be no doubt the potatoes were to blame, but the people who suffered were much more to blame. Potatoes are often exposed in shops until they become green, and then they are dangerous. But as they are also nauseous to the taste, people are well warned by that good old monitor, the palate, that there is danger in eating them. It seems that it should be repeated daily in every town in the empire that potatoes with green skins are not wholesome food, and moreover, are of a most unpleasant flavour, no matter how well they may be cooked. As to the eating of raw potatoes by a poor starving wretch, he might have eaten raw beef with the same melancholy results. Raw potatoes of good quality are perfectly wholesome, and are renowned for their curative effect in bad cases of scurvy.—ED. G.M.]

PREVENTION OF POTATO DISEASE.

[In our issue for September 23, it was stated that we had received from Mr. Jensen, of Copenhagen, a letter on the important subject of potato disease, for which we would find room at the earliest opportunity. It will be seen that our correspondent desires his paper to appear in full, and without alteration, and our readers will appreciate our compliance with his request.—ED.]

I HAVE herewith the honour to hand you an article about the potato disease, which, considering the great importance of the matter, I hope you will allow space for in your esteemed paper. In this case I would be much obliged to you for sending to my address at Paris, as below, the number of your paper in which the article shall be inserted. In order to ensure an accurate representation of the subject, I hope you will find it in the interest of the cause when I allow myself to make it a condition that the article, if published, be inserted not in extract but in full. I should certainly not have allowed myself this application, if I had not been convinced of the great politico-economical importance of the subject, and if I had not felt assured that now the question has been solved to this extent that all that is further required is to direct the attention of agriculturists in a greater extent to the matter, in order that a reform may be instituted, the omission of which annually costs every potato-growing country millions of money.—Respectfully,

J. L. JENSEN,

Director of "Bureau Ceres," Copenhagen, Denmark.

p.t. Paris (Rue Perronet, Nr. 141 Neuilly), September, 1882.

PREVENTION OF THE POTATO DISEASE.

The damage caused by the potato disease in Europe alone must, according to reliable statistical data, be estimated, on an average, at scores of million pounds sterling annually. It is therefore of the greatest private and public economical importance that the protective method of cultivation of which I have given demonstrative proof in the lately published pamphlet: "How to Overcome the Potato Disease" (John Menzies and Co., Edinburgh and Glasgow 1882), and by means of which the potato tubers may be almost entirely protected against the disease, may become generally known to agriculturists; for the object is to preserve an extraordinarily great sum of money which annually, by the present method of cultivation, is as totally lost as if destroyed by fire. What, then, is required of the farmer, in order that he may be able to secure to himself and society such an extraordinary gain? So little that it is to be wondered at, viz.: (a) An hour's attentive and intelligent reading, in order to inform himself about what is to be done; (b) no special routine at all in order to be able to carry out the method; (c) no expense whatever, where only smaller areas are cultivated; (d) where potatoes are grown on a larger scale, a moulding plough different from those now in use.

The whole protective system may be briefly expressed in the following propositions: 1. The soil must be well worked through, so that the potatoes may be planted in a well disintegrated soil, which will afford a better protection than a lumpy one. 2. The potato-rows are given a distance apart of 30 inches. A greater distance is not needed by the system, but a smaller distance renders the protective moulding difficult. [Notice: In order to obtain the largest possible yield, the potato-sets must be larger or be placed close in the rows (for particulars on this subject, see the above-named pamphlet).] 3. The first moulding must be flat, so that the formed ridge be broad on top, and only about four inches high. This moulding may be repeated if it is thought serviceable. 4. The protective moulding must be applied as soon as the disease-blotches make their appearance on the leaves of the potato plants. If this has not occurred before wheat-harvest-time, the moulding ought to be executed then, without awaiting the appearance of the disease-blotches. 5. The protective moulding is performed by throwing up from one side of the row of plants a high ridge with a broad base, and running to as sharp a point at the top as possible. The covering of earth thereby produced over the upper surface of the uppermost tubers must be about five inches to begin with; later, by the settling of the earth and by sliding down, it will, as a rule, pre-

serve a thickness of about five inches. Contemporarily with this moulding the potato-tops are gently bent over towards the opposite side of the row, so as to give the top at least a half-orbit position. 6. The flat and the protective moulding, where potatoes are only grown on a small scale, may be done with a hand-hoe; on a larger scale those operations ought to be performed with the moulding-plough, the "protector," which is constructed to meet the necessities of the described system. 7. In order to prevent after-sickness, which may often be exceedingly great, the potatoes must not be lifted ere about three weeks after the last leaves in the potato-field are withered. 8. If the potato-tops are cut off and carried away, which, for the sake of the quantity and quality of the crop, ought not to be done before the leaves, in the main, are withered, the lifting may, as it seems without danger of after-sickness, take place about six days after such removal.

The vital point in the system, as it will be noticed, is the "Protective Moulding." In order to understand the effect of this, it will be necessary to add a few words about the cause of the disease.

The disease is solely due to the attack of a parasitic fungus, *Peronospora* (*Pythophthora*) infestans. When the summer has somewhat advanced, this fungus produces the well known dark-brown spots on the foliage of the potato, where it develops its "seeds," the so-called spores. The fungus-seeds are often so numerous that a single plant, according to countings and computations, successively can bear twenty to thirty million spores. Falling to the ground these spores are carried down with the rain-water to the tubers, upon the surface of which they germinate. The sprout-fibres penetrate the skin of the potato-tubers, and develop under the skin a dense tissue, the so-called mycelium. As a consequence of this, the potato is "sick," i.e., covered with brown spots (and at last becomes smuttyish-brown upon the entire surface), has a bad taste, and is in process of rotting.

Luckily the soil has the property of impeding to a great extent the progress of the spores, operating as a filter. The object to be sought, then, is to throw up upon the tubers a covering of earth of sufficient thickness to prevent the spores from filtering, or only allowing an insignificant minority to filter through to reach the tubers. By means of systematic experiments in the open field and several series of corresponding investigations in the laboratory I have shown that, when a 5-inch layer of earth is hoed up upon the uppermost tubers, only very few will become diseased, be the attack ever so violent. Such a layer of earth is therefore the principal thing in the protective moulding. The drawing over of the potato-tops to one side of the drills, the second point in the perfect protective moulding, is, in comparison with the thick covering of earth, of a subsidiary, *but nevertheless, by no means unessential importance*. The object of the bending over of the tops is to prevent the rain-water from trickling down the vines into the ground, whereby they would find a less obstructed way to the tubers. When, furthermore, the tops hang out over the adjoining furrow, fewer spores will fall upon the ground directly above the tubers than if the stalks stood erect. This latter applies especially to a high degree in rainy weather, as the raindrops "catch" the spores; but a spore caught by a drop of water cannot again escape, but must follow the movements of the drop. The consequence of this is that in rainy weather the spores fall vertically down together with the drops of rain, if the latter do not trickle down the vines, which is provided against by the slanting position of the latter. In dry weather, on the other hand, the spores swarm about more at large, and are more evenly distributed upon the entire surface of the field, without regard to the position of the stems. But when we consider that the tearing loose of the spores takes place to a much greater extent in rainy than in dry weather, and that the spores only in rainy weather can be carried down to the tubers, it will be seen that the inclined position of the tops, by which they hang out over the adjoining furrows, is of essential importance, although, as stated, the depth of the earth-covering is the main point.

For comparison I shall mention that, by the usual moulding, the uppermost tubers are only covered with $\frac{1}{2}$ to 2 inches of soil. This covering is much too thin for keeping out the spores, and consequently, the disease occasions exceedingly great damage on all kinds of soil, except on very decided sandy soils, upon which the damage, in most cases, is moderate, even if the tops be severely attacked, because such soils retain the spores in a much higher degree than do the better ones, a circumstance which I have demonstrated by microscopical investigations. The protective moulding, on the other hand, requires, as stated, a covering of 5 inches of earth upon the uppermost tubers, a covering which, as a rule, gradually settles to about 4 inches. If we take it for granted that this covering is 3 inches higher than is the case by usual moulding, then the protection thereby afforded is about $5 \times 5 \times 5$ to $10 \times 10 \times 10$ or about 100 to 1,000 times as great as by usual moulding. The difference depends upon the filtering power of the soil, and the boundaries may therefore, perhaps, extend somewhat further; but the protection of such an earth-covering is, at all events, always exceedingly great. When the protective moulding is properly carried out therefore very few potatoes, as stated, will be touched by the disease, viz., upon the whole only such as accidentally lie too near the surface, or to which access has been opened by a worm channel or by some accidental opening in the soil.

I beg the reader distinctly to notice that nothing of what has here been stated depends on mere theories, but is based upon a considerable number of practical experiments in the field and examinations in the laboratory. I therefore find myself in a position to speak with perfect certainty. When farmers will follow the directions given, then I can assure them of a good result. But a mistake may be made, especially on two points, whereby the experimenter may disappoint himself and confuse the question for others. (1) He may, judging by the estimate of the eye, suppose that he has given a moulding 5 inches high, while, in reality, the covering is only about 3 inches high; but this difference may entirely decide the result, for every inch of soil added makes, as stated, the protection several times as great. The earth-covering therefore must, under the very process of moulding, be measured by an inch-scale at a number of plants, and it will by no means do to content oneself with guess-work. (2) The other fatal error which may be committed is, that the moulding may be done too late, viz., not until after the disease-spots have made a considerable progress upon the foliage of the plants. If this mistake has been committed, many tubers may have become infected before the moulding has been given, even if, at this point, they look quite sound, for it lasts about a week before attacked tubers show the brown disease-spots. It is a matter of course that the damage already done cannot afterwards be remedied by the protective moulding.

It is especially from these two mistakes that contradiction may be expected from the side of inaccurate experimenters. But it is of great importance to agriculture that the clear light in which the question has been put be not confused by unreliable and mistaken observations. I have therefore thought

it best here to call attention to the sources whence such muddling of the question may principally arise.

A special attention is due to point 7 in the system. Quite extraordinary losses may result from a too early lifting of the potatoes, proofs of which will be found in the experiments cited in the above-named pamphlet. An error on this point might also, by misunderstanding, throw discredit upon the method. If the protective moulding has been properly applied, only very few diseased tubers will be found at the time of lifting, but if they be lifted while a great quantity of fungus seeds are still hanging in the foliage, it cannot be helped that the potatoes, on being taken out of the ground, are sown with the millions of spores showered down from the potato-tops; and in the course of five or ten days (the time depends precisely on the temperature) it will generally be found that a greater part of the harvested tubers quite on a sudden prove diseased. This is not, however, due to a defect of the system, but to the committed fault.

If it is desired, by personal experience, to convince one's self of the extraordinary and always certain effect of the protective moulding, it is of course requisite to follow the plain directions which have been given with regard thereto. But also without having made preparations for special experiments it is possible, by means of some simple investigations, even this year to convince one's self of the great importance of the protective moulding. I beg leave to propose the following investigations.

First Examination.—In a potato-field or garden where there are many diseased potatoes the tubers under, say 20 plants, are to be examined in the following way: The soil is removed by a small trowel or similar suitable device, until the uppermost tubers are reached; these are picked up and put in a pail or basket. Next, the second layer is taken up and put by itself, and finally the remaining tubers are dug and put in a third vessel. Consequently we have separate the uppermost, intermediate, and lowermost tubers from each potato-plant dug. Then all the tubers in each pail or vessel are counted, and the diseased ones separately. The result will show that the upper tubers are considerably more diseased than the middle, and these again considerably more than the lower tubers; in other words: the deeper the potatoes have been covered, the fewer diseased tubers will be found amongst them. At three examinations made by myself, of which I. and II. were made at Copenhagen, and III. at Paris, the results stood as follows:—

	I.	II.	III.
	Per cent.	Per cent.	Per cent.
Of the uppermost tubers were diseased:	82	49	49
„ intermediate „ „	30	30	17
„ lowermost „ „	3	8	12

By examination III. the soil was very clayey, and the tubers had set very high, so that the lower layer of tubers was only covered with about 3 inches of soil. The difference was therefore, in this case, although very great, not so decided as by I. and II. By a systematically executed protective moulding even the most violent attacks of disease may be so far checked that, as a rule, there will be only 1 or 2 per cent. diseased tubers.

Second Examination.—A wooden peg about 8 inches long, pointed at one end, and from the other end marked with an inch-scale, is first provided for. Ten plants, about which the soil at the moulding has fallen so high that the upper surface of the uppermost tubers are covered with $3\frac{1}{2}$ inch or more of soil, are then examined. How far such a covering exists is ascertained by sticking the peg into the ground in the centre of the plants to be examined to such a depth that the starting-point of the scale be on a line with the surface of the ground. If, next, the soil is scraped aside from above until the uppermost tubers are exposed, the thickness of the earth-covering may be read off from the scale. The tubers from the ten thus examined plants are dug and put in a basket, or the like, by themselves. Ten other plants, at which the covering of the uppermost tubers is between $\frac{1}{2}$ and 2 inches thick, are next examined in like manner, dug and put in another basket. After this the percentage of disease is ascertained. To find plants with a covering of the last-named depth is always easy, for it is just such covering that is the rule by usual moulding. On the other hand, it may often be difficult to find plants with a $3\frac{1}{2}$ or 4 inch covering. If, however, the potatoes are moderately high moulded, there will always be found a few plants with an earth-covering of the said thickness.

It will, by such examination, be seen that the high-moulded plants have essentially fewer diseased tubers than the lower-moulded; but a systematic carrying out of the protective moulding will, of course, give more marked results. By regular experiments in five different localities in Denmark, where the different potato-rows were cultivated side by side, without any other difference whatever than the method of moulding, the results were, on an average, as follows:—

	Usual moulding.	Protective moulding.
	Per cent. diseased.	Per cent. diseased.
I.	27	1.4
II.	6	2.0
III.	39	0.0
IV.	48	0.3
V.	5	1.1
VI.	20	4.8
VII.	18	0.3
VIII.	4	1.6

The experiments III. and IV. were carried out at Slagelse, the first-named with an early, the latter with a late potato. Eight rows were cultivated in the usual manner, with a small difference in the earth-covering (one of the rows, however, was left unmoulded), and with eight rows the protective moulding was applied.

The results were as follows:—

Usual moulding.				Protective moulding.			
Per cent. diseased.				Per cent. diseased.			
The early variety.				The late variety.			
29	..	..	0.5	25	..	..	0.0
22	..	..	0.0	64	..	..	0.3
45	..	..	0.0	45	..	..	0.0
38	..	..	0.0	58	..	..	0.0

It will be seen by the figures that very violent attacks of disease, which resulted in considerable devastation by usual moulding, have been reduced to almost nothing, solely by a well executed protective moulding. As to more particular information, I beg leave to refer to the repeatedly mentioned little book.

J. L. JENSEN.

p.t. Paris (141, Rue Perronet, Nenilly), September, 1882.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

ROSE-PLANTING has been in full swing for some time past, and as there is no more suitable month of the whole year for the work than November, it is necessary that those who intend making alterations or adding to their stock should do so at once if they would derive the best possible results from their labours. Knowing that many owners of small gardens are turning their attention to the selection and planting of roses, I purpose on this occasion contributing a few notes on the work of first importance in the rose garden at the present moment.

PREPARING THE BEDS AND BORDERS.

The preparation of the beds and borders intended for roses is a matter of prime importance, as upon the manner in which it is done depends in a large measure the after success. It is of but little use to purchase strong, well-rooted plants, to put them out with the greatest care, and to watch over them during the following spring and summer, if the soil is not so broken up that the roots can run freely in it and penetrate some distance below the surface, and rich enough to sustain a vigorous growth. To state the case briefly and clearly, the soil must be dug over to a depth of eighteen inches or two feet, if it can be done without bringing any uncongenial stuff to the surface; and if the soil is too shallow to allow of its being dug so deeply as eighteen inches it must be stirred to as great a depth as practicable. Not only must the soil allow the roots to penetrate deep enough to be able to support the plants during a period of drought, but it must be well broken up, so that the roots may meet with no check to their free extension on either side. Richness of the soil is essential, and as that for roses cannot well be too rich, the beds or borders should be manured as heavily as circumstances will permit. There is no fertilizer more suitable for roses than well-rotted farmyard or stable manure, and spread over the surface to a depth of six inches it will form a good but not too heavy a dressing. Well-rotted manure from the cow-byre or pig-stye will also answer very well, and should be applied at the same rate as the farmyard manure. If there is any difficulty in obtaining either of these three manures, resort must be made to some of the approved artificials, and amongst these there is nothing to surpass Clay's fertilizer, which is not only particularly suitable for roses, but it is so powerful that a very small quantity will go a long way. It is not, however, so strong that a pinch which can be held between the finger and thumb will suffice for a circular bed 12 ft. in diameter, and it should be spread over the surface to a depth of about half an inch, and, like other manures, be well mixed with the staple as it is dug over by the fork or spade. In preparing soils that are to be planted immediately it is not of much use to trench them in the usual way, and bring the crude bottom spit to the surface, as it is most unsuitable for putting about the roots. It is far better to dig it over to a depth of one spit and have a wide trench, and fork over the bottom as the work proceeds. By this plan a good depth is obtained without any of the well pulverized soil being buried out of the reach of the roots.

WHAT AND HOW TO PLANT.

Roses may be grown in the open both as standards and bushes, and of the two the latter are decidedly the best. Standards with large well-furnished heads are not wanting in attractiveness; but, unfortunately, a very small proportion of the thousands sold annually ever have good heads, and at the best standards are short-lived. We know also that the majority of the finest of the roses staged at the exhibitions are cut from standards; but the requirements of the exhibitor are not now under consideration, and I would strongly advise those amateurs who are anxious to derive the greatest amount of pleasure obtainable from their roses to set their faces steadily against them, and grow bushes exclusively. Well-grown bush roses are decidedly elegant, leafy to the ground, and in their season produce such an abundance of flowers that the standards cannot for a moment be compared with them. Bush or dwarf roses may be on the brier, the manetti on their own roots, and of the three own root plants are the best. They last much longer, for if they are cut down to the ground line by a severe frost the following summer they will produce a strong growth, and quickly recover from the severe check. The worked plants, that is to say, those on the manetti and the brier, if hard hit by the frost, are either killed outright or so severely crippled that they seldom do much good afterwards. The own root plants will not be so large at the same age as those on the manetti or the brier, and those who order their plants without seeing them in the nursery will be disappointed with their appearance when they are received; but the amateur rosarian may be assured that there will be no cause for disappointment with the growth, as examples of small size will quickly overpass the others, even if they should at the time of planting be furnished with shoots that may be likened to willow wands. In the purchase of worked plants an abundance of fibrous roots should be regarded as of more importance than fat shoots, for examples which have made a very vigorous growth in the nursery quarter often suffer severely from the removal to the garden, and two or three seasons elapse before they are so well established as to bloom satisfactorily.

Two feet each way is a good distance at which to put roses apart in beds and borders that are to be exclusively occupied by them, and when they are to be associated with other subjects the distances must be regulated by the circumstances of each case. Those who have a liking for standards may be advised to plant them at rather wide intervals with the dwarfs, as the growth of the latter will hide a portion of the stems and when gaps occur, as they assuredly will, they will not be so conspicuous. Very often roses suffer severely from the delays that occur in planting. Several days necessarily elapse between the time of their being dispatched from the nursery and received by the

purchaser, and when they remain a short time out of the soil after received the roots become so impaired that after the planting they are unable to discharge their proper functions. They cannot indeed be planted too quickly, and strenuous efforts should be made to dispose of them immediately they are received, provided, of course, that the soil is favourable for planting operations. Deep planting must be avoided, and the best rule for those who are not versed in rose growing is to plant the same depth as before. The holes must be large enough for the roots to be spread out evenly, and a little fine soil drawn from the surface of adjoining borders, that have not been dug over, should be provided for covering them, unless the soil is in a nice friable state, and then there will be no occasion to obtain soil elsewhere. Firm planting is essential, and the soil must be well trodden as the holes are filled in, and standards should have stakes put to them immediately, and be secured with stout tar twine.

PEGGED DOWN ROSES.

Beds of pegged down roses are very attractive when they are well done, and there are no special difficulties in having them in the finest condition. The soil must be rich and deeply stirred in the first instance, and strong growing kinds on their own roots or on the manetti be planted. The position selected for the beds should be in a rather retired, but by no means out of the way position. The planting must be done in precisely the same manner as when the dwarfs are to be to allowed to grow into bushes; but at the end of the first and subsequent years the strongest of the shoots have their tops taken off and are then pegged down horizontally to within a few inches of the surface. March is the best time for shortening and pegging down the shoots, and at the second and all subsequent prunings the shoots pegged down the year previous must be cut away and as many of the young shoots as may not be required for covering the bed, ten inches being a good distance for the pegged down shoots to be apart.

CHOICE ROSES FOR BEDS AND BORDERS.

It is not advisable for the owner of the small garden to have a very large collection of roses, for he has no space to spare for second-rate varieties. For the beds and borders I should recommend about twenty-four varieties, and if that number of plants is not enough, each variety can be repeated two, three, or four times, as may be required. Of the twenty-four fifteen should belong to the hybrid perpetual class, and my selection would include Alfred K. Williams, Anna Alexieff, Beauty of Waltham, Charles Lefebvre, Dr. Andry, Duchess of Bedford, Duchess of Connaught (noble), Duchess of Sutherland, John Hopper, Jules Margottin, La France, Madame Boll, Madame Rivers, Marquise de Castellane, and Victor Verdier. The tea-scented I would recommend are Devoniensis, Gloire de Dijon, and Madame Beraud; the hybrid Chinas, Blairi No. 2 and Paul Ricaut; the Bourbons, Queen of Bedders and Souvenir de la Malmaison; the moss varieties, Baron de Wassanaër, Lanei, and Madame William Paul.

ROSES FOR TRELLISES AND WALLS.

The two leading points in the cultivation of roses against trellises and walls are a rich soil and vigorous growing sorts. The soil should be richer than for those in the beds, as, unless the growth is robust, the results will not be very satisfactory, and it should be maintained in good condition by an annual application of manure. Some of the finest kinds for covering large walls and other spaces are Blairi No. 2, Climbing Devoniensis, Gloire de Dijon, climbing Jules Margottin, Red Dragon, William Jesse, Felicité Perpétué, Glory of Waltham, Red Rover, Crimson Boursalt, and Climbing Victor Verdier.

PROTECTING TEA ROSES.

To afford efficient protection to the tea-scented roses in beds a large quantity of material is not necessary; indeed, in many cases it is positively injurious. Experienced cultivators have long been acquainted with the fact that when tea-scented roses are loaded down with protecting material they are more or less injured if the winter is severe, whilst others close at hand with a very light covering escape with no more injury than the nipping of the tips of a few of the shoots. When a thick covering is applied, it becomes saturated with moisture, and is quickly frozen through, but applied lightly the air is able to circulate freely through the shoots underneath, and all the protection required is afforded. There is nothing better than bracken sprinkled lightly over the shoots, and where tea roses are grown outside an effort should be made to provide a sufficient supply for their protection. It has the advantages of not being unsightly, or liable to become so saturated with moisture as to sink into a compact mass, as both hay and straw do long before the winter is past.

SPECTROSCOPIC OBSERVATIONS OF CHLOROPHYLL.—Dr. Russell, F.R.S., and Mr. Lapraik have lately made some interesting observations of the spectra afforded by solutions of the green colouring matter of a great variety of leaves. The results indicate the existence in addition to normal chlorophyll, of two other forms, distinguished by their modified spectra, which they call α chlorophyll and β chlorophyll. Normal chlorophyll is highly sensitive, and changes rapidly to red, yellow, and other shades when exposed to the action of light. The slightly modified form, distinguished spectroscopically as α chlorophyll, on the contrary, is very persistent. It also presents a deep green colour in solution. It was found in dead pear leaves which had been seven months off the tree, and even in alcohol and ether extracts of dried tobacco. The changes of colour produced by dilution of chlorophyll solutions lead the observers to conclude that the differences in tint between new and older green leaves are entirely due to differences in the quantity of chlorophyll present in a given area of leaf-surface.

LIGULARIA MACROPHYLLA.

THIS giant of the herbaceous border is so conspicuous for the noble lines of its leafage and the daring splendour of its yellow flowers, that its name is often inquired after, and the artists rejoice to try their hands in depicting its striking characters. Its huge tuft of much-waved oblong leaves of a peculiar tone of full green, and its tall spires of yellow flowers of what may be called the ragwort type, render it as distinct in its own group of composites as it is when compared with other occupants of the border, no matter of what group or class. Find-

NEW NOTES ON CANNAS.

So little attention has been bestowed upon the cannas of late that it may be safely averred that they have not received the recognition due to their merits as decorative plants, and that the flower garden and the pleasure ground have suffered in consequence. One of the chief causes of their being neglected is probably the decline in the rage for the so-called sub-tropical plants. People became tired of the large and by no means attractive masses of such coarse things as the solanums and tobaccos with which gardens on all sides were, but a few years since,



LIGULARIA (SENECIO) MACROPHYLLA.

ing it in Mr. Ware's nursery labelled as above, we have retained the name, but it is commonly and not improperly classed as a senecio, and it suggests by its distinctive features how much the genus senecio needs to be broken up to reduce the number and magnitude of its divergencies. This is a good companion plant for *Bocconia cordata*, *Centaurea Babylonica*, *Astragalus stipitata*, and the like—plants that may be more appropriately termed picturesque than beautiful, and that have some special claims to assist in forming an artistic composition. This *ligularia* is perfectly hardy, and needs only room to expand to justify its occupation of a good position in a spacious border.

so liberally furnished; and in banishing them from the flower garden a sweep was made which included the cannas and a few other subjects possessing much merit. The series of cold and sunless summers we have had have no doubt done something to bring about the undeserved neglect of these stately subjects, for they are essentially heat-loving, and a fairly hot summer is necessary to the perfect development of some of the kinds.

I began, like many others, when plants of noble aspect were rising in public favour, by collecting and growing almost everything of bold growth and possessing large leaves, but when the reaction came I was

careful to retain those subjects which were really attractive and sufficiently distinct to afford a pleasing variety. Amongst those were the cannas, and so highly do I esteem them for the embellishment of the pleasure grounds that I have no hesitation in saying they are the most valuable of all the plants of bold and stately growth for outdoor decoration. They afford us a greater variety of character than any other class of bedding plants, and combine magnificent leafage with splendid spikes of the most brilliantly-coloured flowers. In some the leaves are of the most delicate shades of pale green, in others purple, in others bronze shading to black; some varieties resemble the well-known *Calathea zebrina* in the richness of their markings; others closely resemble the musas in their great expansive bright green leaves; and a few are so decidedly glaucous as to present a striking

planted they will produce a distinct and pleasing effect from within a very short time of their being put out at the end of May until cut down by the frost; generally remaining in good condition until the middle or end of October. One of the chief points in their favour is to my mind the striking relief they afford to the ordinary bedders and to hardy herbaceous plants that are the most extensively cultivated.

The cultural details are so simple that it is quite unnecessary to occupy much space in describing them. The first point to be considered is their propagation, which may be effected either by division of the rhizomes or from seed. A large stock may be cheaply and expeditiously raised from seed, as the cost of seed is not high, and the seedlings can be raised with very little trouble. From the leading houses seed of about twenty varieties can be obtained at prices ranging from sixpence



CANNA IRIDIFLORA EHEMANNI.

contrast to those with bronzy and purplish foliage. Not less various and attractive than the foliage are the flowers, for they range from light yellow to the deepest orange, and from rosy red to fiery scarlet and deep crimson. Their cultivation is of the easiest—they can be started into growth in the spring with or without fire heat, they will thrive in any ordinary garden soil, and they are not particular as to the position occupied when planted out, for they will grow vigorously in both sunny and shaded situations, and, unlike most other plants, they do not become drawn to an appreciable extent, if at all, when shaded by tall trees. Amongst their other merits must be mentioned their suitability for the formation of large masses in the beds on the lawn, and their adaptability for grouping in the mixed border. Wherever

to a shilling per packet, and if the seedlings are not exactly like the respective parents they will be all more or less useful, and some may show a decided improvement. Previous to sowing the seeds soak them in hot water to soften the integument or outer skin, and thus facilitate germination. To keep the water hot throughout the time the seed is soaking is not necessary, or, in fact, desirable; the proper course is to fill a basin or other small vessel with hot water, and then put the seeds in the water and leave them until it has become nearly or quite cold. If they stop in a few hours longer it will not matter, but the soaking during the cooling of the water has in practice been found sufficient. A brisk hotbed will be the most suitable place for the seed pots, and as the propagating pit is generally taxed to the utmost in March, when the

sowing is made, I usually plunge the pots containing the seeds of the cannas round the cucumber bed, and no better place could possibly be had. To afford the seedlings every assistance possible to acquire a suitable degree of strength by the end of May, when we usually bed them out, I have them potted off as soon as they are large enough for handling. They are put into sixties, and returned to the cucumber pit until nicely established, when they are removed to rather cooler quarters. They receive a shift into six-inch pots, when the smaller pots are filled with roots, and both for the potting off and for the shift the compost used is both light and rich. I have no sympathy with the practice, so general, of pushing cannas along in a high temperature early in the season, and then keeping them starving in small pots until bedded out, for plants subjected to it become so stunted that they do not quickly recover when bedded out, and much valuable time is lost.

In increasing the stock of established varieties, it is simply necessary to cut the rhizomes into portions with one or more crowns previous to their starting into growth in the spring, and to put each portion in a separate pot. Unless it is desired to multiply any particular variety to the fullest possible extent, each portion should have two or three crowns, as plants with several stems are more effective in the flower garden than those with one only. If it is not desired to increase the number of plants beyond that of the previous year, the rhizomes should be simply put in pots proportionate to their size without being divided or reduced in any way, and from these may be anticipated a growth of much greater strength than from those which have been subjected to the knife. Not only will each rhizome push up a forest of growth, that in due time will form a noble specimen, but the several kinds will grow from one to two feet higher than when they are divided into small portions. They should, as a rule, be potted in February, and in March be placed in a structure in which they will have a temperature of between 55 and 60 degrees. In this they will grow rather slowly, but the growth will be stout and not likely to be injured by exposure to the weather when put out, provided they enjoy a free circulation of air and full exposure to the light. It matters not if the plants are only nine or ten inches in height, provided they are robust, for immediately the roots begin to strike into the new soil the growth will proceed at a very rapid rate. But plants drawn up to a height of from eighteen to twenty-four inches will be in danger of having the leaves injured by the wind and sun, and when this happens they present a decidedly unsightly appearance for a considerable portion of the summer. When I see a stock of cannas growing vigorously under the shade of vines or peach trees in a temperature of 70 degrees, I tremble for the result, as I have long known that the foliage produced under these conditions is much too tender for withstanding the adverse influences to which it is necessarily exposed when the plants are first put out. In fact I am firmly impressed with the conviction that the starting of the cannas in a high temperature and in a position in which they cannot obtain a due share of light has done much in checking the extension of their culture. It would indeed be better to start them in a cold frame than in a vinery, and those who are doubtful as to the ultimate results, as they note the slowness of the growth, will do well to remember the fable of the hare and the tortoise, for in no case could we have a more striking illustration of it.

It matters but little in what situation they are planted, as they do well in both sun and shade, and the only point the cultivator has to consider is the selection of positions in which they will produce the best effect. Some of the tall growing kinds with large leaves sometimes suffer from high winds, and so far as practicable they should not be planted where they will be much exposed. Those of medium height are well able to withstand the effect of rough weather, and if there is a position in the garden more exposed than another the dwarf growers should be planted in preference to the taller kinds. To ensure a strong growth and full-sized leaves the soil must be light and rich, and in all cases the beds and borders in which cannas are to be planted should be enriched with a liberal dressing of leaf-mould and manure in about equal proportion. Heavy and tenacious soils would be further improved by a good dressing of coarse grit, such as road drift or river sand. The end of May is a good time for bedding them out, and the distance at which they are put apart should range from twelve to eighteen inches according to their height. After they are planted give them a thorough watering to settle the soil about the roots, and if the weather is dry in the early part of the summer they should have occasional assistance from the watering pot until they are well established. Even after they are well rooted in the beds a thorough soaking of water once a week during periods of dry weather will be of immense assistance in promoting a robust growth. In hot seasons a much of partly decayed stable manure will be most valuable, particularly if the soil is naturally light and sandy. Beyond this no attention will be required throughout the summer season.

To take them up in the autumn immediately a slight frost is apprehended is a mistake, as when lifted early the rhizomes do not keep so well, and a frost severe enough to cut the tops down to the ground will do no harm to the roots. It is well known to the majority of horticulturists that cannas can remain in the beds all the winter without much risk when the precaution is taken to heap leaves, ashes, or other material over the beds, to prevent the frost reaching the rhizomes. It is also well known that many arguments have been advanced in favour of the practice; but, according to my experience, the advantages are all on the side of lifting them in the autumn. By removing them from the beds there is no necessity for unsightly heaps of protecting materials, and the beds are set free for manuring and digging, and for being planted with bulbous and other subjects for the production of a display of flowers in the spring. It has been

claimed for the practice of leaving the rhizomes out all the winter that the plants make a stronger growth in the following summer, but the claim rests upon a slight foundation. They will, I am perfectly aware, attain a greater height and produce larger leaves than the plants obtained from rhizomes that have had half their life dried out of them during the winter or have been cut up into morsels in the spring. If a more rational course is taken, and the rhizomes are stored under conditions favourable to their being preserved in a perfectly fresh state, and in the spring started intact, they will produce a growth equally as strong as those remaining in the beds. Sometimes the growth will be far stronger, as in very severe and in exceptionally wet winters they are so seriously crippled that a satisfactory growth is out of the question. The roots should be lifted with a good ball of soil about them, and be placed for a few days on the floor of one of the fruit houses or a shed, to give the soil time to dry a little. The next step will be to remove them to a cellar, or to place them close together in the shed and cover to a depth of ten or twelve inches with rather dry, but not dust dry, soil, as there is no occasion whatever for drying the life out of them when in a resting state. Should the soil become very dry sprinkle moderately with water. When taken from the store they should be either potted and started into growth as they are, or be divided into not more than two or three portions.

We now come to the question of the selection of varieties. The facility with which seedlings can be raised has been pointed out, and it must now be said that as the named varieties are the pick of many thousands of seedlings raised by growers who have devoted much attention to the improvement of the canna, they are decidedly preferable when there is no occasion for working up a stock at the cheapest possible rate. The best of the named varieties will be much finer than the greater proportion of the seedlings; the plants of each variety will be uniform, and the planter will know exactly the character of the materials with which he is dealing, the latter being a point of no small importance in carrying out arrangements in the flower garden. For some years past I have grown a collection much larger than is required by most cultivators, and from it I have selected the following as the best representatives of the various types at present in cultivation: *Annei discolor*, leaves dark, with orange-coloured flowers; *Auguste Ferriere*, leaves large, oval, and of a rich dark green, flowers orange red; *Bihorelli*, a strong-growing variety, with dark green foliage, and deep red flowers; *Coquet*, a distinct variety, of medium height, the leaves lanceolate, green, shaded red, flowers large, and of a bright orange colour; *Daniel Hoibrenck*, of medium height, leaves large, flowers bright yellow; *Depute Henon*, tall, leaves glaucous, flowers rosy red and of large size; *Discolor*, dwarf, the leaves deep bronzy purple, useful for front lines; *Ferrandi*, dwarf, and free-flowering, and, like the variety immediately preceding it, useful for front lines and marginal belts; *Gloire de Lyon*, very fine, with large dark bronzy leaves, and orange-coloured flowers; *Marechal Vaillant*, strong in growth, the leaves purple, and the flowers bright orange; *Prince Imperial*, a beautiful dwarf form, with dark foliage, and rich crimson flowers; *Purpurea spectabile*, an excellent dwarf variety, with dark leaves; *Rendatleri*, tall, with dark narrow leaves, and salmon-coloured flowers; *Rubra superbissima*, a medium grower, the leaves purple, and the flowers orange red; *Van Houttei*, a tall grower, with orange coloured flowers; and *Warscewici major*, a distinct form, of medium growth, the leaves large, and of a dark green shaded with bronze at the margin, the flowers brilliant scarlet. One of the most distinct and beautiful of the cannas is *Iridiflora Ehmanni*, which is particularly adapted for culture under glass. It has a vigorous habit, attaining, under favourable conditions, a height of five feet; the leaves are very large and stout, and the flowers, which are very freely produced and of a rich carmine-red, differ from those of the other kinds mentioned in being somewhat trumpet-shaped, and in having equal sized lobes.

G. S.

LYCASTES.

THE *Lycastes* include one of the most beautiful of the many fine orchids flowering in winter and several of much value at other seasons of the year, and all are distinct in character and not particularly difficult of management, and some at least should form part of every collection, however small.

There are a few points in their management that must have due attention to ensure success, and the importance of an efficient drainage, an abundant supply of water when the new growth is being made, and a cool temperature, are amongst them. They will not suffer from a high temperature so quickly as the *odontoglossums* or the *masdevallias*, but they properly belong to the cool house, and in that structure they should be grown, the next most favourable quarters being the cool end of the cattleya house. Although they do not root more deeply than most other orchids, ordinary pots appear to suit them better than basket or pans, and they should as a rule be employed. The necessity of perfect drainage cannot be too strongly urged, and the practice of filling the pots to about two-thirds of their depth with crocks has much to recommend it. In re-potting large specimens, it is a very good plan to turn a small pot bottom upwards in the pot in which the plant is to be put, and then fill round it and to the desired depth with crocks of moderate size. Over the crocks place a layer of rough peat, and the pot will then be ready for the reception of the plant. The commencement of the growing season is the best time for re-potting and top-dressing the *lycastes*; and, in performing the first-mentioned of the two operations, remove as much of the old material from about the roots as can be taken away without injury to the roots. More especially is it necessary to remove the top layer, for in the course of the year the repeated waterings wash

out the goodness, and the fibrous matter becomes so much decayed that there is a great danger of its becoming sour when covered with a layer of new material. A considerable proportion of the peat from the sides and bottom of the ball ought also to be taken away, and if this is done with a fair amount of care the balls can be reduced very materially without the roots receiving any material injury, or the plants receiving the slightest check. There is nothing to equal good fibrous peat for the lycopods, and it should be broken up rather roughly, but in proportion to the size of the plant. To make the matter clear to those cultivators who have not had much experience in orchid-growing, and for whose assistance these notes are penned, it may be stated that the peat for plants in six-inch pots should be broken up much smaller than for specimens large enough to require pots eight or ten inches in diameter. The stock should be examined every year, and all plants of which the drainage is not in first-class condition be re-potted. If no extension of root space is required, turn them out and re-pot, using clean, well-drained pots of the same size as those previously occupied. The samples, whether large or small, that do not require re-potting either for the purpose of increasing the root space or improving the drainage, should have the peat on the surface carefully picked away, and then receive a top dressing of new peat. The time recommended for shifting the plants is the best also for the increase of stock, which is done by division. In cutting up a large plant for propagating purposes, first turn it out of the pot and reduce the ball of soil very considerably, and with a sharp knife divide it into as many portions as may be desired, each portion to have one or more young growths. It is not in a general way desirable to separate them into very small portions, and in the use of the knife care must be taken to avoid injury to the pseudo bulbs and unnecessary damage to the roots.

With reference to the general management of the lycopods it is not necessary to say much. It has been already stated that the proper place for them is the cool house, but they are more accommodating in the matter of temperature than many of the other genera. They will do well in the cool house, and they will thrive in the intermediate or cattleya house. Several friends of mine who are not fortunate enough to possess a properly-constituted orchid house or a plant stove grow them very well in the cucumber house and vinery from the early part of the spring until the autumn, and in the winter keep them in a house devoted during the summer to melons or cucumbers, in company with epiphyllums, bouvardias, and other subjects requiring a higher temperature than that of the greenhouse. Some of the finest specimens I have ever seen have been grown without the aid of orchid house or plant stove. A liberal supply of moisture to the roots from the commencement to the completion of the season's growth is a prime necessity, but the watering must not be so overdone as to keep the peat in a constantly saturated state, for when this is the case it quickly becomes so sour that the tips of the roots sooner or later decay. To avoid any misapprehension upon this point it must be stated that there will not be any danger of the plants suffering from an excess of moisture if the pots are drained in the manner advised, and a fair amount of judgment displayed in the watering. In the winter just sufficient water to maintain the material about the roots in a moderately moist state will suffice, and a very little water will serve for that purpose. A rather liberal degree of atmospheric humidity during the growing season is most conducive to their health, and a moderate syringing overhead once a day will be most beneficial in hot weather. During the winter and when in bloom they must not be syringed, and the atmosphere should be rather dry. It is particularly necessary to keep the flowers of *L. Skinneri* and its varieties quite dry, for they become spotted and unsightly immediately they are wetted; but kept free from damp they will remain in perfection for a very considerable period. About half a dozen kinds will suffice for an ordinary collection, and the following may be recommended as of first importance.

Lycaste aromatica. A distinct species, with comparatively unattractive flowers of a yellowish colour, which emit a powerful and very grateful perfume, well worth growing for the sake of its fragrance.

L. cruenta. A very beautiful free-blooming species; the flowers bright yellow, marked with maroon on the labellum, and freely produced early in the spring.

L. Deppii. A handsome species, with flowers coloured white, brown, and orange. It blooms from February to April, and the flowers stand well if the atmosphere is dry and they are not exposed to drip.

L. Harrisonii. A desirable form, bearing early in the year large whitish flowers with purple labellum. It is of very free growth, and the flowers stand well.

L. lanipes. A distinct species, with ample leafage and very free blooming. The flowers, which are borne during the autumn months, are of a greenish-white colour and waxy in texture, and with care retain their beauty for a considerable period.

L. Skinneri. This is the most valuable of the several species, and unsurpassed in usefulness during its season by any of the occupants of the orchid house. It usually commences to flower early in the winter, and continues in bloom until quite late in the spring, and the flowers remain long in perfection, both upon the plants and in a cut state. The typical form has large flowers, the sepals and petals white suffused with rose at the base, and the labellum rose marked with crimson. There is a considerable diversity in the size and colour of the flowers of this species, and numerous distinct and well-marked varieties are in commerce. Especially good are *L. Skinneri rosea*, with very large flowers, the sepals and petals rose, the labellum white and crimson; *L. Skinneri superba*, the flowers blush, with crimson labellum; and the very rare *L. Skinneri alba*, which, as indicated by its name, has pure white flowers.

ORCHIDOPHILIST.

The Household.

THE SOUP MAKER.—No. II.

THE making of clear soup is an artistic business that we shall come to in time. In these first lessons we have shown the beginner how to obtain a clear soup of the most elegant character and delicious quality, without any trouble whatever, by simply securing the first stock from leg of beef, leaving the second cooking for thick soups. And these two stocks, with a very moderate vegetable flavouring, may be made the basis of any number of soups, the particular characters of which will depend upon the finishing. The use of colouring is not to be thought of by a respectable soup maker. You must have flavour, and you want some goodness. Now colouring will not impart either; in the opinion of the writer, it is superfluous trash. The best colourings are, in the first place the meat, in the second place the sauces, in the third place a little Liebig extract, which of course should never be used if the soup is naturally of a good colour and very meaty. When high colour is wanted, a burnt onion may be put in with the other vegetables in making stock, and this is far preferable to the use of "browning" and such stuff, made of one knows not what, and emitting an odour of tar that frightens one.

As regards soup-making in general, however, it may be remarked with advantage that where there is proper cookery going on every day the outsides of turnips and onions, that are usually thrown away, are better for soup than the insides, and, having taken them, the insides remain for other purposes. Usually to save time carrots are sliced into soups, but where time is no object, and a strong soup is wanted, the carrots should be scraped. Often when putting the second water on the meat, it is as well to add some more vegetables. In pouring off the first stock for clear soup do not shake the colander or press any of the cooked vegetables, or you will jeopardise the brightness of the first stock, which, if well managed, will be as clear as calf's-foot jelly, and much more nourishing than soup made clear by the regular clarifying processes.

EMERGENCY SOUPS.—We shall go into business in a regular way in the next chapter, but in the meantime I give you a recipe for an extemporized soup for an emergency, as in a case of illness, or the need for a pick-me-up. A cup of soup being suddenly wanted, and no meat at hand to make it quickly, slice up a turnip without removing the outside, and an onion the same. Put these in half a pint of water and put them on the fire quickly, and then throw upon them about a dozen threads of amber gelatine. While the vegetables are boiling, no matter how fast, mix in a basin a dessert spoonful of flour, a dessert spoonful of sauce, and a dessert spoonful of soy. Beat well, and add a little of the water from the vegetables to thin it down perfectly, and then strain off the liquor into it. Throw away the vegetables, put the soup in the pot, add a nugget of Liebig, and boil up, stirring once or twice to prevent burning. Pepper and salt must be used at discretion, with a view to the palate of the person for whom the soup is made. An invalid suddenly in need of a cup of warm soup will find this tasty enough without any more condiments, but to make it piquant is easy enough at the last moment. If something more substantial is wanted, break an egg into a cup and stir a little of the soup into it slowly, and it will be at once savoury and nourishing.

A chump bone will make a capital cup of soup in a sick house where things are a little awry, but it should take an hour at least to stew the gravy out of it. When emergency soups are made, the getting rid of the fat may appear a difficult matter. But it need not be so, because the greater part of the fat comes out long before the gelatine does. One sure way of operating is to put the meat in as small a quantity of water as will be safe in the first instance and let it simmer in this, say for half an hour; then pour it off and put it in a cool place and put the meat on again with a fresh supply of water. By the time this second cooking is complete and the finishing touches are done, the first stock will be cold enough for the fat to be removed; and if there is any on the second it may be poured off by very careful tilting of the pot, so that the fat will run away first, and scarcely any of the stock will go with it. As a matter of course, the fat should be removed from the meat in the first instance as far as possible, but enough will come out of the bones to render the soup offensive and dangerous, unless means are taken to get rid of it. I could tell you of an invalid whose life was prolonged with a certain degree of happiness for many years, by the adoption in the household of little tricks and contrivances in providing savoury nourishments. Many a time a chump bone has made a delicious soup that was enjoyed when nothing else that could be thought of was any use, and the instantaneous soup made without meat in the course of a few minutes has often "turned the scale" and made an end for a time of a serious trouble.

X. Y. Z.

TRADESCANTIA ERECTA.—The *Lancet* calls attention to the Mexican *Tradescantia erecta*, Jacq., as the best and most powerful styptic known, capable (in a chewed or crushed state) of arresting any hæmorrhage, and suggests that though neither rare nor attractive, the plant ought to be more extensively cultivated for the sake of its valuable properties; the more so, as its acclimatization may now be considered an established fact.

"SAPO CARBONIS DETERGENS" is a Physicians' name for a valuable remedy prescribed for the past quarter century for every variety of skin disease. The public buy it under the title of WRIGHT'S COAL TAR SOAP, and test its genuineness by the foregoing Latin brand being on each tablet and wrapper.—[ADVT.]

The House, Garden, and Home Farm.

DUETTO.—SPRING AND AUTUMN.

FAIR child, the rippling tinkle of thy voice,
Breaking in sprays of music's silver showers,
Glinteth like wings of butterflies through bowers
Of laughing roses. Ravished, I rejoice!
But thou, dear mother of this blithesome daughter,
The rich contralto of thy deeper tone
Loosens responsive echoes! and my own
Spirit thou fillest, like exultant water
Bound for some spell-bound deep, with joys that yearn
In prayerful ecstasies to yield return
In unforgetten thoughts and words undying,
Ere Autumn winds, to Summer dreams replying,
Leave life and love to perish in the breath
Of Winter's fatal first frost-kiss of death.

ROWLAND BROWN.

THE HOUSE.

As hyacinths grown in glasses are very frequently so weak and spindling that the leaves fall about and have a more or less unsightly appearance, it may be proper to advise those who indulge in the cultivation to give their plants the fullest daylight possible as soon as they begin to grow freely. Previous to the formation of roots they do not need light at all, but when the roots have made a start they should be put in the fullest light, and if possible in a south or east window, where they will obtain a little sunshine occasionally. It is only in a full light that the leaves and flowers acquire their proper colour, and the stems their proper stoutness. The taller they grow the poorer they will be, and the more ridiculous they will look. There are various supports made for hyacinths grown in glasses: the best are made so as to drop into the top of the glass to obtain firm support for the uprights, these last having moveable catches that are easily adjusted to clasp the flower stem.

THE GARDEN.

ASPARAGUS beds to be cleared up by removal of the grass, clearing away of weeds, and laying on a coat of manure or sea-weed. It matters not how rank the manure used for a mulch.

AURICULAS, CARNATIONS, PICOTÉES, AND PANSIES IN POTS to have air frequently to prevent mildew; slight frosts will not hurt them so much as a confined and damp air; take off the lights in the morning, and keep them off till the sun is nearly quitting the frames, then shut up, and there will be enough warmth retained to counteract the frost without.

BEANS may now be sown on dry warm soils for a first crop, but on cold damp soils and we may say on clay lands everywhere, it is a waste of seed and labour to sow now, but every district has its peculiar capabilities, and every cultivator must judge for himself; our business being to remind all alike according to our knowledge of facts and consideration of the interest of our readers. In any case beans sown now should be put on well-drained land in a sheltered spot, and the sorts should be such as Mazagan, Minster Giant, or Dwarf Cluster.

FORCING must be proceeded with very slowly at first, and it is a good rule never to push any plant too hastily, or to use more heat than will suffice for the object in view. None but a trade propagator ought to have a higher temperature than 65 deg. in any house at this time of year.

FROZEN PLANTS.—It may be useful to remind cultivators that plants kept dry and well aired can endure two or three degrees more frost than plants of the same kind in a more damp condition. With the best precautions, valuable plants will sometimes be caught by the frost, and it should be constantly borne in mind that to recover frozen plants the safest procedure is to keep them in the dark till they thaw, and to let the thawing take place slowly: a dry still air is also essential.

KITCHEN GARDEN crops to be kept clean, all dead leaves removed, the ground frequently hoed between cabbage, &c. Thin winter spinach, clear off Brussels sprouts in compartments as used, and dig the ground over as soon as vacant.

ORCHIDS of deciduous habit to have little or no water, and no more heat than will suffice to keep them in health. Plants in a growing state must have enough water to prevent exhaustion. Young specimens may be kept growing freely in the warmest part of the house.

RASPBERRIES to have the old canes cut away, the new canes thinned to three or four of the strongest to each stool, and a good mulch of half-rotten dung laid down over their roots, and the ground between them not to be dug at all.

REVISE the garden work generally and begin now to prepare for next year's crops by trenching, manuring, planting, and collecting stuff to burn in a "smother." Quarters made ready now for spring seeds and roots, and kept quite rough, will only require to be levelled down and raked over when spring comes to be ready for seed at a day or two's notice, and will produce better crops than if got ready in a hurry. Have at hand protecting material for all the needs of the season, remembering that a few nights of hard frost may destroy Lettuces, Endives, Celery, and Cauliflowers worth many pounds which a few shilling's worth of labour and litter would have saved completely.

SEAKALE may be planted now in well-prepared ground in well-drained positions; but where the soil lies low or damp, however, it should not be planted till the spring. In any case, the ground must be deeply trenched and liberally manured, and the manure thoroughly incorporated with the soil.

THE HOME FARM.

IN open weather store animals will be in no way injured by being turned into pastures, but those intended for the butcher should, if it can be conveniently managed, be kept in the yards with a good bed of dry straw, for the animals lay on flesh much faster when kept dry and warm than when exposed to the vicissitudes of the weather, and upon this point men of experience are tolerably unanimous in their opinions. Cows from which the dairy is now supplied ought also to have sheltered quarters in un congenial weather, and they must still continue to receive food that is not only nourishing, but sweet, and not likely to impart an unpleasant flavour to the milk.

It is a very common occurrence to see horses, cows, and young animals biting the thin grass, with a bitter wind clipping them, and no shelter at night from the pitiless blast. To be sure, winter has not come yet, but when it comes

there will be the same exposure of animals to its debilitating influence, and it will have to be paid for by owners in food, health, and sometimes in life; although the common experience tells that inclement weather takes the fat out of the body and the strength out of the heart. To add to the bulk of the flesh is well-nigh impossible when the powers of animal assimilation are wholly employed in converting food into heat. To shiver with cold and at the same time get fat is well-nigh impossible. Comfort will put flesh on the bones with the help of a quite moderate allowance of food, but any amount of food with discomfort will only end in some kind of starvation.

Notes of Observation.

CHIONODOXA LUCILIAE.

THOSE who have not completed the planting of bulbs for the current season may be reminded of the great beauty of *Chionodoxa Luciliae*, which has now become so cheap that the question of cost is not likely to prove a serious obstacle to its being planted extensively. In general character it is not unlike the lovely *Scilla siberica*, but it is perfectly distinct from it: the growth is bolder, the flowers are larger, and the colour is of a much lighter, but not less pleasing, shade of blue. It is admirably adapted for pot culture, and in three inch pots about four bulbs in each, in five-inch pots six bulbs in each, and in six-inch pots at the rate of eight bulbs, it is very attractive, and admirably adapted for the decoration of the conservatory and indoor apartment. It is particularly suited to the requirements of those who have no forcing pit, as it enables them to increase their stock of flowering plants early in the year. It is simply necessary to pot the bulbs before the end of the autumn in some rather light and moderately rich compost, and then place them in a cold frame along with the giant snowdrops, the reticulated iris, and other subjects of a somewhat similar character, and there leave them until they are in bloom, affording them such attention in the matter of watering, air giving, and protecting as may be considered necessary. The *chionodoxa* is by no means tender; on the contrary, it is perfectly hardy, but when it is required in bloom early it is as well to shelter it from severe frosts. Its perfect hardiness is a very strong point in its favour, as it can be employed with much advantage for outdoor decoration in conjunction with other bulbous plants of dwarf growth and blooming early in the year. The fact must not be overlooked that it is well suited for occupying permanent parterres, as, unlike some other bulbs, it will, when once planted, increase in numbers and beauty for several years, so that there is not a perpetual expense attendant on the enjoyment of its beauty. Planted in clumps of about six bulbs each along the front of a border, with the winter aconite, the snowdrops, and the dwarf irises, it will produce a beautiful effect at a season of the year when the garden is not overstocked with flowers. After they have occupied the same position for several years, and it is feared that the soil has become somewhat exhausted, it will be an easy matter to lift the bulbs early in the autumn, enrich the ground with well-rotted manure or leaf-mould, or a mixture of the two, and replant in the same or different positions. The investment therefore in a few hundred bulbs will be found in the result both pleasant and profitable, more especially to those who have a decided partiality for early spring flowers. J. E. S.

SHRUBBY VERONICAS.

The value of the shrubby veronicas for contributing to the attractions of the conservatory during the autumn months is hardly appreciated to its fullest extent, or we should now see them on all sides, instead of a few solitary plants here and there. Assuredly they are not difficult to cultivate, for with the attention bestowed upon the ordinary run of decorative plants specimens large enough to produce a good effect can be produced in from six to eight months. That is to say, plants from cuttings struck early in March will be large enough to produce a good display in the following September and succeeding months. They can hardly be said to be shy flowering, for when they have justice done to them during the summer they do not fail to produce a profusion of their elegant spikes as soon as they attain to a suitable size. Even that very old form, *V. Andersoni*, is not shy in flowering, but the newer hybrids that have been raised from it, and *V. decussata*, *V. salicifolia*, and *V. speciosa* are much more abundant in flowering, and have a dwarfier and altogether better habit. Almost every season the list of veronicas is enriched with improved varieties, yet we seldom see any of them in private gardens, or in many of the nurseries. Possibly cultivators are not aware of what is being done in this direction for their benefit, and possibly some indication of the fact may be of service. The principal raisers of veronicas are Lemoine, Ferrand, and Bouchardat jeune, and what encouragement they receive on the Continent to persevere in their labours I do not know, but I do know that the encouragement is of the scantiest on this side of the "silver streak." The cuttings can be struck in the spring as readily, or nearly so, as cuttings of verbenas and other soft-wooded plants of free growth, and the plants produced by them can be grown to a flowering size in the course of the summer. But there is no occasion to be perpetually striking cuttings, or, at all events, it is not necessary to entirely renew the stock every season, for the plants can be grown on from year to year, and with a fair amount of care in their management they will, up to a certain point, increase in effectiveness as they increase in size. It is a good practice, in the case of plants to be grown more than one season, to prune them back early in the spring, March being a very good month for the work; then allow them to start into growth, and when the new shoots are an inch in length turn the plants out of the pots, reduce the ball by two-thirds, and after shortening the roots return to pots one size smaller. By this course of procedure fine buxom examples can be had in pots of comparatively small size. Afterwards they can be shifted on as may be required, or, as they lift remarkably well in the autumn, they can be planted out as soon as all danger of frost is past, and be potted up in September. In this way the majority of the veronicas sent to Covent Garden are grown, and a decided saving in labour is effected; but the plants kept entirely in pots are the best, and extra attention required by them is well bestowed. Some of the very best of those with which I am acquainted, and I know most of the varieties, are *Alba lilacina*, a pleasing light coloured variety; *Blue Gem*, a well known dwarf-growing kind with pale blue flowers; *Brilliantissima*, crimson and rose, the spikes large and very freely produced; *Diogenes*, an excellent variety, with rather small foliage and large spikes of violet-blue flowers; *Emblème*, deep violet, very free and fine; *Gloire de Marseilles*, strong in growth and free blooming, the flowers reddish-crimson; *La Reine*, corolla blue with white stamens; *Murillo*, reddish-violet, very free flowering; *Norma*, purplish-lilac, very dwarf, and useful for small pots; *Ornement*, pale lilac, free; *Perle*, carmine; *Rosalba*, rose, very pleasing; and *Rubens*, violet-blue. J. S.

GIANT SNOWDROPS.

For some years past I have paid some little attention to the snowdrops, and the various giant forms have so impressed me with their beauty and excited so much interest amongst my friends that I have now a good stock of all that are obtainable. I still grow a considerable number of the old form, but they are being gradually pushed into borders occupying more or less secluded positions to afford room for the finer kinds in the borders that are prominent and constantly under the eye. I did not of course buy my whole stock at once, but obtained one or two dozen bulbs every year, so that at no time has the cost been a serious matter. I would, perhaps, buy a dozen bulbs of one of the cheapest kinds, and half a dozen of one or two of the others, and this plan I strongly recommend to amateurs who may not wish to embark very heavily in any one season. The Crimmoan is at once the cheapest and one of the finest of the giant snowdrops, and the amateur who has a good stock of it can well afford to wait a year or two for the others; it has a held leafage and produces on rather tall stems flowers about double the size of those of the common form and of purest white. Still finer in some respects is Imperatrix snowdrop which has larger flowers and of the purest white; the flowers of this species, from their size and purity, are much appreciated for floral decoration, and five or six tastefully placed in a stand give it a charming appearance. Elwes's snowdrop is of so bold a growth that the flower stems attain a height of ten or twelve inches, and its flowers are very large and pure. About equal in merit and rarity to the last mentioned is Redoute's, which is remarkable both for its distinctness and great beauty, and is certainly not less to be desired than either of the foregoing. I have found it a good plan to arrange the snowdrops in clumps of six bulbs each, as they then produce a good effect at once, and are not so likely to be disturbed or injured when at rest as when they are distributed singly or in very small numbers along the edge of the border.

J. E. S.

NERINES.

Although I have a strong partiality for bulbous plants flowering in spring, I do not confine myself entirely to them. So far from this being the case my garden, greenhouse, and pits contain so good a collection of bulbous plant that I am seldom without several kinds in bloom during the period between the end of February and the beginning of November. The collection is not so very extensive, but the various kinds have been selected with due regard to obtaining a succession of flowers, and to their contributing their full share to the attractions of the garden or greenhouse, as the case may be. I have not paid any heed to mere botanical curiosities, for I have neither the time to attend to them nor the space to spare for them, but I have subjects of great interest and beauty that are not often seen in the hands of private cultivators. The plants to which I am desirous of referring in this note are the Nerines, a group of bulbs of the most elegant and beautiful character, and additionally valuable because of their flowering in the autumn, when flowering plants are not very plentiful if we exclude the chrysanthemums and the zonal pelargoniums. The Nerines, of which the Guernsey Lily, *Nerine Sarniensis*, is the best known, are nearly hardy, and can therefore be most successfully cultivated in a pit or greenhouse, and a pit from which the frost is just excluded well affords them quarters as suitable as could be found for them. Beautiful as is the well known and highly esteemed Guernsey Lily, it is quite surpassed in effectiveness by some of the less known kinds, which, by the way, can be grown on from year to year instead of having to be replenished by the aid of the nurserymen every season, as in the case of the kind mentioned. I have nearly all the kinds, and the most beautiful are *N. cornsea*, brilliant scarlet, a very beautiful and effective species; *N. curvifolia*, rich scarlet; *N. flexuosa*, rich vermilion, one of the most beautiful of the group; *N. Fothergilli* major, a splendid variety with larger flowers; *N. planti*, crimson shaded scarlet, a scarce and very beautiful form; *N. rosea*, a striking variety with flowers of large size and a rich rosy red colour; *N. undulata*, rosy lilac; and *N. venusta*, rich crimson. The flowers of the Nerines differ widely in size, but they are all borne in comparatively large umbels, and may be employed with much success in arrangements of cut flowers; but I attach too much value to the flowers to have them cut. A light and rather sandy compost is the most suitable, and that which I have employed for some years past is prepared with turfy loam, four parts, and leafmould, manure rotted to a powder, and sharp silver sand, a part each. It is necessary to well drain the pots, to supply liberally with water when the new growth is being made, and to keep rather dry when they are at rest.

J. E. S.

TWO GOOD BERRY-BEARING SHRUBS.

Amongst the rather large number of hardy shrubs valued for the attractiveness of their berries, we have not many to equal, and none to surpass, the *Pyracantha* and *Simons's Cotoneaster*, the first-mentioned for covering walls and fences of wood, and the other for the shrubby border. In positions where the large birds can be kept off the *pyracantha* is literally aglow with its scarlet berries throughout the winter, and affords a display of colour usually welcome in its season. The *cotoneaster* is of medium height, and arranged along the front of the shrubbery its berries, immediately the leaves begin to fall in November, shine out brightly and light up the border in a surprising manner. Neither of the shrubs are rare, and many positions in gardens might, with their aid, be considerably improved at a very small outlay.

HEAD GARDENER.

MARECHAL NEIL ROSE.

In the *Gardeners' Magazine* of April 12, 1879, and May 22, 1880, you published a few particulars that I furnished of the extraordinary growth of *Marechal Neil* rose; I also sent you some flowers to show how successful it turned out. Since that time, through unfavourable circumstances, I have had to leave my favourite to the care of some one else; but it has been flowering something wonderfully each year since. That having proved such a great success, I have again tried the same course of procedure, and have just taken the measurements, and to my great surprise I find I have got 216 ft. 3 in. in all from two buds on one stock, produced since April of this year. At some future time I hope to have something to report of the *Marechal* on the seedling brier, which I have got doing well in a conservatory. The subjoined list of measurements will show that my *Marechal* has three main rods measuring 30 ft., 25 ft., and 25 ft., two minor rods 13 ft. 6 in. and 11 ft. 6 in., and 38 laterals ranging from 6 ft. to 6 in.

Down Lodge, Kenley.

JAMES JEAL.

CURIOUS TENURES.

In the days when writing was the rarest of accomplishments there must have been very great difficulty in proving the title to landed property, and indeed, for a long time, the mere fact of possession was the best evidence of ownership, and the process of turning a man out by superior force the most regular and satisfactory method of "conveyance." In the days of the Saxon kings, however, we have occasional signs of a more law-abiding spirit, proof of which appears in the forms of tenure which then sprang up, and some of the means by which the holders of land were then first enabled to demonstrate their ownership are very curious in their simplicity and quaintness. The "Pusey Horn," which was the subject of a celebrated lawsuit in 1684, is one of the most ancient and remarkable examples of this. At the trial before Lord Chancellor Jeffries, the horn itself was produced in Court, and was admitted to be the identical horn which had been delivered seven hundred years before by King Canute to the ancestors of the Pusey family to serve the same purpose as a charter of their lands, and as long as it existed to be an indisputable proof of their right to the manor of Pusey. Upon the horn these words were engraved in Saxon characters:—

"Kung Knowde gobe Wyllham Pusee
Thys horne to hold by thy londr."

This tenure of *cornage*, or of a horn, which in early times was very common, seems also to have been connected with certain active duties in the way of defending the land from invaders, as it is said in that extraordinary collection of ancient lore, "Coke upon Littleton," "In the marches of Scotland some hold of the King by cornage, that is to say, to winde a horne to give men of the cuntry warning when they hear that the Scots or other enemies are come or enter in England, which service is grand serjeantry."

Great fertility of invention was certainly from time to time shown in the forms of tenure upon which lands originally given by the Crown were anciently held, and there was hardly a single service, however small and menial, that was not in this way provided for in the King's household at the expense of his subjects. Among an immense number of examples the following may be given. "Roger de Leyburn," it is said, "holds Bures, and Robert de Sutton of him by the serjeantry of scalding the King's hogs." The manor of Finchingfield in Essex was once held by one John Compes of King Edward III. by the service of turning the spit at his coronation. The serjeantry on which Geoffrey de St. Clare once held the manor of Stapleton, in the county of Somerset, of the King, was that "of bearing one towel before our Lady the Queen at Easter, Whitsuntide, and Christmas, and at the King's coronation." Ladies sometimes held lands on condition of doing needlework or performing some other service usually assigned to females. Thus Emma de Hamton held "of our Lord the King in the town of Newington, in Oxfordshire, forty shillings of land by the service of cutting out the linen clothes of the King and Queen." As an instance both of the careful provision for all the King's possible wants, and also of the scale of prices once ranging in this country, the tenure on which "Robert Maunsel held forty acres of land in Rode, in a certain place called Somerhale, and Lidgate, of the Honour of Peverell, in Northampton, by the serjeantry of finding for our Lord the King in his war in Wales, when it should happen, one horse of the price of five shillings, and one sack of the price of fourpence-halfpenny, with one small pin, for forty days, at his own cost," may be cited, although one cannot keep suspecting that this tenure was a "jocular" one. Walter Barun is said to have held "certain lands and tenements in the town of Holcote, in Somersetshire, of the King in capite, by hanging upon a certain piece of forked wood the red deer that died of the murrain in the King's forest of Exmoor, and also of lodging or entertaining the four strangers, weakened by infirmities that came to them, at his own proper cost, for the souls of the ancestors of our Lord King Edward."

In a previous article a poetical charter of the bestowment of land by William the Conqueror was quoted. Another of earlier date, given by King Edward the Confessor, relating to Cheolmer and Dancing in Essex, and the forest rights there, was as follows:—

"Iche Edward Konynge
Have yeoren of my forest the keeping.
Of the hundred of Chelmer and
Dancing
To Randolph Peperking and to his
kindling
With harte and hinde doe and bokke,
Hare and foxe catte and brooke.
Wild fowle with his flocke,
Partrich, fesaunte hen, and fesaunte
cock:
With green and wilde stob and stokk.
To keepers and to yeomen by all his
might

Both by day and eke by night
And hounds for to holde
Good swift and bolde:
Four grehounds and six raches
For hare and foxe and wilde catte:
And therefore ich made him my booke.
Witness the bishop Wolstan
And booke glared many on
And Sweyne of Essex our brother
And taken him many other
And our steward Howelin
That besought me for him."

A curious ceremony was connected with the tenure of certain lands in Corringham Park, in Essex, which, in the reign of Edward I., were granted by the dean and canons of St. Paul's, in London, to Sir William le Band. These lands were held on the following condition: "that every year for ever on the day of the conversion of St. Paul there should be a good fat doe brought by one of Sir William's fitting servants, and not the whole family, at the hour of proceession, and through the midst thereof, and offered at the high altar without exacting anything for the said service of the dean and canon, and on the day of the Commemoration of St. Paul in summer (mid-day) a fat buck by some such servant, attended by Sir William and his family, and so carried through the midst of the proceession and offered at the high altar, the said dean and canons after the offering just performed, giving by the hands of their chamberlain one shilling to the person bringing the buck for their entertainment." Camden bears testimony that this reception of the doe and buck was regularly continued till the days of Queen Elizabeth, and solemnly performed at the steps of the choir by the canons of St Paul's, attired in their sacred vestments and wearing garlands of flowers on their heads, the horns of the buck being carried on the top of a spear in proceession round about within the body of the church with a great noise of horn-blowing. A ceremony surely savouring rather of a pagan temple than of a Christian church!

Another semi-religious service had to be yearly performed, as the condition of the holding of the manor of Broughton in Lincolnshire of the lord of the manor of Castor. On Palm Sunday a person from Broughton took a new cart-whip—or whip-gad, as it was called—made in a peculiar manner, and after cracking it three times in the church porch, marched up with it through the middle aisle into the choir, where he sat down in the lord of the manor's seat. There he remained till the clergyman came to the second lesson. He then quitted his seat, with the gad in his hand, and having a purse that ought to

contain thirty silver pennies (for which, after a time, half-a-crown was substituted) fixed to the end of the lash, and, kneeling down on a cushion before the reading-desk, held the purse suspended over the clergyman's head all the time he was reading the second lesson, after which he returned to his seat. This strange custom is supposed to be connected with the subject of the second lesson of that day, the thirty pennies representing the thirty pieces of silver received by Judas for betraying his master, and the three cracks of the whip in the porch the three times that Peter denied his Lord. Another custom connected with the clergy was that when any customary tenant of the manor of Burg, in the county of Salop, died, the Bishop was to have "his best beast, all his swine, bees, whole bacon, a young cock, a whole piece of cloth, a brass pan, and a rundlet of ale if it be full."

Except in some rare cases of copyholds, which were excepted by the famous statute of Charles II., abolishing the old forms of tenure from its operation, none of the peculiar incidents of tenure which have been mentioned are now in existence; but, nevertheless, many old English customs survive amongst us, and are still religiously observed in quiet country corners. There is something of a pleasant flavour of the old world that comes to us in these quaint ceremonies, showing how one century is bound to another, how, though, perhaps our forefathers were wont to take their pleasure a little less tristement than we modern English do, the humours of the people are still very little altered, and how in some sort or other "service" to the lord or community—though the shapes it has from time to time assumed have been fantastic enough—was in the old day, as it is now, recognised to be the condition of retaining the possession of the soil.

J. J. B., in *Land*.

THE MOVEMENT OF PLANTS.

At a meeting of the Academy of Natural Sciences of Philadelphia Mr. Thomas Meehan remarked that comparatively little knowledge of motion had been gained since the time of Linnaeus. The recent work of Mr. Darwin on the motions of plants, was a valuable contribution to the subject, though confined to motion in roots and leaves. He thought it would serve the cause of science to note that the presence or absence of light in itself could not, as so often assumed, account for all the phenomena of motion. He had made numerous and careful observations, this season, on motility in *Draba verna*, which plant, so far as he knew, had not been observed to have any peculiarities. The petals are usually closed during the early season, though the pedicels are erect in the daytime, drooping so as to form almost a perfect circle at night. These pedicels become erect about three hours after sunrise when there is about twelve hours of sun in the day, commencing to droop at about two o'clock in the afternoon. This diurnal motion in the pedicels continues some days after the petals have fallen, and apparently as long as the silicles continue to grow. Later in the season, on clear days, the petals commence to open early in the morning, contemporaneously with the rising of the pedicel; by the time this was erect, the petals would be nearly expanded. The expansion, when the sun rose at half-past five or six, would be complete by nine a.m. Strange to say, no matter how clearly the sun might continue to shine, the petals commence to close about noon, and by about two p.m. are completely closed.

During the course of his observation, there was a period of four days cloudy, and no attempt at expansion was made. The fourth day, however, was so slightly cloudy, that the eye could scarcely look at the sun through the thin cloudy veil. The amount of absolute light could be little less than on some days earlier in the season, when the sun was wholly unclouded, but still there was no attempt at expansion of the petals. Continued observations seemed to show that not mere light, but clear sunlight, was necessary to the opening of the flower.

One evening there was a heavy thunder shower; the next day was densely cloudy, warm and moist, but the flowers of the *Draba* expanded just as well as under the bright sun of previous days! These facts show that we cannot refer the opening of the flowers either to light or sunlight alone. Mr. Meehan believed that plants not only behaved differently at different times, but in different countries; and as no one, not even Mr. Darwin, seems to have noted the expansion of the petals of the *Draba* in England, it is possible that under those cloudy skies, they do not expand at all. So far as he had noted here, the self-fertilized flowers of the closed *Drabas* produced seed just as well as the expanded ones, which might possibly be occasionally cross-fertilized by the small sand wasps, which visited the open flowers freely for pollen.

How habits change at times, Mr. Meehan illustrated by specimens of *Lamium amplexicaule*, a common introduced weed in gardens. Dr. Bromfield, in his *Flora of the Isle of Wight*, notices that the flowers vary in size during the season, but that the earliest ones are the largest. Here it is reversed. The specimens exhibited had already flowered from six verticels, and had mature seeds in many, but the flowers had never expanded in any case. Indeed, very rarely had the closed corollas been produced beyond the calyx. They were essentially cleistogone. As showing how uncertain were the laws influencing this condition, when usually about the end of April the perfect flowers appeared, some plants would have them a week or more before others alongside produced any. To all appearances, external influences were the same.

As somewhat bearing on the laws of motion, the angle of divergence in branches was referred to. Mr. M. exhibited branches of *Salix caprea*. Normally the branches separated from each other at a very acute angle, but the fertile ament on these branches was pendulous. Under no external influence, so far as we could tell, an individual appears with penulous branches. This has been increased by grafting, and is known in nurseries as the Kilmarnock weeping willow. But the aments have retained their normal condition as regards the branch. The catkins are erect on the pendulous branches, while pendulous on the erect ones. Morphologically a catkin is but a modified—an arrested branch, but we see by this that whatever cause induced the change from the normal condition of divergence, it was purely local—and ceased to exist before it reached the arrested branch or ament.

These facts were offered to show that in studying motility in the various parts of plants, it would be well to remember that external causes had but a limited influence, and that in these cases a combination of circumstances often controlled the influences attributed to one. As, therefore, the facts would vary with various observations—those of one observer sometimes seeming rather to conflict with than to confirm another—it was too soon to form any just conclusion as to the motive cause. What was desired was not so much these speculations, but an increase in the number of observers, and a correct record of well authenticated facts.

Replies to Queries.

W. A. Burg.—Your dark-branched fungus is *Telephora palmata*. It is of no particular interest, except that it is somewhat rare.

W. C.—A gardener living on the premises is entitled to a month's warning, although his wages are paid weekly. This reply appears to cover both your questions.

W. Imeson.—Your letter is too long; it may be months before we shall have time to read it. If you want information on any matter within our range of operations, ask for it in plain English, and we will do the best we can for you.

Names of Fruits.—C. B.—1, Ribston Pippin; 2, Hall Door; 3, Norfolk Bearer; 4, Formosa; 5, Reinette du Canada; 6, Beurré de Capiaumont.—E. H.—1, Bishop's Thumb; 2, Beurré Diel; 3, Brown Beurré; 4, Colmar Charnay.

Hortensis.—The subject to which you refer was treated in detail in various issues of this paper from August 5, 1876, to May 26, 1877. At a suitable opportunity we may be able to take up the subject again, but we could not do so at present.

L. D. Hemel.—As regards the Sanitary Act we are in doubt, and therefore cannot answer the question. As regards the rating of glass houses, we can answer that they are commonly rated, and to appeal against the process is waste of time.

J. R. C., Hollywood.—The official record declares that the certificate for Muriel was awarded to Mr. Dodwell. Our business is to report on what we know, and not on what we do not know. In every case the name of the person in the list is in accordance with the official record, and it is the name of the person to whom the certificate was awarded. If we were to depart from such a definite rule we should immediately be lost in rumours, conjectures, assertions, and guesses. We do not know the address of the gentleman you name, but probably Mr. Dodwell could give it.

Devonshire Plants.—Ibex.—You will have no difficulty in finding interesting plants for your new garden, and we will advise you so far as we can on any matters that are submitted in a definite manner, but general advices on particular cases are of no use at all. As you ask for the names of a few interesting plants that are likely to thrive in a very favourable nook near the sea, we recommend you to plant *Abutilon vitifolium*, *Aralia Sieboldi*, *Berberis Nepaulensis*, *Colletia horrida*, *Desfontania spinosa*, *Grislinia littoralis* and *G. macrophylla*, *Pittosporum crassifolium*, *P. tobira*, and *P. undulatum*, *Veronica Andersoni*, *Daphne Indica*, and *Agave Americana*. You may be liberal in planting camellias, Indian Azaleas, Escallonias, Embotriums, and Grevillias. In the course of ten years or so we should like to hear about the living and the dead.

Books.—Subscriber.—The "Gardener's Dictionary," published by Bell, York Street, price about 7s. 6d., will exactly meet your requirements. *J. Harris.*—The "latest" books are not always the best; sometimes they are the worst. The books you want are obtainable only as accident may bring them forth, as no bookseller can supply them forthwith as though there were thousands at command. We cannot give you the values of any, and, as a matter of fact, we should be glad to buy some of them at ten times the amount you name. *H. J. Keble.*—Brown's Forester, Herbert's Bulbous Plants, Paul's Rose Garden, Gordon's Pinetum. *W. B. B.*—The best Dutch Dictionary is in two volumes by Callisch, published at Tiel by H. C. A. Campagne. Probably Nutt or Trübner could supply it. The best first book for study is Ahn's Concise Grammar of the Dutch Language, published by Trübner. *J. E.*—The most complete modern work on gardening sufficient for all purposes where there is no horticultural library is Thompson's "Gardener's Assistant," published by Blackie, price about 35s. The best handbook for your friend is the "Amateur's Kitchen Garden," published by Groombridge at 6s.

Literature.

The *Ladies' Gazette of Fashion* for November contains a striking picture entitled the "Guard of the Harem," and a series of tasteful designs for needlework embroidery. The notes on the picture galleries are interesting, and of course the space devoted to the fashions boils over with beauty and glory.

The Herefordshire Pomona. Edited by ROBERT HOGG, LL.D., F.L.S. (171, Fleet Street).—Part 5 of this noble work is about equally divided between apples and pears. It contains twelve coloured plates corresponding in general tone with those previously published, which it has been our privilege to speak of as at once faithful transcripts from nature, and beautiful examples of artistic taste and skill. We note that special attention is given to such grand old apples as Golden Pippin, and its associates of the same class—The Schoolmaster, Queen, Gravenstein, Rymer, Scarlet Nonpareil, Cornish Aromatic, Cornish Gilliflower, Barcelona Pearmain, Lemon Pippin, Winter Colman, Northern Greening, Yorkshire Greening, Gooseberry, Kingston Black, a very pretty fruit; the Wildings, Fearu's Pippin, and Pearson's Plate. The pears that take the lead in this part are Hacon's Incomparable, Winter Nelis, Chaumontel, Napoleon, Baronne de Mello, Napoleon III., Bishop's Thumb, Doyenne Boussoch, Maréchal de la Cour, Citron des Carmes, Beurré Capiaumont, Beurré de l'Assomption, Urbaniste, Jewess, Deux Sœurs, Belle Julie. There are seventy-two varieties in all figured in this part.

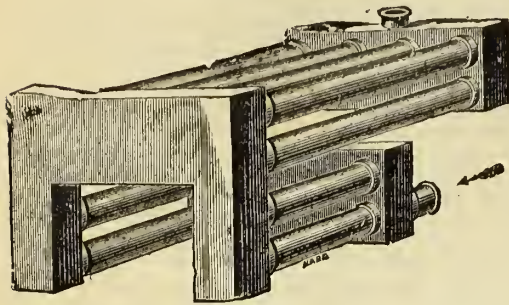
Greater London. By EDWARD WALFORD (Cassell).—All who know "Old and New London," which was commenced by the late Walter Thornbury, and completed by Mr. Edward Walford, will rejoice to hear that a work on the same plan, to embrace a larger area, and, as we may say, devoted to London in the country, is now in course of publication. The new work will rank with the old one in size and style, with abundant illustrations, and containing the features of a history with the attractions of a scrap book. The first number indicates at a glance that Mr. Walford is well prepared for the task before him, and that "Greater London" will be a work of value and importance.

Hand and Heart, new series, published at 1, Paternoster Buildings, contains a good portrait of Dr. B. W. Richardson, F.R.S., from a photograph by Mayall.

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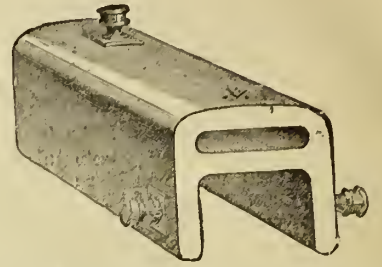
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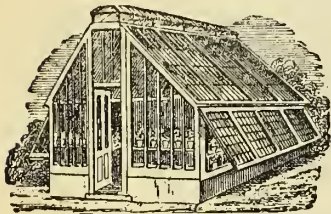
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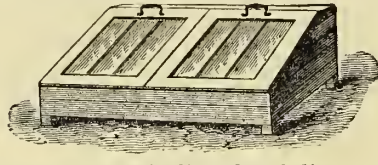
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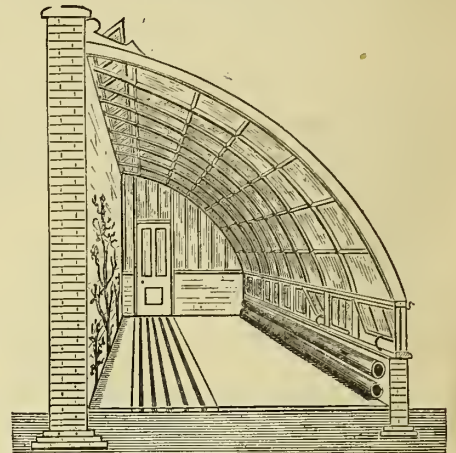


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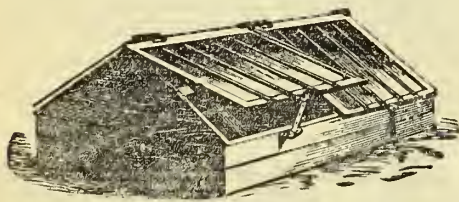
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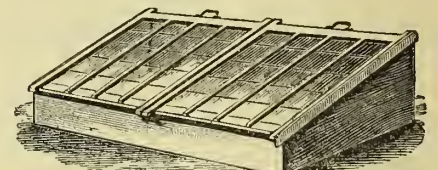
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								Morn.	After.	Morn.	After.				
1882			H. M.	M. H.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.		1882		
19	S	24th Sunday after Trinity.	7 27	14 26	4 7	1 9	0 1	7 35	8 10	4 25	5 0	41° 8	Acacia corymbosa, G.	Yellow.	323
20	M	Berlin decree, 1806.	7 28	14 12	4 6	1 31	1 18	8 45	9 27	5 35	6 10	41° 7	Barkeria Skinneri, S.	Rose.	324
21	Tu	Princessa Royal born, 1840.	7 30	13 57	4 4	1 50	2 37	10 0	10 37	6 52	7 25	41° 6	Coronilla glauca, G.	Yellow.	325
22	W	St. Cecilia.	7 31	13 41	4 3	2 20	3 59	11 10	11 40	8 2	8 35	41° 6	Chrysanthemum, G.	Various.	326
23	Th	St. Clement.	7 33	13 24	4 2	3 3	5 19	—	0 8	9 5	9 33	41° 6	Goldfussia isophylla, S.	White.	327
24	F	John Knox died, 1572.	7 34	13 7	4 0	3 46	6 36	0 35	1 0	10 0	10 25	41° 5	Jasminum nudiflorum H.	Yellow.	328
25	S	Full Moon, 2h. 3m., morn.	7 36	12 49	3 53	4 34	7 47	1 25	1 43	10 50	11 13	41° 5	Salvia Hoveyi, G.	Purple.	329

The Gardeners' Magazine.

SATURDAY, NOVEMBER 18, 1882.

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EXTRA COPIES of any particular number should be secured early by those requiring them, as the stock of back numbers is at all times small, and they are never reprinted.

SPECIAL NOTICE.—All communications intended for the literary portion of the Paper should be addressed to the Editor.

ADVERTISEMENTS SHOULD BE SENT TO THE ADVERTISEMENT OFFICES 143 and 149, ALDERSGATE STREET, E.C., and not to Ave Maria Lane, as considerable delay is caused when instructions are forwarded to the latter place.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, NOVEMBER 21. — MANCHESTER ROYAL BOTANICAL AND HORTICULTURAL SOCIETY.—Exhibition of Chrysanthemums.

TUESDAY, NOVEMBER 21, AND WEDNESDAY, NOVEMBER 22.—LIVERPOOL HORTICULTURAL ASSOCIATION.—Exhibition of Chrysanthemums, &c.

TUESDAY, NOVEMBER 21, TO THURSDAY, NOVEMBER 23.—BRIGHTON AQUARIUM.—Exhibition of Chrysanthemums, Fruits, and Table Decorations.

WEDNESDAY, NOVEMBER 22, AND THURSDAY, NOVEMBER 23.—NORTHAMPTONSHIRE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

WEDNESDAY, NOVEMBER 22.—WIMBLEDON HORTICULTURAL SOCIETY.—Chrysanthemum Exhibition.

WEDNESDAY, NOVEMBER 22, AND THURSDAY, NOVEMBER 23.—BIRMINGHAM CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

THURSDAY, NOVEMBER 23. — AYLESBURY HORTICULTURAL SOCIETY.—Exhibition of chrysanthemums, &c.

THURSDAY, NOVEMBER 23.—OXFORDSHIRE CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

THURSDAY, NOVEMBER 23.—STAINES CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

SATURDAY, NOVEMBER 25. — CHEETHAM HILL AND CRUMPSALL CHRYSANTHEMUM SOCIETY.—Annual Exhibition.

Auction Sales for the Ensuing Week.

MONDAY, NOVEMBER 20, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden W.C.; Bulbs from Holland.

TUESDAY, NOVEMBER 21, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

WEDNESDAY, NOVEMBER 22 AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Plants and Bulbs.

THURSDAY, NOVEMBER 23, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

FRIDAY, NOVEMBER 24, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Liliun auratum.

SATURDAY, NOVEMBER 25, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Plants and Bulbs.

A DARWINIAN STUDY OF THE CHRYSANTHEMUM is suggested by a letter to the Times, in which the writer asks how many new varieties have been introduced to the Temple Gardens collection, and in what particulars these have differed from year to year to the present time. The evolutionists are wise in considering nothing too mean for scientific study or minute observation; but it is somewhat questionable, we think, if any very definite conclusions, tending to illustrate the laws of evolution, are to be derived from the recent history of the chrysanthemum. As a matter of fact, every flower, whether wild or cultivated, may be appealed to for some revelation of its own history, and perhaps for some prediction as to its future. If its organs of reproduction are closely sealed up against the intrusion of insects we may expect it to be but little given to variation. This happens with many papilionaceous plants, which are very constant to their ancient types. On the other hand, when the stamens and pistils are displayed, and perhaps associated with a shop for the sale of sweets, we may expect a perpetual tendency to variation. This happens with cruciferous plants, and hence the difficulty of maintaining true stocks of brassicas, wallflowers, stocks, and rockets. That the chrysanthemum carries in its head a lot of history none can doubt; but its evolution has been influenced, no one knows how long, by a factor the evolutionist does not often recognize, and in

respect of which recognition is but one step towards the acquisition of knowledge. It has been removed from the sphere wherein natural laws operate without a check, and brought within a domain where natural laws are to a great extent set at defiance. Nature would probably train the flower to show a yellow disk, but man trains it to conceal or obliterate the disk, and even in this course he is not constant, and may change his mind at any time.

The evolutionist at the chrysanthemum exhibition may be warned that a considerable proportion of the modifications in form and colour that give interest to new varieties from the florists' point of view are too trivial and transitory to be of any great importance for scientific purposes. Some slight deviation from the customary type—a mere difference in some shade of colour—may delight the florists, who, like the men of Athens, are for ever on the look-out for a new thing; while as regards the relation of this change to organography it may be absolutely inconsequential. Florists' flowers are in a certain sense works of art. In their production the insect agencies provided by nature are carefully prohibited the exercise of their proper function, for not only do the florists fertilize their flowers by hand, but they protect them with nets and muslins and the like, to exclude the poor bees from the sweetmeats that they love. It is true that some important classes of flowers are allowed to produce their seeds naturally, but then man comes in with his notions of selecting, and with ruthless hands destroys every seedling that does not please him, making his fancy, his notion, his taste, his fanaticism—call it what you will—the rascally intruder to stand between the Flower and Dame Nature. It follows that florists' flowers represent, or tend to represent, the human notion of what a flower should be. It is like some people's rockwork, which does not show how nature has fashioned rocks, but how she ought to have fashioned them. The florists, however, have the advantage at every point, because they take all their rules from the suggestions of nature; nevertheless, at the beginning of the story and at the end of the story, the notion of a man or of a body of men determines what the flower should be, and Nature is deposed from the position of mistress, a position she fills so well in the wilds, and becomes a mere servant or slave in the gardens.

But the vagaries of taste, pure and simple, are not the only influences that step in to bother the evolutionist. The public taste having taken a certain turn, the commercial element comes in to back it up without any question of its reasonableness. Practically it does not matter at all; but from the sublime Darwinian stand point it is an awful thing that arbitrary taste and irrational fashion should be encouraged by mere money-makers to upset the normal course of nature. But the plant merchants are only to be regarded as intensified exponents of the latest fashions. Their business is to produce for their customers what their customers want, and it is delightful to observe how successful they are, no matter whether their labours meet with the approval or disapproval of the evolutionists. As a rule, these very learned people cherish an inward contempt for the aims and accomplishments of the florists; but if their evolutionary brains were large enough they would regard the work of the florist as a kind of divine key to the mysteries of nature. Man was made in the image of God, and his floral fancies must have something in them that is in harmony with the general scheme of the universe. He loves circles and ellipses and mathematical proportions, and smooth edges; and the stars that spangle in the heavens are described as having similar affections, and so it may be truly said, even in the language of the almanac, that the florist moves with the times. However, we have to reckon with the commercial element, and it may be prudent to warn the evolutionist that the commercial element is not allied to art or science or nature; it is allied only to money, and if there is a pound to be earned by turning nature out of doors a man will be found with courage enough to attempt to earn the money. The dahlia illustrates the case. The florists, by means of years of patient and pious labour, have "evolved" the double dahlia out of the single. As compared with its original self, the double dahlia is a wonderful thing. But society made a cry for single dahlias, society, being human, having no regard whatever to the poetical justice that presides in the imagined universe of the evolutionists. Forthwith the commercial men, aided by the florists, dug for the formless void of floral obsolescence the old single dahlias that a former fashion had discarded, and in the language of the shoeblack, "Here you are,

sir." Yes, at one bound we effected a retrogression of some seventy-three years, for the first double dahlia was seen in Berlin in the year 1809.

To return to the chrysanthemum. Whatever interest attaches to the Temple Gardens collection belongs to many other collections. The evolutionist must not trust to them overmuch for the purpose he has in view. A reasonable study of this flower for the illustration of its capabilities and tendencies in variation must be carried on by the aid of a copious dated catalogue and a collection comprising representatives of all the styles that have ranked high at certain epochs. And we would advise the intending student to grow the flower for a few years and become familiar with it, both at home and at exhibitions. Mr. Broome entered the Temple Gardens in the year 1832, but probably did not dabble in chrysanthemums in any definite manner until about 1846, when the Stoke Newington Chrysanthemum Society was founded. At that early date there were fine flowers in cultivation, such as Maréchal Duroc, Christine, Chevalier Domage, Nonpareil, Annie Salter, and Queen of England, which variously date from 1830, 1840, and 1847. If we suppose that during the past forty years twenty new varieties have been introduced per annum to the Temple collection there will be a total of 800 varieties to be accounted for. As a matter of fact, the reader knows how to begin accounting for them. Whatever their number—one hundred or one thousand—they would be subject to the law that rules in gardens, for as old varieties are turned out to make room for new ones the continuity required by the evolutionist is put out of his way, in great part at least, to the detriment of his studies. In happy days gone by the chrysanthemum men used to meet at Mr. Salter's to admire and discuss the merits of new varieties, and Mr. Broome was as constant a visitor as any. And the chrysanthemum men took their failings as well as their virtues with them; a novelty was above all things to be desired, and in judging the novelty they were influenced as much by fashion as by taste. During that joyous era in the history of the flower the incurved type was in high favour; the Japanese sorts were unknown, and probably had they made their appearance any earlier than they did they would have met with no such favour as they have secured and still retain.

The chrysanthemum appears to have been first introduced to this country in the year 1764, and John Salter declares in his treatise (published by Groombridge, 1865) that the varieties were then "semi-double, with quilled or long narrow ragged florets." That the florists have effected a transformation cannot be doubted, but when we have the evolutionist inquiring into the matter we are bound to warn him of the imperfection of the botanical record. The early botanists described *Chrysanthemum indicum* as a single yellow flower, but this only proves the meagreness of their knowledge. In 1789 M. Blanchard imported from China to Marseilles white, purple, and violet chrysanthemums. In the year 1790 one of these found its way to England, and flowered in Colville's nursery at Chelsea in 1795. Its floral characters have been preserved for our edification in figure 327 of the *Botanical Magazine*. This variety was of the class now known as reflexed flowers, and it remotely resembles Mr. Murray, Dr. Sharpe, and some other of the high-coloured flowers. Taking the figure and the description together, we should say that the variety of 1795 only needed to be well grown to be good enough for cultivation in the present day. But this conjecture suggests another. It is likely that it represented ages of cultivation in China before it became known here, and if the conjecture is worth anything it puts the evolutionist *hors de combat*, at least for a moment, because of the stretch of time that is imported into the argument.

The chief interest for the evolutionist in the history of the chrysanthemum is to be found, we imagine, in the process by which the incurved varieties have been formed. They are probably farthest removed of any from the wild type, whatever that may be. But if we can trace the history of the incurved section to the extent of about fifty years, we are entirely ignorant of the modifications of the flower during the centuries of its cultivation in China. The question will necessarily arise, How many, if any, of the incurved varieties were imported ready made? In other words, can we with safety aver that they were all produced by the French and English florists, who for some ninety years have made a pet of the chrysanthemum?

In the year 1833 Mr. Haworth had at Chelsea a collection of forty-eight varieties, of which he gave a descriptive list in "Loudon's Gardeners' Magazine" of that year. They are classified as comprising 13 ranunculus-flowered; 12 incurved ranunculus-flowered; 7 marigold-flowered, "with well-formed double flowers," and 16 tasselled. John Salter had about thirty incurved flowers when he began to raise seedlings at Versailles in the year 1843. These, he says, were obtained since 1830. But when he got fairly to work the progress was rapid, the catalogues expanded, and the exhibitions made the public acquainted with their beauties. The pompones date from so late a period as 1846, when Mr. Fortune introduced

two varieties, which fell into Salter's hands, who soon made many of them, so that very soon thereafter the pompones formed an important class, distinct from the large flowers. In 1860 Salter had in his nursery 750 varieties, of which 500 were large flowers and 250 pompones. There is no such collection existing at the present time, but we may fairly reckon that the total number of named varieties, being the *crème de la crème* of myriads of seedlings raised within the past forty years, must be fully 1,000 at the very least. In our opinion a careful audit would bring up the total to near 1,500; but opinions are of no great consequence in these matters, more especially when the evolutionist is looking on. However, he is looking on, and we return to matters of fact. We invite him now to take note that fashion, taste, whim—something that originates in the mind of man—has a very disturbing influence in such a matter as the one now before us. In the pursuit after incurred flowers the florists have made a slight halt to admire the Japanese tasselled and fringed varieties, which are probably not far removed from the condition of wildings, and this fact stands sheer in the way of a peaceable and plausible explanation, on the lines of the evolutionist, of the true theory of the formation of the chrysanthemum.

NATIONAL AURICULA SOCIETY.—The annual meeting was held at South Kensington on Tuesday last, and the report gave satisfaction, the exhibition of 1882 having been signally successful and the income sufficient for all purposes. The exhibition of next year is fixed for Tuesday, April 24.

THE DEATH OF MR. FAULKNER, gardener to F. R. Leyland, Esq., Woolton Hall, Liverpool, gives a peculiar though melancholy interest to the winning of the twenty-five guinea challenge cup at the Kingston Chrysanthemum Show. The present is the final competition, and Mr. Faulkner was one of three eligible to compete. The other competitors are Mr. Tunnington, of Liverpool, and Mr. Harding, of Putney.

PELARGONIUM SOCIETY.—The annual meeting on Tuesday was well attended, and the report and balance-sheet were approved. The treasurer has a fair balance in hand, but will require some augmentation of the fund to keep the schedule to its present standard. The prizes offered for hybrids of *Geranium pratense* and *Pelargonium oblongatum* will be repeated in the schedule adopted. The exhibition for 1883 will be held on Tuesday, June 26.

KINGSTON CHRYSANTHEMUM SHOW was held on Thursday and Friday last, and, as was generally anticipated, proved the most important exhibition of the season. The winner in the final competition for the Challenge Vase, first offered in 1879, was Mr. G. Harding, Putney Heath; and the winner of the second Challenge Vase, the competition for which commenced this year, was Mr. Molyneux, Swanmore Park, Bishops Waltham.

THE PROPOSED PINK SHOW must be abandoned for the present, for the sufficient reason that there are so few cultivators of the flower that an exhibition in June next might be below the standard requisite to a healthy revival of interest in it. To obtain the requisite funds would be an easy matter, but to obtain the flowers appears at present beyond possibility. However, the slight discussion of the subject resulting on the proposal to hold an exhibition has in some part accomplished the object the exhibition was intended to promote. Many are now embarking in the cultivation of pinks, and trade stocks have been consumed by new buyers, giving promise of a future constituency for a National Pink Society. Postponement for one season will afford the time needful for the production of flowers, while it will avert the injury to the cause that might result from an unsatisfactory first exhibition.

THE SALE OF MR. PILGRIM'S ORCHIDS by Mr. J. C. Stevens on the 9th produced a total of about £1,200. We give the names of a few of the lots and the number of guineas at which they were sold. *Vanda tricolor*, 10; *Cattleya Skinneri*, a large plant showing eleven sheaths, 24; the Holford variety of *Saccolabium guttatum*, 14; the Denison variety of *Masdevallia Harryana*, 19; *Masdevallia Chelsoni*, 17; *Cattleya Trianae alba*, 15; *Cattleya exoniensis*, 23—smaller plants, 11 and 10; *Odontoglossum citrosum roseum*, in 12-in. pot, 10; *Cattleya Mossiae*, a large plant, 11; *Cattleya Trianae Morgani*, 26; *Aerides Schröderi*, a fine young plant, 22; *Cattleya Warneri*, a fine plant, 12½; *Cattleya labiata*, the old autumn-flowering variety, now scarce, a fine plant coming into flower, 32; *Lalia anceps Dawsoni*, 12, and another plant, 10; *Odontoglossum polyanthum*, 11; *Odontoglossum histrionicum bellum*, unique, 14. The collection was a comprehensive one and had been formed with good judgment.

THE ROYAL SOCIETY.—The following is the list of names of council and officers which will be proposed for election at the anniversary meeting of the society to be held on St. Andrew's Day, 30th inst.:—President, William Spottiswoode, M.A., D.C.L., LL.D.; treasurer, John Evans, D.C.L., LL.D.; secretaries, Professor George Gabriel Stokes, M.A., D.C.L., LL.D., Professor Michael Foster, M.A., M.D.; foreign secretary, Professor Alexander William Williamson, Ph.D. Other members of the council—Professor W. Grylls Adams, M.A., F.C.P.S.; John Ball, M.A., F.R.A.S.; Thomas Lauder Brunton, M.D., Sc.D.; Professor Heinrich Debus, Ph.D.; Francis Galton, M.A., F.G.S.; Professor Olaus Henrii, Ph.D.; Professor Thomas Henry Huxley, LL.D.; Professor E. Ray Lankester, M.A.; Professor Joseph Lister, M.D.; Professor Joseph Prestwich, M.A., F.G.S.; Professor Osborne Reynolds, M.A.; Professor Henry Enfield Roscoe, B.A., LL.D.; Marquis of Salisbury, K.G., M.A.; Osbert Salvin, M.A., F.L.S.; Warrington W. Smyth, M.A.; Edward James Stone, M.A.

FORCING SEAKALE.

By JOSEPH MACDONALD.

VARIOUS means are adopted for forcing this useful and delicious vegetable. Different cultivators hold different views as to the value of certain available means of forcing seakale, as well as to the quality of the produce when obtained. In this matter, perhaps, I hold somewhat old-fashioned opinions, because I believe that to obtain both quantity and quality it is best to force the roots in the ground. But this is no reason why it should always be the most desirable plan; on the contrary, there are many reasons why it should be otherwise. If, for instance, there is a scarcity of stable manure and leaves, there would be some difficulty in carrying out the plan of forcing it where growing, and this observation is sufficient to show that I am aware of the difficulties that surround those who are compelled by force of circumstances to adopt measures with which it is not possible for the experienced cultivator to wholly agree. I shall therefore give in detail an outline of the various ways in which seakale may be forced to suit a variety of cases, and I shall, for the sake of clearness, place my remarks under separate headings.

FORCING IN THE OPEN GROUND.

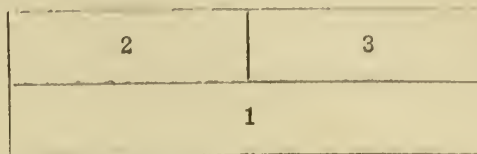
Much will depend as to when forcing should commence for the earliest crop on the time supplies are wanted for use, and to aid the inexperienced in forming an idea how early seakale may be had, I may state that it will require a fortnight or three weeks longer when forcing is commenced in November than when the preliminary steps are deferred until the month of February. If it is desired to have this vegetable as early as it is possible to obtain supplies, preparatory measures must commence about the middle of October, when all the leaves must be cut off the plants that are intended for early forcing. This will enforce rest, a point of much importance. Early in November the crowns must be examined, and every particle of the stems of the leaves that were left must be removed. Proper seakale pots should at once be put on, one to each plant, and then the fermenting materials to furnish the heat may be applied. The best material for furnishing the heat is a mixture consisting of three parts of freshly-gathered leaves and one part of stable manure. It is difficult to say what quantity of fermenting materials will be necessary to furnish sufficient heat, as much will depend upon the weather. In mild weather less artificial heat is required than when it is frosty and cold winds prevail. In a general way, if sufficient is put on to cover the pots to a depth ranging from four to six inches it will afford heat enough, a steady warmth being all that is required. If a high temperature is maintained the growth will come poor and weak. Inexperienced growers will do well to plunge a thermometer about nine inches below the surface of the leaves and examine it about twice a week. At no time should the heat range higher than 65 deg., and every endeavour must be made to keep it as near to that point as possible. Generally speaking, in such a temperature from three to four weeks will be required to obtain a good sample from November to the middle of January, but after that date less heat will be required, and the produce will be ready for the table in a shorter time. To keep up a successional supply a fresh lot of pots should be put on every fortnight, and after the first crop is cut the same pots and fermenting materials may be used again, with the addition of some well-prepared hot manure to revive the heat. After being forced the crowns must not be left exposed to severe frost, and it is a good plan after the pots are removed to place a cone of dry litter upon each of the crowns, and allow it to remain until early in March.

FORCING ON HOTBEDS.

When there is any objection to forcing seakale in the ground this plan has much to recommend it, more particularly where there is no mushroom house or suitable forcing pit in which it can be brought forward. The roots that are taken up for forcing will afford a supply of cuttings. The cuttings are made from the largest roots, and should be cut into six-inch lengths. The cuttings, I may remark, should be removed from the crowns before they are forced, and be laid in soil which must quite cover them until February, or at the latest early in March, when they must be planted in good ground, a fresh quarter being selected each year. To secure very early supplies an early preparation of the plants must be made, a remark which applies to all the early crops, and therefore it will not be necessary to repeat the same instructions again when referring to other plans of forcing. For the first supply the plants should have a greater portion of the leaves removed from them in the middle of October, and be immediately dug up and laid in again, either on the spot on which they have been grown or in some other place in the kitchen garden. Early lifting for the first supplies is necessary to secure a short season of rest, which is most essential to the production of first-class produce. The size of the frame to be used for this purpose will depend mainly on the quantity required. To put the matter in as simple a manner as possible, a one-light frame for a small family and a two-light frame for a large one will be the most suitable. The same description of fermenting materials will be required for this plan as when it is forced under pots on the ground. As regards the preparation of the hotbed, I need only say that in all the details it must be made the same as any other bed; but the fact must not be lost sight of that seakale will not bear hard forcing. The heat must be sufficient without being excessive, and it must be lasting. If a thermometer placed inside the frame stands between 60 deg. and 65 deg. continuously, allowing for about 5 deg. variation on cold nights and windy days, the crop will come on well; but directly the heat falls below 60 degs. in mild weather it will be necessary to place a lining of good hot manure on the north and east

sides of the bed, if not round the whole of it, and this lining must be renewed as often as the heat declines.

If a one-light frame is used, one half of it will furnish enough for one crop, and the other half should be planted ten days later. In my own case, when I force seakale this way and require a rather large supply, I use a two-light frame and plant it according to this diagram,



which gives me a succession of supplies in the same frame, and in the order in which the numbers are placed. I find the heat to be pretty well exhausted in the bed before the third lot is put in, and to make good this defect I use a much thicker lining. The hotbed should be made up a week before the roots are put in the frame, and a six-inch layer of soil should be provided in the frame in which to plant the roots, and as soon as they are planted the lights must be put on and covered with mats. Neither light nor air must be allowed to enter the interior of the frames or the young growth will be of a purple colour instead of white, and strong in flavour. After the roots have been once forced it is better to throw them away and provide young ones for the next year.

FORCING IN THE MUSHROOM HOUSE.

In many places where there is a mushroom house, it is a common practice to utilize that structure for the production of seakale; and, all things considered, perhaps it is a good one. Some cultivators put six or eight crowns in a ten-inch pot and then place an inverted pot over them. A certain number of these filled at intervals and stood on the floor of the house will maintain a supply with very little trouble, as these structures are generally kept rather warm, a temperature of 60 deg. being the most usual, which suits seakale better than one much higher. Other growers have strong boxes, in which they place six or eight inches of soil and plant the crowns. By keeping them in darkness the produce comes beautifully white and delicate in flavour: for my own part, I prefer boxes to pots.

OTHER MEANS OF FORCING.

It must suffice to say, under this heading, that when well-prepared crowns are planted in six inches of soil, in either pots or boxes, and means taken to secure perfect darkness and the exclusion of air, constant supplies of seakale may be produced in any structure that affords the requisite degree of heat. Very often it is possible to utilize a space over the hot-water apparatus, or in one corner of an early viverny or plant stove, as but little space is required.

BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY,

NOVEMBER 15 AND 16.

THIS old-established and important society held its annual exhibition at the Royal Aquarium, Westminster, on Wednesday and Thursday, and there was a general concurrence of opinion that it was the most successful show the society has held for many years past. The plants in groups were particularly good, and judiciously arranged at either end of the main building produced a rich and striking effect. The cut blooms were staged in immense numbers and in grand condition, the Japanese flowers being simply marvellous, and attracted no small share of attention. There was a large and excellent display of fruit, comprising grapes, pears, and apples. The prizes offered by Messrs. Sutton and Sons, Messrs. Webb and Sons, Messrs. J. Carter and Co., and Messrs. Hooper and Co. for vegetables and potatoes brought out a strong competition, and the several collections formed a large and important feature.

CUT BLOOMS were sufficiently numerous to fill a stage extending the whole length of the building, and of high-class quality throughout. The most important class in the schedule was that for forty-eight blooms, to consist of equal numbers of Japanese and incurved flowers. The number of entries was very large, and the stands closely matched in merit, and in the result the first prize of 10l. was awarded to Mr. Gibson, gardener to J. Wormald, Esq., Morden Park, Mitcham, for blooms of the most magnificent character. The incurved flowers, which were of immense size and splendidly finished, represented Empress of India, Refulgence, Golden Eagle, John Salter, Mrs. Heales, Mrs. Dixon, Queen of England, Nil Desperandum, Lady Carey, Golden Empress of India, Hero of Stoke Newington, Mrs. G. Rundle, Alfred Salter, Lady Slade, Barbara, and Princess Beatrice. The Japanese flowers were of grand quality, but the stand would have been much improved by the addition of a few more highly-coloured flowers. Chief among the varieties were Ethel, Elaine, Baronne de Prailly, Peter the Great, Alba Plena, Mons. Ardene, Comtesse de Beauregard, Criterion, Mons. Delaux, Nagasaki Violet, Hiver Fleuri, Fanny Bouchariat, Alba Striata, Garnet, Arlequin, and Saraia. Mr. Herrin, Chalford Park, Gerrard's Cross, second, and Mr. Meade, Wyncote, Liverpool, third.

The open class for twenty-four incurved blooms was exceptionally well filled, and the premier award was made in favour of Mr. Langdon, Brook House, Upper Clapton, who had fine blooms of Golden Empress of India, Mrs. Heales, Princess Beatrice, Empress of India, Jardin des Plantes, George Glenny, John Salter, Enamel, Venus, Antonelli, Cherub, Emily Dale, Princess of Teck, Lady Harding, Mrs. G. Rundle, Hero of Stoke Newington, Refulgence, Golden Queen, White Globe, Nil Desperandum, Queen of England, Mr. Bunn, and Princess of Wales; Mr. G. Berry, Roehampton, second; and Mr. Wildman, Peckham, third. For eighteen incurved flowers, open, Mr. Berry was first with a capital stand, and in the open class for twelve Mr. Ridout, Reigate, was a good first, closely followed by Mr. C. Herrin and Mr. Berry. The finest blooms contributed to the open class for six were those from Mr. Langford, Mr. W. Marshall, and Mr. Jupp. At the head of the numerous competitors in the "borough" class for twenty-four incurved was Mr. W. Holmes, Frampton Park Nursery, Hackney, who staged splendid blooms of Jardin des

Plantes, Hero of Stoke Newington, Mrs. Heales, Mr. Brunlea, Princess of Teok, Venus, Princess of Wales, John Salter, Enamel, Golden Eagle, Rev. J. Dix, Mr. Bunn, and Barbara; Mr. Gilbey second, and Mr. Payne third.

The competition was very severe in the class for twenty-four Japanese flowers, and the first prize stand was contributed by Mr. C. Horrin, and included superb blooms of Baronne de Prailly, Fair Maid of Guernsey, Mons. Ardene, Meg Merrilies, The Daimio, Hiver Fleuri, Mme. Audiguier, Peter the Great, The Sultan, Rod Dragon, Mme. Rendatlor, Grandiflorum, Soloil Levant, Alba Plena, Père Delaux, Magnum Bonum, and Ethel; Mr. Gibson second, Mr. J. Garaway, Durham Down, Clifton, Bristol, third, and Mr. W. Monk, Leytonstone, fourth. For twelve Japanese Mr. Langdon, Mr. Gilbey, and Mr. W. Holmes were the prizetakers in the order of their names. In competition for the prizes offered by Messrs. S. Dixon and Co. for twelve Japanese, to include George Gordon, Rubra striata, Flambeau, and Laurence, the silver cup was awarded to Mr. R. Starling for a superb lot of blooms. The valuable tea and coffee service offered by Mr. N. Davis, Camberwell, for a stand of eighteen trusses of pompones was awarded to Mr. Butcher, who had a fine lot of flowers. The last-mentioned exhibitor was also successful in taking the first prize for twelve anemone pompones, and the finest stand of large anemone flowers was staged by Mr. Gibson; Mr. Berry second.

PLANTS were far above the average both in numbers and quality. In competition for the prizes for a group arranged for effect, Messrs. S. Mahood and Son and Mr. G. Stevens, Putney, were first and second with a large and attractive group, but by far the finest and decidedly the most effective group was contributed by Mr. Monk, who was awarded a First-class Certificate. The most successful of the competitors in the various classes for trained specimens were Mr. Wells, Mr. Drain, Southgate Nursery, De Beauvoir Town, E., Mr. Butcher, Mr. Payne, and Mr. Gilbey, who it need hardly be said staged collections of great excellence.

FRUIT formed a most interesting and attractive feature, as all the classes were well filled and the quality was exceptionally high. For three bunches of any black grape Mr. Summers, Sandbeck Park, Rotherham, was first with Barbarossa, and Mr. Herrin and Mr. Ridout were second and third with Mrs. Pince. The prizes for white grapes were awarded to Mr. Smith, Loughton, Mr. Austen, and Mr. Herrin for splendid examples of Muscat of Alexandria. The prizetakers for three bunches of Alicante were Mr. J. Holmes, Mr. Ridout, and Mr. Goodacre, all of whom presented this grape in splendid style. In competition for the prizes for Gros Colmar, Mr. Lyon, Sundridge Park, was first with magnificent bunches, and Mr. S. Castle was second with large bunches, but rather wanting in colour.

Dessert apples were presented in capital style by Mr. Austen, Mr. Waterman, Aylesford, and Mr. Cooper, Calcot, who were the prizetakers in the class for six kinds, and these were well shown by several other exhibitors. The principal varieties represented were Ribston Pippin, Cox's Orange Pippin, Blenheim Orange, King of the Pippins, and Boston Russet. In the corresponding class for culinary apples the first prize was awarded to Mr. W. Fowle, Dagmersfield, Hants, for splendid examples of Yorkshire Beauty, Hollandbury Pippin, Gloria Mundi, Alfriston, and Blenheim Orange; Mr. Ross second with Mère de Ménage, Echlinville Seedling, Waltham Abbey, Stirling Castle, Blenheim Orange, and Annie Elizabeth. Pears were admirably shown by Mr. Ross, Welford Park, and Mr. Goodacre, and good collections were contributed by several other exhibitors.

VEGETABLES sufficed, in conjunction with the fruits, to fill the large picture gallery, and added much to the interest of the gathering. For twelve dishes of potatoes Mr. Ellington, Soham, Mr. R. Dean, Ealing, and Mr. Finlay were the prizetakers; and for six the successful competitors were Mr. Dean, Mr. Ellington, and Mr. Gribble, all of whom staged collections of the highest order of merit.

Messrs. Sutton and Sons, Reading, offered a series of prizes for varieties of their own introduction, and in the several classes the chief prizetakers were Mr. Ellington, Mr. Cornish, Mr. Ross, and Mr. Miller. The prizes offered by Messrs. J. Carter and Co. for collections of twelve dishes of potatoes were awarded to Mr. R. Dean and Mr. Osman; and in competition for Messrs. Hooper's prizes for Queen of the Valley potato Mr. Ellington was the most successful. Messrs. Webb and Co.'s prizes for collections of vegetables were awarded to Mr. Austen, Mr. Finlay, and Mr. J. May.

MISCELLANEOUS CONTRIBUTIONS included a magnificent display of zonal pelargoniums, salvias, and primulas from Messrs. H. Canrell and Sons; a very large and important collection of potatoes from Messrs. Sutton and Sons, and several splendid baskets of grapes from Mr. E. Bennett, Barnet.

RECLAMATION OF MARSH GROUND IN RUSSIA.—Very extensive operations have been for some years past carried on in different parts of Russia for draining and reclaiming marsh land under the direction of General Jilinsky. The principal districts operated upon are situated between the Dnieper, Pripet, Berezhina, Svislotsch, and Piltch rivers. According to the *Moscow Gazette*, this area, which has now been made available for agriculture, is 790,000 deciatines (1 deciatine=2½ acres), of which 150,000 are Crown lands. In addition to these, 360,000 have been brought into cultivation in the central and western districts of Polesia. These results have been obtained by means of a system of canals varying in breadth from five to 18 archines (three archines=18 ft.), and in depth from one and a half to four, while a few are as much as 30 archines broad. A large proportion of these canals are adapted for the floating of timber, so that there is not a single forest farm which is now more than seven versts from its waterway, whereas many of them were previously over 30 versts distant. Besides these undertakings, many subsidiary works of importance have been completed, such as the building of 138 bridges, the levelling of 23,800 versts of land, borings at 535 points, and the collection of a vast number of meteorological and hydrometric observations. It is hoped that by the end of 1884 the reclaimed land in Polesia alone will amount to 1,400,000 deciatines, and with the view of advancing the operations as rapidly as possible, the owners of property have been called upon to pay a *pro rata* contribution of amounts varying from 400 to 3,000 roubles.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. In contact with the glands at the moment they are excited by the act of sucking, the Glycerine in these agreeable confections becomes actively healing. Sold only in boxes, 7½d., tins 1s. 1½d., labelled "JAMES EPPS & Co., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice. Yours faithfully, GORDON HOLMES, M.D., Senior Physician to the Metropolitan Throat and Ear Infirmary."—[Advt.]

Notes of Observation.

PLANTS FOR THE SEASIDE.

YOUR correspondents on this subject have not mentioned *Pittosporum tobira*. It thrives in the open ground at West Cowes, Isle of Wight, and bears hundreds of deliciously-scented flowers, and is in flower nearly all the year. One within my view at this time has been planted thirty years. It is fully exposed to the sea breeze, and a few years ago it was swamped by a tidal overflow and suffered no injury. The flowers are in high favour with the bees. As an evergreen shrub it ranks higher than the euonymus, which, as you say, is invaluable for seaside planting. Another plant that does well here is *Acacia dealbata*, one of the finest of its class. I have a piece of the trunk of one fully eight inches in diameter. This was cut down through a mistake. I have seen it flower beautifully, and its lead-coloured bark contrasted agreeably with the other shrubs. S. TUTTON.

IBERIS GIBALTARICA.

I think that the most satisfactory way in which to grow this plant is in pots. It is very fine in the open ground, and especially so when in a suitable position on the rockwork, but the weather is apt to disfigure and injure the large blossoms, and deprive them of their beauty. I have for a few years past made a cool greenhouse plant of it with considerable success, and with a little care it can be grown into quite fine and handsome specimens. A very pleasing hybrid from this—obtained by crossing it, I believe, with *I. superba*—I got last spring from Mr. W. Brockbank. This is rather smaller in the size of the flower and paler in colour, but very pretty indeed, and most acceptable in every respect. Any one having a plant of *I. gibraltarica* can soon increase his stock, and I find that cuttings inserted in fine and suitable soil about August or September strike very freely. R. D.

PROPAGATING LAPAGERIA ALBA.

Having just seen what promises to make a very successful strike of cuttings of this fine greenhouse climber, it may be stated that early in October a batch of cuttings was made of well-ripened wood, with one or two leaves left on each, and these were placed in some part singly in large thumb pots, and the remaining part about twelve cuttings in a 48-sized pot, a free sandy soil being used, with a little peat and some loam. The pots now occupy a cold frame, and when it is our good fortune to enjoy the sunshine a little shading is placed over the frame. The cuttings do not require heat, and they will not begin to root until next May. By the month of October in next year they will have put forth one or two shoots, each about four inches in length, and they will be well established in the pots. In this way most useful batches of young plants have been raised during the past few years. The white lapageria can also be increased by the process of layering, in much the same way as one would layer carnations. If it is a well-established plant with several shoots, the best part of these can be layered down, but some nine months are required for them to root well. This is the best way to get strong plants, but if quantity be required propagation by cuttings is preferable. The lapageria cuttings do not require heat during the winter; all that is necessary is that they be kept in a cold frame and protected from severe frost. R. D.

A TRIAL OF PEAS AT MR. JOHN WALKER'S NURSERY, THAME, OXON.

With the view of testing the bearing qualities of Walker's Perpetual Bearer pea, a trial was made at the above nursery this season with ten well-known and popular kinds. A piece of land was prepared as for an ordinary crop, and one pint of seed of each sort (except Perpetual Bearer, which was half a pint) was drilled in parallel rows twenty-nine yards long. Each kind came up well, was duly supported with sticks, and allowed to harvest. During the period of growth and bearing the ten rows presented a remarkably healthy appearance, and many commendatory remarks were passed by connoisseurs who visited the plot. On measuring the produce it was found to be most favourable to Walker's Perpetual Bearer, as the following table will show:—1 pint Maclean's Wonderful, 17 quarts 1 pint; 1 pint Criterion, 17 quarts ½ pint; 1 pint Dr. Maclean, 16 quarts; 1 pint Maclean's Best of All, 13 quarts ½ pint; 1 pint Nicoll's Wonder, 11 quarts 1 pint; 1 pint Culverwell's Giant Marrow, 11 quarts 1 pint; 1 pint Telephone, 10 quarts 1 pint; 1 pint Star of India, 10 quarts; 1 pint Laxton's Omega, 9 quarts; ½ pint Walker's Perpetual Bearer, 19 quarts 1 pint. Further comment is needless; still it confirms all that has been advanced previously in favour of Mr. Walker's splendid pea. Oxford. WILLIAM GREENAWAY.

The Household.

COOKING A BAD POTATO.

PLEASE make room for me in your Household, that I may show you how to cook a bad potato. I have observed that the qualities of cooks as well as of potatoes are called in question, and I remember that many can cook a good potato who can do nothing with a bad one. What shall we do with a really bad watery thing when we can get no better? I answer, cook it my way, and you can eat it with pleasure and advantage. On lifting a plot of about twelve bushels of Magnum Bonum in the last week of October I found they were not up to the mark for cooking. A cold tenacious soil and continued heavy rains accounted for this only too well. We tried to get through the difficulty by first boiling, then steaming, and finally baking them. But in each and every way they were uneatable; the cook declared them only fit for the pigs. I set my wits to work and I laid my plans. Selecting enough for dinner, I peeled them, and then gave them a good salting all over, and placed them in a colander and let them remain about six hours, and then boiled them in the usual way. When they were done I was more than pleased with my experiment, for they were dry, mealy, of good flavour, and altogether respectable and acceptable. The salt extracted about a teacupful of water from eight tubers. This experiment made of me A MAN COOK.

NATIONAL CARNATION SOCIETY.—At the annual meeting, held on Tuesday last, the treasurer reported a fair balance in hand and the secretaries made a good report on the exhibitions of the past season. The exhibition of next year is to be held on Tuesday, July 24,

THE SOMERSET APPLE TOM PUTT.

WHEN we dismiss unknown apples as "local seedlings" we undoubtedly discredit some that are worthy of honour. But in such matters we can only deal with established facts, and when a so-called local seedling acquires a name and a fame it finds a place in the books, and in place of being "local" it belongs to the world. A Somerset apple, for any length of time grown in the western county, and scarcely at all known beyond it, has often claimed our attention for its showy appearance and useful qualities. Its local name is Tom Putt or Tom Potts, but the first is the one generally used, and the one under which we propose now to give this variety a literary standing.

It is said of this apple by the good people of Somerset that it is fit for any purpose and will keep for any length of time. But we are



APPLE TOM PUTT.

bound to moderate this eulogy, for Tom Putt, though splendid in appearance, is but second rate in quality as a dessert fruit, and as regards keeping we have not often seen it in good condition after Christmas. But for any culinary purposes it may be trusted; it is, in fact, good enough for any dish of which apples may be a component part.

The growth of the tree is vigorous and healthy, and it is highly productive. In seasons when apples are scarce, Tom Putt may be looked to for an average crop; hence one great reason for the favour with which it is regarded in districts where it is known. The fruit is of medium size, roundish conical, the base somewhat flattened, the crown terminating in ridges and knobs, which are continued as furrows some way down the fruit. The eye is closed, the stalk short, and both are distinctly tinged with green. The skin is of a greenish yellow colour, almost wholly overlaid with broad stripes of light crimson, which on the sunny side is again overlaid with fiery crimson, producing a glowing cheek, which renders the fruit peculiarly attractive. The flesh is white, tender, juicy, and agreeably flavoured, but is not rich enough to rank high for table use.

NOTES ON LILIES.

By JAMES DOUGLAS.

THE importation of lilies from Japan and North America has very much increased during recent years, and there still seems to be a considerable demand for them, and no wonder, for there are few other hardy plants that can excel the lily in beauty and majestic appearance. What a gem amongst hardy plants, for instance, is the little charming scarlet flower, *Lilium tenuifolium*! I have not yet planted it out of doors, having required all the bulbs we could get to grow in pots, but no doubt it would do well out of doors in the open borders. And who has not admired the snow-white blossoms of *L. candidum*, while the air has been laden with their perfume? *L. longiflorum*, too, is a queen amongst the varieties with funnel-shaped flowers. The tiger lily, *L. tigrinum*, in its various forms, is one of the most showy of the group to which it belongs. Of this popular border lily the two varieties, *L. tigrinum splendens* and the double-flowered form are the best. The first-named grows to a great height, the flowers being more numerous, larger, and brighter coloured than the normal form.

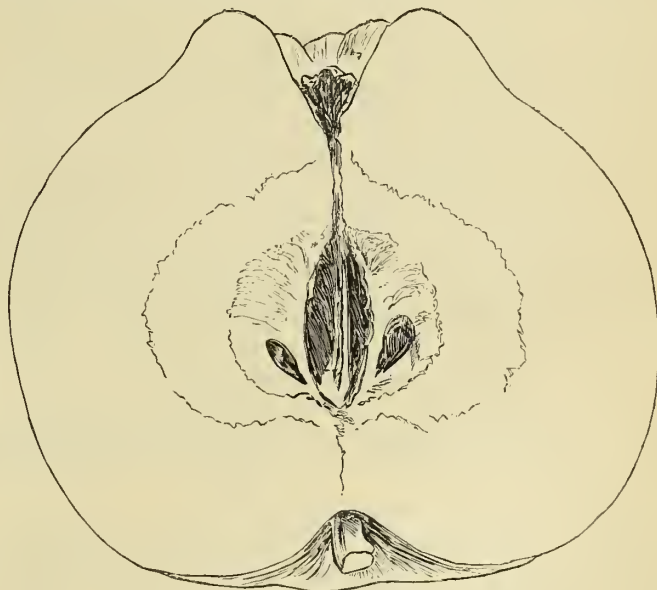
Out of doors the lilies require a deep, moderately-rich soil. Most of them will succeed in the compost which rhododendron beds are usually made of. Ours are made up of good clayey loam in which heaths and brackens grow naturally, with an equal portion of peat. In this nearly all the lilies known to me succeed well.

It is easier to grow lilies planted out than it is to grow them in pots.

If they are planted out in a suitable soil all the attention they require is to support the flower stems with sticks when they require it, and to give them liberal allowances of water during the hot dry weather in summer. In every garden a few pots of lilies should be grown for the adornment of the greenhouse or conservatory during the summer months. Some persons fancy that lilies are easily grown, and so they are if they receive proper attention, but this they do not always get. *Lilium auratum*, for instance, with the cultivation it sometimes receives, requires renewing annually; whereas with good management it may be grown year after year, and will increase in vigour. I was shown a sample of *L. auratum* roots in Messrs. Veitch's Nursery, Chelsea, which had been grown in this country for two years, and they were the finest I ever saw, far surpassing any that could be imported from Japan. One of the roots measured a foot in circumference and weighed exactly one pound. These had doubtless been grown in a favourable position out of doors, and would be well adapted for potting.

A suitable compost is of considerable importance for pot culture, but I am not sure whether it is of so much importance as the after treatment, especially watering; I believe hundreds of bulbs are destroyed annually through carelessness in watering. I pot all our bulbs in one compost, viz., equal parts of loam and peat with a little leaf mould, and sufficient sand to keep the compost open; a little rotten manure added causes a better growth. We re-pot them as soon as the leaves become yellow, after flowering. If this operation is delayed until the bulbs start they are likely to be injured. When they are potted the best way is to place the pots out of doors and cover them well over with cocoanut fibre refuse. They may remain out all through the winter, the fibre being quite sufficient to protect them from the lowest temperature we are ever likely to experience in this country. What they do chiefly suffer from is wet. It may be that heavy rains fall soon after they are placed out of doors, and before any roots have been formed; the result of this is that many of the bulbs are injured; decay sets in, and if they do not die outright during the summer, they are so crippled that they scarcely flower, and one almost wishes they had died. To avoid this injury shutters ought to be prepared, and be placed over them when they are likely to be injured by wet.

About the end of January or early in February they ought to be taken out of the material in which they were plunged and be placed in cold frames, plunging the pots up to the rims; by this time many of them will have started to grow, and it will not do to expose the stems all at once to light and air. The frames ought to be kept close a little while, and a mat should be thrown over the glass for a day or two, and be gradually removed to accustom the plants to the light. They will soon grow freely, and they must have plenty of air; the lights to be removed whenever the weather is fine, keeping them over the plants only when they are likely to be injured by cold winds or frost at nights. When they are too tall to grow in the frames, they should be removed either out of doors or into a light airy house; and as soon as the first flowers open they must be placed under glass, if they have been in the open until that time. Where many cultivators err is in not taking care of the plants until after they have done



APPLE TOM PUTT.

flowering. They ought to be kept under glass until the leaves turn yellow, and be moderately supplied with water until that time. Too often the lily pots are turned out of doors, where they are exposed to the extremes of heat and drought, wet and cold.

MR. MILLAIS'S PICTURE OF "POMONA," now on view at 5, Haymarket, will rank high in the lovely series of his works in which child life is the dominant theme. Pomona is a bright little girl in mob cap, white dress, and blue sash, standing near a barrow filled with rosy apples, the background being a rich autumnal woodland.

SEMI-EARLY OR OCTOBER-BLOOMING
CHRYSANTHEMUMS.

MANY years ago I found out to my sorrow what must have been discovered by many others, that the labour of growing chrysanthemums in the open garden ended in the frustration of my hopes: either the frost, the wind, or the rain spoiled nearly all the flowers on the point of coming to perfection. At that time, among my little collection I found one pretty yellow flower that was out and over before all the rest, and that plant, which turned out to be Drin Drin, gave me the idea that we might have the enjoyment of these flowers in the open garden without the frost and storms of November. I shortly found that others had the same thoughts—particularly the late Mr. Taylor and the Rev. F. Freeman, of Wickersley, Rotherham—had been and were working in the same direction, and were well advanced in the march. From that time to this I have—we have, for it has now become the work of many hands—been at work selecting the best and rejecting the worst, making the most fit survive, and the strides are wonderful. As I have gazed this very day (November 4) on the exquisite white flowers of the lovely La Vierge, and had it, as I have, in bloom all through October, I am struck with the wondrous advance on such flowers as Drin Drin and old Illustration, for the progress from Drin Drin to Bolide is nearly as valuable in yellow as La Vierge and Desgrange in white. The knowledge of these plants and flowers cannot be too widely known among those who like beautiful flowers, and do not desire to pay more in money or labour than is necessary to possess what they want. How often have I seen persons at shows making note of beautiful flowers, thinking perhaps without the knowledge and appliances that they might grow some such in the open garden! Most of these show flowers are quite unfit for the purpose. The show flowers are excellent things, and the shows themselves, too, but they offer little or no inducement for the growth of good garden sorts or pompon varieties, and cannot in the present nature of their operations take cognizance of the early or garden sorts. Mrs. Rundle is a superb show flower, but grown in the open it bears such a mass of flowers that it cannot be kept up. Dr. Sharp, again, is a good show flower, but in the open garden it often fails to bloom at all, and so it is with many or most of these sorts: they do well for show plants and show flowers, but for the open garden or small or moderately large pot plants they are not the right sorts. I think if "Chrysanthemum Grower" or "Moses" of GARDENERS' MAGAZINE, October 28, and November 4, 1882, will grow the sorts named in these articles they will be satisfied that they can have plenty of chrysanthemums any time from June to November; but they and all others for these purposes must choose those most fit, and not grow at random some six hundred or more varieties. People often attribute results to culture and climate when they are much more due to sort than anything else.

I will speak first in this paper, as I have generally done, of the new or newest. Perhaps the most important, certainly the largest and tallest, is

FELICITE.—This is a real large chrysanthemum. It will grow as much as 4 ft. 6 in. high, but its general height is 4 ft. This must not be mistaken for another called Felicity, which is a white flower with a primrose centre and late. Perhaps it will be as well to call this October Félicité. Its colour is orange to yellow, the latter under glass. The French call it apricot-yellow. It comes near in colour and appearance to Golden Christine. The full-sized flowers are from 3 in. to 4 in. across, and come out about the middle of October. It is a fine, strong, robust-growing plant, and stands storms of wind and rain, as well as having the power to bring out every bud formed into a fair flower. There is no doubt it would grow fine show flowers if treated as the show ones are; but I do not grow in that style, being only desirous to find out the force and merit of each sort grown in a natural way. There is no doubt by being struck rather late this could be had for the shows in November. I expect this will be very useful where large quantities of flowers for decorations are required, for it is very free blooming; besides, as a large ornamental pot plant it is very handsome indeed, retaining its leaves down to the base of the plant. It is good; an addition to our force and power of production.

L'ADMIRABLE.—This again is a very distinct variety. In colour it is a fire-red, and the form of the flower when full out is nearly round, as the rigid petals stand out stiff. It blooms at the beginning of October, grows 2 ft. 6 in. high. The plant is stiff and stout, doing without sticks, and is a most striking object. I have never seen one at all resembling it.

BOLIDE.—I do not know that this variety is new. Mr. Davis has had one of this name on his catalogue before this season, but he says the one I have is not like his. Mr. Cannell has Bolide on his list, which is probably a mistake in the name, for the plant is the same as mine; but this I do know—that I have never grown it, had it, or seen it, before this season myself, although for years I have been trying to find a good yellow pompon that was early, and this is just the thing. It is a bright canary-yellow, grows not more than 2 ft. high, stiff and dwarf, requiring no sticks, and is a most beautiful yellow pompon. Blooms in the middle to end of October.

Somewhat resembling the above in the form of its flower is General Canrobert, only the colour is not so bright a yellow. Grows about 2 ft. 6 in. high, bushy and stout; requires no sticks. A very excellent garden sort, the best of the character I could find till I obtained Bolide. Blooms in October.

AIGLE D'OR.—This is not Golden Eagle, which is different and late. Aigle d'Or is also known as Hebdon Bridge and Berrol. I believe this is known in the market as Smith's Yellow. I have also had it as Madame de Vatre. It is a very robust grower and free

bloomer in October, and very good where immense quantities of flowers are wanted. Its faults are that it grows so tall and with such thin flower stalks and abundance of bloom that it is most difficult to keep up. The flowers too are fugitive, and require to be cut before they are well out, or else the back is fading off.

HENDERSONI is another October-blooming yellow. It has the same faults as the last. Difficult to keep up and not very durable, though better in the latter respect than Aigle d'Or. It is a pretty little daisy-like flower.

MRS. WOOD, now sold as Luxembourg, is another of the October-blooming yellows. It is a very full flower, but the plant is of uncertain growth, and is not bright in colour. I hear of a bright yellow sport of it, but have not seen that yet.

SEUR MELANIE.—I have grown this since 1877, and certainly should not have grown it ever since unless it had merit in my eyes, and yet I have never till this October seen any flowers of it for sale. I think Mr. Turner, of Slough, last year 'grew and made a show of it, which has probably something to do with its attracting attention now. I have never referred to it before in the GARDENERS' MAGAZINE because it was not essentially early, but many of these semi-early sorts are even more valuable than the early ones, because they come when they are worth more. This one's value is because it will bloom in October, and, I may say, no other time. It is a very strong-growing, handsome plant, but generally requires a stick or sticks, as it grows 3 ft. high, with heavy foliage. It stands rough weather well, but sometimes in very light weather in the open comes not quite white, but under glass it comes exquisitely so. It is a free bloomer, and the flowers are from 2 in. to 2½ in. across. It is a very excellent sort, and will, I think, satisfy all who grow it. If I mistake not, it is well suited for growing flowers for market.

LA NEIGE.—This is another essentially October bloomer. As its name indicates, it is very white, and the petals are placed in such an irregular way as to give it a snow-like appearance. It is a robust strong grower, and a very nice flower, 2½ in. to 3 in. across, but is not a very free bloomer. Grows under 3 ft. high.

ADRASTES is a very robust grower, flowering in October. It is rather tall, over 3 ft. high; a profuse bloomer; flowers rosy purple, very bright, but the flowers are poor. I know none other for the time and colour. It makes a good show at a distance, and the flowers do to mix with others for their colour.

I find on reading my last paper that there is an early bloomer that is new not mentioned there—it is Auréole. Blooms in August; grows about 2 ft. high; flowers about 2½ in. to 3 in. across, in colour pink. It is a robust grower, and good for the garden, though the flowers are not so rich as some.

I have to thank all friends for their assistance, and the Editor for the space he spares for this subject. I shall be glad at any time to hear from any one unknown to me who may be working, or wishing to work, in the same track.

West Road, Forest Hill, London, S.E.

W. PIERCY.

THE PELARGONIUM AND ITS CULTIVATION.

By C. E. PEARSON, of Chilwell.

Read at a meeting of the Nottinghamshire Horticultural and Botanical Society.

I HAVE thought it best to confine my remarks this evening chiefly to the Zonal section of the Pelargonium family, partly because it is the one of which I have had the most experience, and also because it is the most widely known and appreciated; and I think the subject will occupy as much of your time as you will be willing to devote to it.

To begin with the name. There has been a good deal of confusion amongst non-botanical people between Pelargonium and Geranium, in consequence of these plants being so variously called—scarlet Geraniums, bedding Geraniums, &c.; the fact is, they are not Geraniums, but "Zonal Pelargoniums," though belonging to the Geranium family. Most of the Geraniums are hardy herbaceous plants, dying down in winter, several of them being amongst our native wild flowers. The best known, perhaps, are the blue Geranium, found in moist meadows (*Ger. pratense*), and the small pink one, which is found in every hedgerow—*Geranium Robertianum*, or, as it is commonly called, the Stinking Cranesbill. The easiest method of distinguishing the two families is by the flowers: in the Pelargonium the parts of the calyx unite to form a tube, easily found by cutting through the flower-stalk. If the Geranium be treated in the same way it will be found to be solid.

The Pelargoniums, as most of you are no doubt aware, are chiefly natives of the Cape of Good Hope, from whence some fifty or more species have been introduced. I have brought a few of these to add to the interest of our meeting.

The two from which has sprung our now numerous family of Zonals are *Pelargonium zonale* and *Pelargonium inquinans*; these two were crossed by Donald Beaton, one of the cleverest and most persevering of our hybridists. The intercrossing of these plants and their progeny was then taken up, amongst others, by Paul, George, Smith, Grieve (whose name will be well remembered as the originator of the Tricolor section), Dr. Denny, and my father—who, by steps which we have not time to follow now, have improved the poor ragged blooms of *Inquinans* and *Zonale* into the blossoms before you, at the same time giving us a range of colour at one time undreamt of, from white to deep crimson, scarlet, purple, pink, and salmon, with almost every intermediate shade.

As regards culture, the management for outdoor decoration is so simple that nothing need be said here, so that I shall confine myself to their culture under glass, which is now becoming more and more general, the newer varieties having the flowers so fine that they can scarcely be excelled by any other flowering plants for effect, which at the same time causes them to be less suitable for outdoor work, the large heavy blooms being so easily destroyed by storms of wind or rain.

If the plants are intended to bloom from June to Christmas, the cuttings should be put in about the end of August, four in a 4-inch pot, in sandy soil, and plunged in ashes or cocoa fibre in the open air, where they will not require attention for three weeks. They should be taken under glass before there is

any danger of frost, potted off when ready, and kept gently growing through the winter in a light position near the glass, to prevent drawing.

The temperature should not be too high at this season or the growth made will be weak; about 45 deg. to 50 deg. will be sufficient. About the beginning of March they will be ready for a move into 6-inch pots, in which size they may be bloomed successfully, but if larger plants are required they may afterwards be potted into 8-inch; the plants in the smaller size will, however, produce more bloom in proportion to their size, if well fed.

The best compost for potting is prepared by stacking up, about six months previous to its being required, some good turf from an old pasture, the subsoil of which is good loam—neither clay nor sand. As the heap is made, a good sprinkling of stable manure should be spread between each layer of turf. When required for use it simply needs cutting up, and the addition of sand or road grit. I have not stated any proportions, as they, of course, vary according to the density of the soil used.

Treated in this manner they will commence to flower freely about the beginning of June, and, if well cared for, will continue to do so until Christmas.

The best house for Zonals through the summer is one with a north-west aspect, as in that position the sun does not shine upon them until about two or three o'clock, doing away with the necessity of shading, always an evil with this class of plant. If, however, the house in which they are grown faces full south, a little shade should be given in very hot weather, or the centre of the trusses will fall before the outer pips have time to expand properly.

For winter flowering Zonals require somewhat different treatment. The cuttings should be struck in spring, from the middle of February to the end of March. About the beginning of June the plants should be potted into 6-inch pots (not larger, the object being to produce hard short-jointed wood; for the same reason the soil used should not be so rich as that prepared for plants intended to bloom in the summer), then plunged in ashes, in a position fully exposed to the sun. Summer culture will consist in careful attention to watering, and the removal of the buds as fast as they appear, until a short time before they are removed to their winter quarters under glass.

Care should be taken that they are not left too long exposed to the autumn rains, as I have known a fine batch of plants spoilt from this cause, the soil becoming sour, full of worms, and most of the fine roots decayed; after which, of course, success is hopeless. Ventilation should be given freely until the plants become accustomed to their change of quarters, or they may lose a quantity of foliage. If these directions be followed, and the plants placed not too far from the glass, in a light sunny house, where a temperature of 40 deg. to 45 deg. by night, and 45 deg. to 55 deg. by day, and running up to 60 deg. with sun, can be maintained, with proper choice of varieties, as fine a display of bloom may be looked for as can be obtained through the summer months, and which will be appreciated even by the few who do not care for the Pelargonium, on account of the scarcity of brilliant colour amongst our other winter-flowering plants.

As to stimulants, the Pelargonium, both Zonal and Show, is as much benefited by them as any other class of plant, if applied with discretion to a healthy plant having its pot well filled with roots. I have seen a splendid batch of plants which had been treated with guano alone, just enough to colour the water being given every other time they were watered. Soot and cow-dung make a good stimulant, and also several of the artificial manures so freely advertised; but the best in my opinion is the one now largely used by several of the chief London growers for market, namely, the drainage from a cow-stable, which is principally urine. This, if pure, should be carefully mixed, as it is strong enough to kill any plants if carelessly used; but in the proportion of one pint to two gallons of water may be given liberally. It has the advantage of causing the plants to bloom more freely, instead of running them into growth, like some other manures.

One great recommendation of the Zonal Pelargonium being its freedom from insect pests, there is not much to say on that head. It is never troubled with thrips, mealy bug, scale, and only an occasional unhealthy plant is found infested with green fly or red spider. The only insect ever found really troublesome is the caterpillar, and for them the best remedy is hand-picking, and killing the parent moths when seen. As the latter are unknown to many even the best gardeners, through lack of time or inclination to become good entomologists, I may say that the three principal kinds infesting the Pelargonium are the Gamma, or Silver γ moth, the Angle Shades, and the Dot. The first is easily known by the silver mark from which it takes its name; the second (much the rarest of the three in this locality) when once seen, is not difficult to recognize, as its markings are quite distinct from any other moth I am acquainted with; the same remark applies to the Dot. As it is rather difficult to describe clearly any insect so that it may be recognized, I have brought specimens of the three species, which are on the table for your inspection.

Most of what I have said about the Zonal Pelargonium will also apply to the large-flowered, or Show Pelargonium. The compost used is the same in both cases, and the general treatment very similar; in fact, but for one reason, they might be most successfully grown together: which is, that the regular fumigation necessary to keep down green fly on the Show Pelargonium is detrimental to the Zonal, often causing the foliage to turn yellow.

The cuttings of Show Pelargoniums will strike pretty freely any time between March and the end of July; but perhaps the best time is when the plants have done flowering, about the middle of July, as the cuttings at that time will strike in a cold frame, and afterwards, if well treated, make good flowering plants the following summer.

The cut-down plants should be stood out of doors on ashes, and will require no attention until they begin to grow again, except to turn them on their sides in case of heavy rains. When growth has commenced they should be shaken out and repotted, using smaller pots than the ones they were turned out of; after which they should be placed under glass, where the treatment required will be pretty much the same as that recommended for Zonals, except that they will require fumigating occasionally, to keep down green-fly. This should be done as soon as any flies are seen, and not left until the plants are smothered, when they will be injured, and two fumigations required to clean them where one would have sufficed if applied earlier. It is a good plan to fumigate on two successive nights, just before the plants commence blooming, when they will be thoroughly cleaned, and pass right through the flowering period without the necessity of repeating the dose. The reason for this is, that a strong fumigation while they are in bloom will cause nearly all the expanded flowers to fall, and spoil the show for some days. It is difficult to have the Show Pelargoniums in flower during the shortest days of winter; but they may be well bloomed in November, and again in February, in an ordinary greenhouse temperature. To do this, some of the young plants should be selected in spring from the batch, struck, as recommended, in July, and potted on as they require it

through the summer; if treated well they will require a 10-inch pot for the last shift. A cold frame will suit them best from the middle of June until September, during which time every bud should be picked off as soon as it appears, as, if allowed to bloom at all during their natural season, they will refuse to do so when required during autumn and spring. If treated as above, the Show Pelargonium will bloom freely in November, and perhaps into the beginning of December, if the weather be bright and sunny, after which they will stop flowering for a while, unless a very high temperature is kept up, which is a mistake, as it causes the plants to become drawn and weak and infested with insects, added to which the flowers produced are not so good as those grown with more sunlight. In ordinary greenhouse temperature the plants will commence to bloom freely again in February, and continue to do so until joined by those which have been managed in the ordinary manner.

I do not know that I have anything more to add, except that an objection is often raised against the use of Pelargoniums, both as cut flowers and otherwise, on account of the fugitive character of their blooms; this may be easily remedied by dropping a drop of florists' gum (to be procured at any seedsman's) into the eye of each flower, when they will last until completely withered.

The following is a select list of Pelargoniums, arranged for summer and winter flowering, &c. :—

ZONAL PELARGONIUMS FOR BEDDING.

WHITE CLIPPER, white.	MRS. TURNER, lilac-pink.
CORSAIR, } scarlet.	MISS KINGSBURY, } wh. leaved.
VESUVIUS, } scarlet.	ROSA MOND WRIGHT, } wh. leaved.
HAVELOCK, }	WILLIAM SANDAY, tricolor.
REV. ATKINSON, }	MACMAHON, } bronze
HENRY JACOBY, } crimson.	IMPERATRICE EUGENIE, } leaved.
MRS. HOLDEN, pink.	

ZONAL PELARGONIUMS FOR WINTER FLOWERING.

BEATRIX, pale rose.	MRS. STRUTT, lilac-pink.
EDITH PEARSON, rosy salmon.	DAVID THOMSON, crimson.
CORSAIR, } scarlet.	H. H. CRICHTON, crimson, white
VESUVIUS, }	eye.
EUREKA, } white.	TITANIA, salmon, tinted pink.
WHITE VESUVIUS, }	HENRY JACOBY, dark crimson.
MRS. LEAVERS, pink.	

ZONAL PELARGONIUMS FOR CONSERVATORY.

ATALA, scarlet.	DR. ORTON, } deep crimson.
SOPHIE BIRKIN, } salmon.	HENRY JACOBY, }
KATE FARMER, }	MISS HAMILTON, blush-white.
JAS. MACINTOSH, crimson, white eye.	BIANCA, } white.
ROSE, salmon-scarlet.	EUREKA, }
MRS. GORDON, scarlet, shaded magenta,	LIZZIE BROOKS, salmon-scarlet.
white eye.	LADY SHEFFIELD, lilac-pink.
CONSTANCE, rosy pink.	APHRODITE, rose.
METIS, dark scarlet, white eye.	EGERIA, scarlet, suffused magenta.
BURNS, scarlet, white eye.	

SHOW PELARGONIUMS.

ATALANTA, lilac.	MAID OF HONOUR, rose, white
CAPTAIN RAIKES, scarlet.	throat.
DIGBY GRAND, white, rose spot,	MRS. BOLLARD, salmon-scarlet.
fringed.	PRINCE ARTHUR, crimson-edged
DUCHESS OF BEDFORD, white, fringed.	white.
EMPEROR OF RUSSIA, dark purple.	QUEEN VICTORIA, scarlet, white
KINGSTON BEAUTY, white, purple spots.	edge.
LADY ISABEL, violet-purple.	TRIOMPHE DE ST. MANDE, magenta.
LORD OF THE ISLES, crimson, dark	THE ABBOT, scarlet, upper petals
blotch.	dark.

FANCY PELARGONIUMS.

LUCY, crimson-lake.	NELLY FORDHAM, pale pink.
MRS. R. HOLE, blush-white, blotched	PRINCESS TECK, white, pink spots.
rose.	

SHOW PELARGONIUMS FOR WINTER FLOWERING.

DUCHESS OF BEDFORD, } white,	HERCULES, crimson, dark blotch.
DUCHESS OF EDINBURGH, } fringed.	PRINCE ARTHUR, crimson, edged
DIGBY GRAND, white, rose spot.	white.

IVY-LEAVED PELARGONIUMS.

ANNA PFITZER, rosy pink, double.	JEANNE WOOTERS, rose, veined car-
EMILE GALLE, double white.	mine, double.
GLOIRE D'ORLEANS, magenta, double.	L'ELEGANTE, silver-edged foliage,
MADAME CROUSSE, salmon, double.	white flowers.

TURNIPS AND JAM.—According to the correspondent of a trade journal it is a mistake to suppose that fruit is absolutely necessary to the manufacture of preserves. He describes a visit to a large jam-producing factory, in which he found that the work was being bravely carried on without the aid of fruit at all. Jams of various kinds were being produced before his eyes—currant, plum, apricot, strawberry, raspberry, and gooseberry. Yet neither currant, plum, strawberry, apricot, raspberry, nor gooseberry was in the building. Turnips served the purposes of the fruit. The flavouring matter was extracted from coal tar, and the resemblance to raspberry and strawberry jam was further produced by mixing the boiling compound with small seeds of some cheap innocuous herb. A common form of sugar is used, and this is the only honest ingredient of the mess. These preserves are offered as made from "this season's fruit." This story is "going the round." It is probably true in part only; at all events, we decline to believe it in the terms stated. But whether true in part or absolutely, it conveys the lesson that those are fortunate who can grow and make their fruit preserves, so as to be independent of the sophisticating manufacturer. It is a matter for surprise that the Kentish growers have never started a manufactory whereby to supply the public with a genuine article to the advantage of all parties.

THE PROPERTIES OF THE TUBEROUS BEGONIA.

INQUIRIES are frequently made as to what should be the standard of merit in tuberous begonias? Every new subject that acquires importance for exhibition purposes will in like manner give rise to a similar question. It will be found, however, that a new candidate for floral fame is generally wisely judged from the very first of its appearing. This happens because experienced men require the new-comer to conform, more or less, and of course with a certain allowance for its peculiarities, with the principles that underlie the whole body of floral criticism. These principles rest upon reason, and are well understood by men who have had some practical experience, and at the same time have not disdained theoretical teaching. A man may be called upon to judge a certain flower for the first time, and he may be diffident as to his ability. But if familiar already with the best types

one of those four that, in our opinion, comes at all near to perfection, is named *Pollie*, and our approbation of it is founded on a combination of qualities. These comprise breadth and smoothness of the petals, their near equality in size, and their attitude, which enables the flower to face one pleasantly, and the moderate dimensions of the elegant leaves, which are produced on shoots stout enough to carry them fairly. The extra large flowers are usually wanting in symmetry of form and neatness of finish; the drooping flowers do not display themselves effectively unless suspended, and the narrow-petalled flowers fail to fill the floral eye, which does, and ever will, find pleasure in completed circles.

As a matter of fact the raisers of seedlings have all been working in the right direction, and if they have not always succeeded it must be remembered that *time* is an important element in the higher departments of floriculture, and if we begin with petals differing in size, and



SEEDLING BEGONIA, TYPE OF FLORISTS' SECTION.

of florists' flowers, and the rules commonly followed in judging them, he will not be wholly in the dark as to the qualities he should look for in the new-comer. And so it would happen with the tuberous begonia, if for the first time submitted to the scrutiny of a florist unfamiliar with begonias, but skilled in criticising varieties of the ranunculus, dahlia, chrysanthemum, or pelargonium. The florist selects his flowers as the vicar's wife selected her wedding gown, for good qualities, obvious to all, and needful to good wearing and good looks.

The tuberous begonia is grown chiefly for its flowers, and they demand first consideration. In our issue for August 21, 1880, we figured four named varieties in their exact forms, proportions, and attitudes. Their merits and defects are, in those figures, most impartially declared, and the defects, we think, are obvious. The only

suggestive of the windmill rather than the wheel, there must be an exercise of patience on the part of the man who proposes by systematic cross-breeding to make a wheel of the windmill. But this must be done; if we are to have a reasonable code of judging we must insist on broad smooth overlapping petals, all of the same size, forming a flower that may be likened to a coin with radial divisions.

The style of the plant, however, is of very great importance, for it needs as much correction as the form of the flower. In very many cases the plant is coarse, fleshy, and floppy, requiring much support, and, while too busy in producing leaves to take much trouble to produce flowers, having a tendency to hide amongst its coarse leaves the few flowers it produces. All these cabbages should be destroyed, however

large and garish their flowers may be. The pollen they shed is mischievous and the seed they produce is useless; for if we have not a neat, stout, self-supporting, and moderate growth, a really effective bloom is on the verge of the impossible. If the reader is disposed to ask for a model tuberous begonia, the one certificated at Chiswick in July last may be cited for the purpose. It bears the honourable name of "Thomas Moore," and it represents in all its characters the highest type of the florists' begonias.

For the illustration of these remarks we have selected two from amongst the thousands of seedlings that have been raised by Mr. John Laing, of the Stanstead Park Nurseries, Forest Hill. They represent two distinct types, which may be respectively named—in harmony with an accepted system of classification—as the florists' begonia and the decorative begonia. We object to such terms as drooping or pendent for the second class, because the term "decorative" will embrace everything of decorative value, whatever its peculiarity, and it leaves us free to judge according to the probable position of the variety where decorative effect, irrespective of individual quality, is above all things required.

The florist's begonia should be of moderate growth, stout, tree-like, well able to carry all its leaves and flowers without aid of stick or tie. The leaves should be produced in sufficient plenty to form a dense groundwork for the flowers, but they must be in some degree refined

annihilation. As the requirements of true floriculture are complied with in new varieties, the old floppy things will be flung to the void, and will cease to be. It is a comfort, however, to know that they have a chance in the survival of the unfittest, because the evolutionists repudiate the postulates of the florists, preferring to see flowers as nature made them. Consequently, when the flopping begonias are condemned, it will be kind to hand them over to the disciples of Darwin, and so save the trouble and pain of destroying them. If the botanists will take the ugly species, and the evolutionists will take the condemned varieties, we shall find it quite a pleasant business to clear all rubbish out of the garden, and play the part of benefactors in disposing of it. Not that we need go much out of our way to gratify the botanists and evolutionists, because when the florists have done their best and their worst the wildings of nature, whatever their names, will remain unsophisticated, for the spiritual fattening of both parties.

S. H.

FLOWERS BY THE SEA.

By J. C. CLARKE.

ON some parts of the West Somerset coast, especially that part which extends from Bridgwater Bay to Porlock, the fuchsia may be seen in the greatest perfection as a hardy plant. Indeed, so splendid is the



SEEDLING BEGONIA, TYPE OF DECORATIVE SECTION.

in form and colour, for a coarse leafage is a grave defect. As regards the flowers, they should be borne on stiff stems well above the leaves, so that none of the latter need be removed to display them; they should be not smaller than a florin, or say half-a-crown, and they may be of any size beyond that, *provided they are of good form and delicately finished*. By good form is meant that the petals are equal in size or nearly so, broad, smooth, overlapping, and forming an even circular flower with a distinct tuft of golden-coloured stamens or pistils in the centre. We say nothing of colour, for that is of the least importance. A flower of a bad colour will never obtain favour where the judges know what is required in respect of form and carriage, and colour is the cheapest of all qualities. However, as we are professing to provide a code of judging, it will be proper to add that the colour should be pure of its kind, and generally pleasing; this being granted, it matters little what the colour may be. As, in a general review of the tuberous begonias it may be noted that we have fewer good whites and purples than of other colours, raisers may, with advantage perhaps, give attention to these. A blue begonia is as unlikely as a blue pelargonium, but every tendency to blue must be valued if it can be secured without any special sacrifice of form.

A considerable proportion of the named begonias are doomed to

appearance presented that I very much question if any cultivated specimens ever made the same impression on my mind as those I have seen luxuriating in secluded nooks within a few yards of the sea beach. Certainly no hesitation is felt in saying that I have nowhere seen the fuchsia growing so vigorously and flowering so profusely as in some of the cottage gardens that dip down to the sea in more than one village on the coast in this direction. The luxuriant growth and the profusion of flowers strike one as something remarkable, and where there is some sort of protection and a little training given the plants, such as that afforded by a wall or the gable end of a building, it is not unusual to see them growing to a height of ten feet, and at the same time clothed with graceful clusters of flowers from top to bottom. Next to the healthy condition of the plants, I was surprised at the small amount of attention devoted to them. To a great extent they are left pretty much to themselves, to which they evidently do not object; but in this case, as in most others, the careful cultivator achieves the greatest success. At the same it must be stated that the most ordinary care is rewarded with a degree of success that cannot be achieved under the most painstaking management in more inland districts. This shows that climate is a prime factor in the matter, but it is not without its lessons of usefulness, because those who

take up their residence in such districts for the first time may learn from it how to proceed in the decoration of their gardens. It is very certain they cannot make a mistake in planting fuchsias where the climate approaches in character that of the Somerset coast.

When spending a pleasant hour with a friend who resides close to the sea, and who has made the outdoor cultivation of fuchsias a speciality, I learnt something of the manner in which he manages his plants, and how he succeeded in keeping alive during the two severe winters preceding that of 1881-82 such choice varieties as *Avalanche*, *Tower of London*, and *Prince of Prussia*, which had made growths four and five feet in height. I may mention, for the information of the general reader, that these varieties produce double flowers, the two first named having dark purple corollas and red sepals, and the other a light blue corolla and red sepals. Of the varieties with double white corollas Mrs. Ballantyne is the only one grown, as those with single white corollas are found to be by far the most vigorous growers. The best of these appeared to be *Comus* and *Madame Cornelius*. All those mentioned were planted against a wall about seven feet high, and with a west aspect. The only training they have consists in the leading shoots being nailed to the wall, and the only covering has been that furnished by a few armfuls of dry bracken, which was packed closely over the branches and kept in that position by the aid of a few large nails and pieces of cord, the latter stretched tightly along the front. In addition to those against the wall, my friend cultivates many other varieties in bush form, which he covers with bracken in severe winters; but it is only right to say that he experienced some losses during the winters of 1879 and 1880.

So far I have written of the behaviour of those varieties that are usually considered tender and not suitable to outdoor cultivation. But when we come to the more hardy kinds, such as *Riccartoni* and some of the still older varieties, we find their behaviour on the coast truly surprising. It is not difficult to find them so large that you can walk under perfect bowers of gracefully drooping branches, literally loaded with flowers. Against the wall they are conspicuously beautiful, with nothing more than the most commonplace management. But it would be misleading to attribute such luxuriance in growth to the climate alone. The fuchsia is a recognized feature of every garden; in fact, a garden by the sea in these parts without fuchsias would not be considered complete, and therefore perhaps more than an ordinary amount of attention is bestowed upon the preparation of the soil. If it is not so, the climate must be more favourable than a stranger would feel disposed to acknowledge. However it may be, the fact remains that the fuchsia does grow and flower in the most satisfactory manner on the Somerset coast, as any one may see who may happen to spend his summer holidays there.

Along the South Devon coast a much greater number of flowering plants are grown, and the manner in which the zonal pelargonium passes through an ordinary winter in the open air unharmed by frost, and thrives, is surprising even to those who are acquainted with an ordinary winter near London. For seven consecutive years previous to 1879 the zonal pelargoniums lived in many sheltered gardens untouched by frost, and as a consequence made a growth that was truly astonishing to strangers; and not only do geraniums grow and flower in the most luxuriant manner, but all other flowering plants thrive in all gardens that are fairly well sheltered from the rough wind.

But at the present time I am more interested in those kinds of flowers that are known to do well close by the sea. It was for this purpose I made a special journey to a few places on the Devonshire coast, and I will now give the names of such as I found in good condition.

But before doing so I may mention that the majority of them were found in the open beds on the promenade close by the sea at Teignmouth. Here they were exposed to every gust of wind, and the sea was beating up within a few yards of them. The names as I noted them down comprised petunias, zonal pelargoniums, lobelias, zinnias, dwarf tropæolums, marguerites, mignonette, *Cerastium tomentosum*, *Golden Feather*, *Phlox Drummondii*, yellow marigolds, gaillardias, fuchsias, calceolarias, and Indian pinks. I will now add a few that I found in good condition in places that were not quite so near the sea and also more sheltered from rough winds. They were *antirrhinums*, *pentstemons*, shrubby *veronicas*, *Anemone japonica*, French marigolds, dahlias, gladioli, *Hyacinthus candicans*, and *chrysanthemums*. I might have extended this list, and perhaps with advantage; but I prefer to name such as were seen in a condition worthy of being placed in this list. At the same time, it must be understood that it is possible some of the plants named might be seen in a more satisfactory state in other places that are not influenced by the salt spray from the sea. But if such a question is raised it will have no bearing on the object I have in view. My purpose is to show what are the most likely plants to succeed in gardens near to the sea, and if I have been in any way useful, even if only to a few, I shall consider myself rewarded.

THE NATIVE GUANO COMPANY'S WORKS AT AYLESBURY, as they appeared when inspected recently, are the subjects of engravings and descriptions in the *Pictorial World* of Saturday last, November 11.

MR. COLQUHOUN'S EXPLORATIONS of the South China border-lands formed the subject of a most important paper read before the Royal Geographical Society on Monday last. No such important contribution to geographical knowledge has been made for many years past, and for years to come speculation and adventure will be founded upon it, to the advantage doubtless of civilization, and certainly to the furtherance of trade and commerce.

The House, Garden, and Poultry Yard.

OMNIPOTENCE.

ETERNAL and Omnipotent Unseen!
Who bad'st the world, and all its lives complete
Start from the void and thrill beneath Thy feet,
Thee I adore with reverence serene;
Here, in the fields, Thine own cathedral meet,
Built by Thyself, star-roofed, and hung with green,
Wherein all breathing things, in concord sweet,
Organed by winds, perpetual hymns repeat.
Here hast Thou spread that book to every eye,
Whose tongue and truth all—all may read and prove,
On whose three blessed, Earth, Ocean, Sky,
Thine own right hand hath stamped might, justice, love;
Grand Trinity, which binds in due degree,
God, man, and brute, in social unity.

HORACE SMITH.

THE HOUSE.

As the fires are now burning in all directions plants employed in the embellishment of indoor apartments will require a little extra attention to keep their leaves free from dust. Such things as palms, dracenas, and india-rubber plants should have their leaves sponged with tepid water at least once a week, as the moistening of the foliage in this way will be highly beneficial to the health of the plants, apart from the good done by the removal of the accumulated dust.

THE GARDEN.

ARTICHOKES must be protected ere frost attacks them. In the first place, cut off the leaves to within a foot of the ground, and then heap up along each side of the rows a lot of dry litter consisting of straw, pea haulm, or leaves, taking care in so doing to leave the hearts of the plants free to the light and air.

CUCUMBERS for fruiting during the winter to be kept safe as to bottom heat, or they will begin now to drop their fruit or to show canker at the collar. Be prompt, therefore, to renew the linings, if needful, where fermenting material is used. Recently-collected leaves will, with the help of dung once turned, yield a very steady heat, and the better in large masses.

FORCING.—Give plenty of water to plants that have started away well, and syringe with tepid water on bright mornings, giving air afterwards when the leaves are dry. Beware of high night temperatures: beginners in forcing invariably make their first mistake in using too much heat at night, and the consequence is weakly growth and indifferently-developed flowers.

ORCHIDS are so generally at rest now that this is a most convenient season for a general examination of the stock, and the renewal of blocks, baskets, &c., for improving the effect of the grouping and arrangement. Repot any that require it and let every plant undergo an examination, during which the surface material should be wholly or partially removed.

PEACH and NECTARINE TREES to be forced need now a thorough dressing. Clean the house, prune the trees, tie in and wash the stems and branches with a paint made of clay and Gishurst Compound; mulch the border, and give it a thorough good soaking with tepid water. Give the trees air on fine days, but shut up at night. This treatment will bring the roots into action in advance of the branches, and when the trees are started they will make safe and healthy growth.

PINES require very careful management now, for we have warm sunshine one day and perhaps fog and frost the next. There ought to be a command of more heat than is absolutely required, which is easy enough with hot water, but not so easy with fermenting material, so as to keep the temperature of bottom and top pretty uniform in spite of changes of weather. As a comparative state of rest will be good for all classes of pine stock now, a bottom heat of 65 deg. for a minimum and 70 deg. maximum, with top heat of 55 deg. minimum and 65 deg. maximum, will be the safest for the plants. Supply water according to the state of the weather; take advantage of bright open weather to water pretty liberally, raising the heat and giving air at the same time; and when frost and darkness recur withhold it as long as will be safe, but not to cause exhaustion.

TULIP BEDS containing show varieties should now have their hoops placed over to be ready for mats or other covering in case of heavy rains. But the bed should be freely exposed for the present; as there is nothing gained by covering too soon.

VINES grown in pots for forcing for early crops may now be pruned and receive a top dressing of a rich compost, consisting of turfy loam and old hot-bed manure, in equal parts. Remove as much of the old soil from the surface as can be taken away without materially disturbing the roots, and then fix a band of zinc six inches in width round the pot with the lower edge resting upon the soil; the next step will be to nick each cane at from one to three inches above the soil in about three places, and fill the space enclosed within the zinc bands with the prepared compost, and to nearly level with the upper edge. Permanent vines that are to be forced early should also be pruned with as little delay as possible.

SEAKALE will shortly be in request, and forcing must be commenced. Crowns to be forced in frames and pits should be taken up and exposed some time before they are put in heat, to create for the roots an artificial winter. Those to be forced on the ground should be divested of their leaves and the crowns covered with clean litter, preparatory to being covered with pots and fermenting material. In commencing to force, place the seakale pots over as many stools as are to be started, and fill the spaces between and over the pots with a mixture of stable dung that has been once turned, with leaves, straw, and other litter, beating it firm as you proceed, and leaving the whole smooth and tidy nine inches above the top of the pots. Where only small quantities of seakale are required, it may be forced very conveniently and cleanly in pots. Pot the roots in 24 size pots, three in each, in a mixture of leaf-mould, rotten dung, and sandy loam, equal parts. Place the pots on the top of a brick flue or on a gentle hotbed, the bottom heat not to exceed 60 deg. Invert over each pot another empty pot, and stop the hole of each with a piece of flat tile, over which press a lump of clay.

THE POULTRY YARD

As the poultry shows are now engaging much attention in many parts of the country the question of breeds is frequently cropping up. With reference to the matter, it may be observed that if eggs in abundance and of first-class quality is a matter of importance, you must rely on Cochins or Brahmas. If, on the other hand, you want the most delicious chickens possible, with a moderate supply of eggs, you must go in for Game, which, as birds to eat, are the finest of all; or Dorkings, which are, in every respect save one, the best of all poultry; but if you want a beautiful bulk of meat, or in other words, large white-fleshed chickens, you may as well secure a pure strain of Crève-Cœur. Every breed has its good points, or it would soon pass out of existence. From the Dorking and the Game—the first the most useful, the second the most beautiful of any—we turn to Cochins, Brahmas, Malays, and other non-flyers. They will agree in three points. They lay well, they sit well, and a fence two feet high will keep them within bounds. As for the chickens when placed on the table, it must be confessed they are far from perfect in colour; and as for the full-grown birds they are decidedly coarse. We must face the facts, but we incline to Cochins and Brahmas as the most useful breeds we have for places where the poultry must be kept near the garden, and flying birds are likely to prove a nuisance.

Literature.

Introduction to Latin Prose Composition, with Hints on Latin Writing and Periodic Style. Crown 8vo, 3s. 6d. By R. M. MILLINGTON, M.A.—Our space prevents us from reviewing this excellent work at length, but we can safely recommend it to tutors and students as a lucid, scholarly, and analogical guide to that very difficult branch of study, viz., Latin Prose. What we especially like in the book is that the author starts with a principle and never leaves it, but shows clearly how the compound sentence develops into the lucid, well-proportioned, and rhythmical period. The fifth edition of "Selections for Latin Prose," by the same author, has now passed into the serene atmosphere of assured success, and it is not necessary for us to criticise its merits.

Familiar Garden Flowers. (Cassell.)—Part 45 of this work contains figures and descriptions of *Geum sylvaticum* and *Tradescantia virginica*. The last-named is admirably drawn, and justifies our high opinion of Mr. Hulme's taste and accuracy in handling difficult subjects. The little sketch filling but a small octavo page is a perfect picture, and gives one a lesson in colour printing as well as in drawing from nature.

The Ladies' Treasury for November contains a beautiful figure of the Rathaus in Breslau, and a good budget of essays, stories, historical and literary sketches, and ample advices on household management and the costume of the season.

Our Happy Family (Cassell) is the "Little Folks" annual for 1883, or perhaps we may call it the "Little Folks" Christmas number. It will prove a grand treat for the small humanities that are now on the look-out for fun and frolic. The "Animals' Banquet," and the Pelican's solo will bring the "Happy Family" into the world of happy memories.

The Welcome (9, Paternoster Row) for November is rich in attractions, pictorial and literary. Egypt obtains some share of attention, and there are some striking pictures of Moses' Wells, the Nile Boat, and of ruins and temple statuary. The portraits include Mrs. Gladstone, Erskine Nicol, Hon. W. E. Dodge, and the once notorious Bo'son Smith.

Cassell's Illustrated Almanack for 1883 contains enough for the money, if it were all of the commonplace sort. But the book abounds with beautiful pictures, light stories, solid information, and much that is new and good for the domestic circle. It is quite a gallery of pictures, many of them excellent copies from works of renown, and the coloured wrapper would tempt any one to prepare for an artistic feast.

Illustrated Bible for the Young. (Ward and Lock.)—The plan of this Bible for the young is altogether admirable. It is, in the first place, peculiarly attractive, by reason of its coloured plates and wood engravings, which are thoroughly good. We cannot imagine a more healthy or legitimate form of invitation to the young mind, for the pictures really illustrate the text, and are in themselves creditable copies of important works of art. As regards the text, which is beautifully printed, a certain judicious abridgment has been accomplished, but not a word has been altered. In similar good taste there is no commentary in the ordinary sense of the term, but at certain places, as where the history of a person or group of events is brought to a close, a few useful questions and answers are added, these being of a nature to fix in the memory the main points of the sacred story. We heartily recommend this Bible for the young. It is devoid of all possible objection as regards the text, and is rich in attractions of a pure and exalting nature, calculated to impress beneficially the youthful mind.

The Child's Instructor. (Ward and Lock.)—This, like the illustrated Bible, is in the first instance attractive; and, having won attention by its pictures and handsome letterpress, becomes delightfully instructive, and as various as knowledge itself. As a genuine family book it will be greatly valued, and will be turned to in after years by many for a little refreshing of the mind in the early lessons, for which it is especially provided. The first number contains lessons on the alphabet, arithmetic, music, history, botany, grammar, and many more suitable subjects, all of which are admirably illustrated.

From Messrs. Ward and Lock we have also received continuing parts of *Great Thoughts on Great Truths*, by the Rev. E. E. Davies; Gibbon's *Decline and Fall of the Roman Empire*; Rollin's *Ancient History*, now completed; *Land, Sea, and Sky*, also completed; Hallam's *Literature of Europe*, completed; *Epochs of History*, completed; Beeton's *Dictionary of Science and Art*, Part 13, completing Vol. 3 of second division; *Household Medicine*, completed; *Universal Instructor*, a very comprehensive body of useful knowledge; Haydn's *Dictionary of Dates*, Part 14 of the seventeenth edition; Phelps's *Shakespeare*, Part 2; *Arabian Nights*, Part 3; D'Israeli's *Miscellanies of Literature*; *History of the World for English People*; *Amateur Work*, Part 12, containing sundials, poultry houses, wood carving, walking sticks, photography, bookbinding, and brazing; Dr. Adam Clarke's *Commentary on the Holy Bible*, Part 19; *Sylvia's Home Journal*.

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPLOUGH'S PYRETIC SALINE restores health and vigour to the system? Headache, fevers, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist, and of the Maker, 113, Holborn, London.—[Adv.]

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, NOVEMBER 11.

THE meeting at South Kensington on Tuesday was exceptionally good, and afforded plenty of interest to the Fellows, their friends, and other visitors. The council room was richly furnished with zonal pelargoniums, salvias, chrysanthemums, and orchids, and presented a very bright and attractive appearance, and in the large vestibule there was an extensive and exceedingly fine display of vegetables, produced chiefly by the collections staged in competition for the prizes offered by Messrs. Sutton and Sons.

Chief amongst the subjects submitted to the Floral Committee were the collections of zonal pelargoniums from H. Little, Esq., Hillingdon Place, near Uxbridge, and Messrs. H. Cannell and Sons, Swanley. The firm last mentioned staged six or seven stands of zonals in a cut state, the trusses being arranged singly, grandly developed, and representing the very finest of the varieties suitable for winter flowering. The award of a medal was recommended. Messrs. Cannell also contributed well-flowered examples of several important novelties, amongst them being Mrs. Gordon, a superb scarlet variety, and Ferdinand Kauffler, a new and very beautiful variety with purple-tinted flowers, which quite surpasses all other varieties in the same line of colour; a large bank of Salmon Vesuvius, a capital free-blooming form with flowers of a rich salmon colour, and Henry Jacoby, a fine crimson variety; and several very beautiful stands of salvias. The group of zonals from Mr. Little consisted of medium-sized and densely-flowered plants of some of the finest varieties, and produced a brilliant display of colour; the award of a medal was recommended.

The orchids included a beautiful group of varieties of *Odontoglossum crispum* from Mr. Stevens, of Trentham, from which two were selected for receiving the distinction of a first-class certificate. Mr. B. S. Williams, Victoria and Paradise Nurseries, contributed a small but interesting group of orchids, amongst which were the useful *Dendrobium superbiens*, and *Pleione præcox*, one of the most beautiful of the "Himalayan Crocuses."

Chrysanthemums and greenhouse rhododendrons were largely shown by Messrs. J. Veitch and Sons, Chelsea. The chrysanthemums included Duchess of Connaught, Mary Major, and Rex Rubrorum, three excellent tasselled flowers recently introduced by the firm. Amongst the new flowers were La Candeur, a pure white intermediate, likely to prove most useful for supplying cut flowers, and Comet, a tasselled flower of medium size and of a bright orange colour. The rhododendrons included Princess Royal and other of the fine varieties introduced by the firm, and several seedlings of great beauty. The Messrs. Veitch also exhibited *Bouvardia Priory Beauty*, a delicate pink sport from *Elegans*, and of much value; and a hybrid begonia obtained from a cross effected between *B. socotrana* and *B. insignis*, and likely to prove most valuable for winter flowering. Messrs. Jackson and Son, Kingston-on-Thames, staged a new pompon chrysanthemum under the name of La Pureté, which will probably prove useful for specimen culture; the flowers are comparatively large, very double, and freely produced, but as shown are rather too green in the centre. The same firm also exhibited several stands of new Japanese chrysanthemums, the majority of which were highly meritorious. Messrs. S. Dixon and Co., Amhurst Nursery, Hackney, contributed blooms of several of the fine Japanese flowers they are now distributing and six blooms of *Crimson King*, a reflexed flower of grand quality.

Cyclamens were represented by a capital collection from Mr. Clarke, of Twickenham. The plants were exceedingly well grown, nicely bloomed for so early, and the flowers were remarkable for their high quality. From Mr. A. Waterer, Knap Hill, Surrey, came six fine specimens of *Cupressus Lawsoniana lutea*, a very bright and effective golden form of much value for choice positions.

The contributions submitted to the Fruit Committee included large and interesting collections of kales and endives from Messrs. J. Veitch and Sons, which sufficed to fill a table extending the whole length of the vestibule, and were both interesting and instructive. Messrs. J. Carter and Co., High Holborn, W.C., exhibited samples of their new Golden Queen onion, an excellent miniature variety, the bulbs of a pleasing golden colour and perfect in shape. Mr. Ross, Welford Park, Newbury, exhibited four remarkably fine Smooth Cayenne pines, for which the award of a medal was deservedly recommended. Mr. R. Dean, Ealing and Bedford, sent a sample of Dean's Superb parsley, a fine type, free in growth, of good habit, and densely curled. Mr. Miles, Wycombe Abbey, contributed immense examples of The Lyon leek, which is one of the finest strains of this useful vegetable, and held in high esteem by cultivators for exhibition. Messrs. Downie and Laird, Edinburgh, submitted a sample of a new black grape, which appears likely to be of much value for late supplies. The bunches are of medium size, the berries very large, and of a deep blue-black colour, and the flavour rich and brisk. From Messrs. Saltmarsh and Son, Chelmsford, came samples of their valuable new culinary apple The Queen, which was certificated two years since, and is without question a most valuable acquisition, rich as we are in good cooking apples. The tree is a heavy and constant bearer, and the fruits are large and very beautiful, and of the finest flavour. A seedling dessert apple was shown by Mr. Lilley, Peterborough, under the name of Peter Pippin, which is not without promise. Shallots were sent from Chiswick by Mr. Barron, and from Jersey by Mr. Pond.

First-class Certificates were granted as under:—

To Mr. Stevens, Trentham, for

Odontoglossum crispum Wilsoni.—A beautiful variety; the flowers large and of fine form, and marked on the sepals with red blotches.

Odontoglossum crispum Duchess.—A beautiful variety, remarkable for the large size, splendid form, and delicate colouring of its flowers.

To Mr. Coningsby, Sydenham, for

Odontoglossum crispum Dormani.—A splendid variety; the flowers large, and the sepals and petals beautifully blotched with red.

To Mr. B. S. Williams, for

Pleione præcox.—A very fine species with comparatively large flowers, of a soft rose colour.

To Messrs. Dixon and Co., Hackney, for

Chrysanthemum Crimson King.—A grand reflexed flower; the blooms large, full, and of fine form, and of a rich crimson colour.

To Messrs. H. Cannell and Sons for

Salvia Mons. Issanchou.—A distinct and attractive variety; the flowers large, and beautifully striped with brilliant scarlet on a pure white ground.

Pelargonium Mrs. Gordon.—A superb single zonal, with large flowers perfect in form, and of a rich crimson colour.

To H. Little, Esq., for

Pelargonium Aglaia.—A fine double zonal, producing in bold trusses well-formed flowers of a purple-crimson colour.

Pelargonium Albert Crousse.—A superb double ivy-leaf, with large, rich, salmon-coloured flowers.

To Messrs. Jackson and Son for

Chrysanthemum F. A. Davis.—A fine Japanese variety; the flowers large and full, the petals long and narrow, and the colour a very rich shade of maroon-crimson.

Chrysanthemum Mons. Desbreaux.—A Japanese variety of striking character; the flowers large, and of a bright orange-red colour.

Chrysanthemum Madame Brun.—A pleasing Japanese flower of medium size, good quality, and a soft rosy peach colour.

Chrysanthemum Safranot, exhibited by the same firm, although not certificated, was the very finest of the series; the blooms are extra large, full, and elegant in appearance; the colour very pale blush, with light canary-yellow centre.

To Mr. Orchard, Coombe Leigh, Kingston-on-Thames, for

Chrysanthemum Lord Wolseley.—A fixed sport from Prince Alfred, with flowers of a bright reddish chestnut colour with amber tips. As it possesses all the good qualities for which Prince Alfred is remarkable, and is very distinct and effective in colour, it is a most valuable addition to the incurved section.

MESSRS. SUTTON AND SON'S PRIZES FOR VEGETABLES.

The competition for the liberal prizes offered by Messrs. Sutton and Sons for collections of vegetables and for potatoes was very severe, and the several collections formed an important exhibition. In the class for a collection of vegetables of twelve distinct kinds Mr. Austen, Ashton Court, Bristol, was first with capital examples of Lapstone potatoes, Hollow-crowned parsnip, Dell's Crinon beet, Canadian Wonder bean, Hathaway's Excelsior tomato, Suttons' Improved Reading onion, Telegraph cucumber, Leicester Red celery, James's Intermediate carrot, and Brussels sprouts; Mr. Miller, Ashton Court, Trowbridge, second; Mr. Haines, gardener to Earl Radnor, Coleshill, third; and Mr. Phillips, Meopham, Kent, fourth. The prizes for one dish each of Magnum Bonum and Suttons' First and Best were awarded to Mr. Donaldson, Keith Hall; Mr. Finlay, Wroxton Abbey; Mr. Millen, and Mr. Ross, in the order of their names; for Suttons' Reading Hero and Woodstock Kidney, to Mr. Miller, Northdown, Kent, Mr. Ross, and Mr. Millen; for Suttons' Reading Russet and Fiftyfold, to Mr. Finlay, Mr. Donaldson, and Mr. Haines; and for Suttons' Early Border and Prizetaker, to Mr. Ross and Mr. Austen, in each case in the order of their names. The prizes for twelve Improved Reading onions were contested with much spirit, and were awarded to Mr. Haines, Mr. Spottiswood, Brighton, and Mr. Austen, all of whom staged fine samples of this excellent type.

Messrs. Sutton and Sons contributed a collection of about 100 dishes of potatoes, and a collection of kales and cabbages.

MESSRS. WEBB AND SONS' PRIZES FOR SCHOOLMASTER POTATO.

Messrs. Webb and Sons, of Wordsley, offered prizes for nine tubers of Schoolmaster potato. There were about twelve entries, and the finest samples were contributed by Mr. Howard, Canterbury, Mr. Osman, and Mr. Dean.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY, NOVEMBER 13 AND 14.

The exhibition of the Stoke Newington Chrysanthemum Society was held on Monday and Tuesday last, and proved so strong both in specimen plants and cut blooms that it may be safely described as one of the very finest of the many splendid exhibitions held in the district. Spacious as is the large hall of the Assembly Rooms, in which the show was as usual held, it was much overcrowded, for the plants and flowers were sufficient to have well filled nearly double the allotted space. The entries in the various classes were at least one-half more than last year, and a much higher quality prevailed throughout, the incurved flowers evincing a marked improvement, good as they have been at previous exhibitions of the society. Altogether the show was one of which all concerned may well feel proud, and it may be mentioned with considerable satisfaction that it proved a great financial success.

CUT BLOOMS, which are invariably of high-class quality at Stoke Newington, were staged in immense numbers and splendid condition and formed an important and striking feature. The incurved flowers were of especial merit, and to speak of them beyond their merits would indeed be difficult, for they were remarkably uniform throughout, and whilst of large size were superbly finished. The schedule contained two divisions for cut flowers, in one of which the competition was open to cultivators in all parts of the country, whilst the other was limited to growers resident within the boroughs of Hackney and Finsbury. In the great open class for twenty-four Mr. W. Monk, Forest House, Leytonstone, was first with a stand in which the whole of the flowers were large in size and splendidly finished. The varieties represented were, Mrs. Heales, Prince Alfred, Golden Empress of India, Princess of Wales, Lady Hardinge, Golden Eagle, Mr. Bunn, Rev. J. Dix, Mrs. G. Rundle, Nil Desperandum, White Beverley, Mrs. Dixon, White Globe, Antonelli, Queen of England, Venus, Golden Beverley, Hero of Stoke Newington, Princess of Teck, Refulgence, White Venus, Princess Beatrice, George Glenn, John Salter, Mr. J. Udale, Shirecliff Hall, Sheffield, was a good second, the blooms large, well balanced, and admirably finished, Alfred Salter and Golden Empress of India being specially noteworthy. Mr. Young, Stamford Hill, third, with a most excellent stand of blooms. Mr. Monk was also successful in taking the premier award in the open class for twelve, and staged blooms of excellent quality of Golden Eagle, Golden Empress of India, Prince Alfred, Lady Hardinge, Mr. Bunn, Rev. J. Dix, Mrs. G. Rundle, Nil Desperandum, White Beverley, and Mrs. Dixon. Mr. Wells, Woodberry Down, Finsbury Park, second, and Mr. Langford, Coleman House, Stamford Hill, third. In competition for the prizes offered in the open class for six Mr. Wells was first, Mr. Monk second, and Mr. Young third.

The competition in the division limited to growers resident within the boroughs of Finsbury and Hackney was equally as severe as in that open to all, and the quality was somewhat higher, as shown by the award of the silver cup offered for the best stand of twenty-four blooms in the exhibition being made in favour of one of the exhibitors in it. The winner of the cup was Mr. Gilbey, The Cazonove, Upper Clapton, who was first in the borough class for twenty-four, and staged blooms one or two points superior to those shown by Mr. Monk in the open class, and therefore of a very high order of merit. The

varieties of which the stand consisted were, Queen of England, Mrs. Heales, Jardin des Plantes, Emily Dale, Princess Beatrice, Golden Eagle, Mrs. Haliburton, Cherub, Hero of Stoke Newington, Guernsey Nugget, Lady Hardinge, Antonelli, Princess of Teck, Rev. J. Dix, Isabella Bott, Enamel, White Globe, John Salter, Golden Empress of India, Prince Alfred, Barbara, Empress of India, Mr. Bunn, and Refulgence. Mr. Martin, gardener to H. Matthews, Esq., Woodberry Down, Finsbury Park, second, and Mr. Payne, Cedar House, Stamford Hill, third, with blooms bearing the impress of cultural skill of a high order. In the class for twelve the exhibitor last mentioned was first with splendid blooms of Nil Desperandum, Golden Empress of India, Baron Beust, White Beverley, John Salter, Refulgence, Lady Hardinge, Mrs. Dixon, Mrs. G. Rundle, and the Rev. J. Dix. Mr. Martin and Mr. Hawkes, Stoke Newington, were second and third respectively. Mr. Payne was also first for six with highly-finished flowers, and Mr. Chalkley and Mr. Hammond were second and third. There was a spirited competition in the amateurs' classes, and in that for twelve Mr. Goldsmith, Grove Road, Stamford Hill, and Mr. John Coldwells, were first and second with most excellent stands. In the "maiden" class for incurved flowers the successful competitors were Mr. Langford, Mr. Jones, and Mr. Full.

The Japanese or tasselled flowers were more strongly represented than at any of the previous exhibitions of the society and made a very attractive display. The first and second prizetakers for twelve were Mr. Monk and Mr. Langford, and in competition for the prizes for six the awards were made in favour of Mr. Monk, Mr. Goldsmith, and Mr. Langford, all of whom staged capital stands.

SPECIMEN PLANTS were numerous, large in size, and splendidly flowered, and arranged to form a broad bank round the hall produced a most attractive display. In the leading class for a collection of ten specimens Mr. Monk was first with fine pyramids of Venus, Mrs. G. Rundle, and George Glenn, and excellent bushes of Lord Stanley, Sœur Mélanie, Julia Lagravere, and Antonelli; Mr. Payne was a close second with a group in which the dwarf-trained pompones were particularly good. Mr. Langford third with a capital collection, in which the standards were the most noteworthy. Large-flowered standards were superbly shown by Mr. Monk, Mr. Wells, and Mr. Payne, and in the class for four standard pompones Mr. Payne was first with a group in which Albert Victor, a high-coloured variety of much merit, was conspicuous. Both large-flowered and pompones dwarf-trained specimens were staged in considerable numbers and in excellent style by Mr. Wells, Mr. Gilbey, and Mr. Payne, who were the leading prizetakers, and good collections were staged by several other exhibitors.

The arrangements were as usual highly satisfactory and brought much credit to Mr. Goldsmith, the able secretary, and the members of the executive committee. The judges were Mr. Moxham, Mr. Shields, Mr. Mardlin, Mr. Ward, Mr. Cutbush, and Mr. Glover.

PUTNEY CHRYSANTHEMUM SOCIETY, NOVEMBER 14.

This ably-managed and prosperous society held its annual exhibition on the date above mentioned, and proved in every way a splendid success. The large assembly room in which the show, as in previous years, was held was filled to its utmost capacity with plants, cut flowers, fruits, and vegetables of a highly meritorious character, and as the various productions were arranged with much taste and judgment the effect produced was remarkably rich and satisfactory. One of the leading features of the exhibition was formed by the groups of chrysanthemums staged in competition for the silver cup, and specimen plants in collections and otherwise were exceptionally good. Cut blooms made a very fine display, and miscellaneous ornamental plants, fruits, and vegetables were plentiful and good, and contributed their full share to the interest and attractiveness of the show. The arrangements were remarkable for their completeness and the admirable manner in which they were carried out, and Mr. Stevens, the honorary secretary, Mr. Moore, and other members of the committee are well deserving of high praise.

CUT BLOOMS sufficed to fill a broad stage extending the whole length of the hall, and were good throughout, hardly a second-rate bloom appearing in any of the stands. The contest was very severe in the leading class for twenty-four incurved blooms, and at the head of the competitors was Mr. Harding, gardener to T. D. Galpin, Esq., Bristol House, Putney Heath, with splendid flowers of Empress Eugénie, John Salter, Lady Hardinge, Pink Venus, White Venus, Mr. Brunlees, Queen of England, Nil Desperandum, White Globe, Baron Beust, Refulgence, Mr. Bunn, Princess of Wales, Golden Queen, Mrs. Heales, Countess of Dudley, Jardin des Plantes, Prince Alfred, Empress of India, Hero of Stoke Newington, and Alfred Salter. Mr. E. Berry, gardener to the Countess of Levan and Melville, Roehampton, was second, with flowers a size smaller than those in the first-prize stand, but superb in finish. Mr. Green, gardener to H. Russell, Esq., Beechwood, Clapham Common, who was third, also exhibited remarkably well. In the class for twelve incurved flowers, Mr. E. Berry was first with grand blooms of Empress of India, Prince of Wales, John Salter, Queen of England, Empress Eugénie, Cherub, Prince Alfred, Nil Desperandum, Princess of Teck, Jardin des Plantes, Refulgence, and Mr. C. Brunlees; Mr. E. Coombes, Lawn Bank, Teddington, second, and Mr. C. Bentley, Roehampton, third, with remarkably good stands. For six incurved flowers Mr. Berry and Mr. Bentley were first and second respectively.

Anemone-flowered varieties were admirably shown by Mr. E. Berry and Mr. Tyte, Putney Heath, who were awarded the prizes in the order of their names. Amongst other flowers staged those of Prince of Anemones, Fleur de Marie, Acquisition, Lady Margaret, Emperor, and Gluck were the most noteworthy. Japanese or tasselled flowers were, as at previous shows held at Putney, very strongly represented both in numbers and quality. For twelve Mr. E. Berry was first with fine blooms of Madame Monlie, Mons. Delaux, Fulgore, Fair Maid of Guernsey, Baron de Prailly, Elaine, Triomphe du Nord, Criterion, Mons. C. Hubert, Kry Kwang, Red Gauntlet, and Peter the Great. Mr. Coombes and Mr. C. Bentley were second and third with flowers of excellent quality. The successful competitors in the class for six were Mr. E. Berry, Mr. C. Bentley, and Mr. Ansell. The class for twelve pompones was well filled, and the first prize was awarded to Mr. Moore, Richmond Road Nursery, Putney, for a splendid stand, and Mr. Haines, West Hill, Putney, was a good second. The leading exhibitors in classes for the single-headed gardeners were Mr. Coombes, Mr. Ansell, and Mr. Jackson.

SPECIMEN PLANTS were particularly good in all the classes. For six dwarf-trained pompones Mr. Tyte was first with large and densely-flowered examples of Eleanor, an effective reddish-amber coloured variety, Mlle. Marthe, Golden Mdllo. Marthe, and other good sorts; Mr. Hoskins a close second, and Mr. G. Stevens, St. John's Nursery, Putney, third. The exhibitor last mentioned occupied the first place in the class for three pompones with immense

and splendidly-flowered examples, of which the white and yellow forms of *Mdlle. Marthe* were especially meritorious; Mr. Hoskins second. The competition was severe in the class for a single specimen pomponne, and the first place was occupied by Mr. Stacey with *President*, the second by Messrs. S. Mahood and Son, Putney, with *Mdlle. Marthe*, and the third by Mr. Hoskins with *Marabout*. The first prize for one standard pomponne was taken by Mr. Tyte with *St. Michael*, the most highly coloured of all the yellow pompones; Mr. Bentley and Mr. Hoskins were second and third respectively. In competition for the prizes for four large-flowered specimens Mr. C. Bentley and Mr. G. Stevens were first and second respectively with most excellent collections. For two large-flowered specimens Mr. Stacey, Mr. Stevens, and Mr. Tyte were the prizetakers, in the order of their names. For one large-flowered specimen Mr. Tyte was first with a good standard of *Mrs. Haliburton*. For one specimen incurved Messrs. S. Mahood and Son were first with a fine pyramid of *Mrs. G. Rundle*, and Mr. G. Stevens second with a densely-flowered example of *Barbara*. The prizes for one specimen Japanese variety were contested with much spirit, and the examples staged were so densely flowered that they were unsurpassed in attractiveness.

GROUPS ARRANGED FOR EFFECT had two classes provided for them, one to consist wholly of chrysanthemums and the other to be formed with miscellaneous plants. In the first mentioned of the two classes Messrs. Mahood and Mr. G. Stevens were first and second respectively with groups of which it would be difficult to speak too highly, so splendid were the flowers and tasteful the arrangement. For a group of miscellaneous plants Mr. Hoskins was first; and in the classes for four stove and greenhouse plants and for four ferns the premier awards were made in favour of Mr. Stevens; Mr. Woodhams also exhibited well. *Primulas*, berry-bearing plants, and zonal pelargoniums were also nicely shown.

FRUIT AND VEGETABLES were plentiful and good, and deserved a more detailed notice than it is now possible to give them. It must, indeed, suffice to say that the most successful of the exhibitors in the fruit classes were Mr. J. Holmes, Clapham Common; Mr. Coombes, Mr. Haines, Mr. Bentley, Mr. Bradford, and Mr. Woodhams; and that in the class for a collection of vegetables the premier award was made in favour of Mr. Coombes.

The judges were Mr. Todman, Mr. W. Newton, and Mr. George Gordon.

BOROUGH OF LAMBETH CHRYSANTHEMUM SOCIETY,

NOVEMBER 13 TO 15.

The Borough of Lambeth Chrysanthemum Society, which for many years past has occupied a foremost position amongst the metropolitan associations for encouraging the cultivation of the Chrysanthemum, held its annual exhibition on the dates given above, and a more successful gathering could not well have been desired. The spacious Lecture Hall in the Borough Road, in which the show was held, was taxed to the utmost, for there was at least double the number of collections of plants and a marked increase in the stands of cut flowers. Regarded as a whole the exhibition was the finest, both as regards its extent and the quality of the plants and flowers, that has yet been held in Lambeth. It was satisfactory to note that amongst the leading prizetakers were several new exhibitors, and also to learn that the society is at length beginning to receive from the residents in the district the support which it so well deserves. It must be mentioned as an act of justice that the whole of the details were admirably carried out by Mr. R. Crisp, the hon. secretary, and Mr. A. Ball, Mr. Addison, Mr. W. Clarke, and other members of the executive committee, who are well deserving of high praise for the manner in which their respective duties were performed.

PLANTS were strongly represented, and so well flowered and finished that they produced a very effective display. In the leading class for a group of twelve plants the post of honour was occupied by Mr. A. Ball with large, fresh, and exceedingly well-flowered specimens. Mr. Childs was a good second, and Mr. Tozer, who was third, staged plants bearing flowers of immense size and the most splendid quality. In a second class for twelve plants, large-flowered varieties, Mr. Howett, Mr. Williams, and Mr. Tracy were the prizetakers in the order of their names, and staged collections of which they may well feel proud. For six bush pompones Mr. Davison was first with a group of large well-flowered specimens, Mr. Childs second, and Mr. Howett third. The competition was very spirited in the class for six large-flowered standards, and the first and second awards were made in favour of Mr. Tracy and Mr. Williams. In competition for the prizes for pyramids Mr. Tracy was successful in taking the premier award. Mr. Addison exhibited four pomponne plants trained to represent the initials of the society, and as they were neatly trained and well flowered they deservedly attracted much attention.

CUT BLOOMS included all sections, the incurved and Japanese flowers being, as a matter of course, the most prominent. In the class for twelve incurved flowers the competition was very severe, and the first prize was awarded to Mr. Ball for a splendid stand of blooms. Mr. Tozer and Mr. Childs were second and third respectively. For six incurved Mr. Tozer, Mr. Williams, and Mr. Howett were first, second, and third, and in this class Mr. Addison, Mr. Tracy, Mr. Payne, and Mr. Hadden also staged excellent stands. In the class for six incurved, open to honorary members, Mr. Crisp was first with a stand of superb blooms; for six incurved, one variety, Mr. Williams was first with good blooms of *Prince of Wales*, and Mr. Addison was second with *George Glenny*. Reflexed and anemone flowers were admirably shown by Mr. Addison, Mr. Ellis, Mr. Clarke, and Mr. Ball. Mr. W. Clarke was awarded an extra prize for a splendid stand of twelve anemone pomposes.

There was a fine display of Japanese flowers. In the ordinary class for twelve Mr. Childs was first with splendid blooms, Mr. Tracy second, and Mr. Williams third. For six Mr. Childs, Mr. Addison, and Mr. Davison were the prizetakers in the order of their names, and Mr. Howett, Mr. Williams, and Mr. Tracy exhibited capital flowers. In the two corresponding classes open to honorary members Mr. Crisp was first with stands of splendid blooms. For six blooms of Japanese, one variety, Mr. Addison was first with *Fair Maid of Guernsey*, Mr. Ball second, and Mr. Davison third. In the class for six reflexed flowers, one variety, Mr. Williams was first with fine blooms of *Golden Christine*, and for six large anemone flowers, one variety, Mr. Crisp was first with good blooms of *Gluck*.

The judges were Mr. W. Earley and Mr. George Gordon.

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THE FOOD OF MAN.

DIETARIES, IN THEIR PHYSIOLOGICAL, PRACTICAL, AND ECONOMICAL ASPECTS.

By R. M. GOVER, M.R.C.P., Lond. Read at a meeting of the Society of Arts.

1. A STUDY of dietaries in their physiological aspects is, in point of fact, a study of food in general; and a brief review of the uses and nature of food will, I think, assist in the discussion of the practical questions which I desire to submit for your consideration.

Food may be generally defined as a substance which, when introduced into the body, renews some structure, or maintains some vital process. It consists, on the one hand, of organic matters containing a certain amount of latent or potential energy, which may ultimately become converted into dynamic or actual energy; and, on the other hand, of inorganic materials which, though not themselves capable of metamorphosis, play an essential part in building up the frame, and in preparing and maintaining the conditions necessary for those chemical changes and interchanges which are incessantly in progress in the animal economy.

I need not go far in search of a more particular and categorical definition of food, and no experiments are necessary in order to ascertain the elements of which it should be composed, for there are two sources of knowledge always at hand, namely, the composition of the body itself, and the ingredients of the aliment provided by nature for building up the frame of the infant.

The human body is found invariably to contain certain substances which may be deemed essential; but there is nothing in nature which is pure "neither the invisible air nor the transparent water," and traces of other substances, which may be described as accidental, are not unfrequently found on analysis.*

The following is a list of the elements invariably found in the human body, with the quantity of each (according to Mr. Church's calculation) entering into the composition of a man in health, 25 to 30 years of age, and weighing 11 stone, or 154 pounds:—

ELEMENTS OF THE HUMAN BODY (CHURCH).

	lbs.	oz.	grs.		lbs.	oz.	grs.
Oxygen	109	2	335	Silicon	0	0	14
Carbon	18	11	150	Calcium	3	13	190
Hydrogen	14	3	150	Potassium	0	3	340
Nitrogen	4	14	0	Sodium	0	3	217
Phosphorus	1	12	25	Magnesium	0	2	250
Sulphur	0	8	0	Iron	0	0	65
Chlorine	0	4	150				
Fluorine	0	3	300				
					154	0	0

Milk has been well and concisely described by Dr. Guy as "an emulsion consisting of a certain quantity of solid elements, intimately mixed up with about eight times their weight of water." The "solid portion consists of less than half its bulk of saccharine matter, more than one-third of its bulk of the matter of cheese, somewhat more than a quarter of its bulk of oil or butter, with about one hundredth part of mineral substances, of which by far the larger proportion consists of phosphate of lime."† Milk may be said to be a model food, and no other food has yet been found so well adapted to the requirements of the young.

Having pointed to the composition of the human body, and to that of milk as the sources which at once enable us to recognize what are the necessary components of food, I proceed to state in a few words the work which it has to perform, and the mode in which force is liberated. In doing this I will resort to the analogy, now a familiar one, which may be traced between the animal system and a locomotive engine. In the case of the engine there is a material structure to be maintained; fuel is provided in the shape of coal and coke; the oxygen of the air enables the fuel to burn; water is converted into vapour; gases are generated; and, lastly, the incombustible material forms the waste ashes and cinders. The human body also presents a material structure; fuel is supplied in the form of food; the oxygen of the air combines with the combustible part of the fuel; water and carbonic acid are generated, and imperfectly oxidized or incombustible material is thrown out as waste. There is therefore in these two cases a close resemblance in the following points:—The oxygen of the air unites with that part of the fuel which is combustible, and in so doing sets free potential energy in the form of heat and motion. In the engine the heat produced is partly dissipated, and is partly employed in the performance of work. In the human body the forms of combination are less rapid and direct, but the ultimate result is the same. The conversion of the carbon and hydrogen of the food into carbonic acid and water takes place in the muscles, glands, and every part of the organism to which oxygen finds access. The energy of some at least of the food may be said to be stored up in the body, of which it has become a part during the processes of digestion and assimilation. It will be seen from the foregoing, that although there are important analogies between the animal system and a steam-engine as to the liberation of force, yet that there are differences with regard to the mode of combustion in the two cases. In the latter case, oxidation goes on quickly; in the former, slowly, and in the midst of moisture. Moreover, the oxidation which goes on within the body to some extent consumes the body itself, so that a renewal of the structures of which it is composed is constantly necessary.

According to Helmholtz, the animal economy turns fuel to better account than the steam-engine; for while in the best engine only one-tenth of the force liberated by the combustion of fuel is realizable as mechanical work, the human body is capable of turning one-fifth of the power of its fuel into the equivalent of work. But it is to be remembered, *per contra*, that the fuel of an engine is less expensive than that of an animal being, and it results from this, that human labour can never compete with consideration in economy with steam.

The classification of foods which I have found most convenient is that of Mr. Church, which takes into account both the chemical composition of these compounds, and the purpose which they serve in the body. Mr. Church divides food into two great classes, viz., nutrients and food adjuncts. Nutrients consist of incombustible compounds and combustible compounds. The incombustible compounds are composed of water and mineral matters, as common salt, and phosphate of lime. The combustible compounds consist of compounds of carbon, as starch, sugar, and fat, and compounds of nitrogen, as fibrin, albumen, and casein. Food adjuncts are classified as follows:—Alcohol, volatile and essential oils, acids, and alkaloids, as caffeine in coffee and tea, and theobromin in cocoa.

* See Blyth's "Dictionary of Hygiene."

† See paper by Dr. Guy on "Sufficient and Insufficient Dietaries," Journal of the Statistical Society, vol. xxvi., page 241.

I do not purpose, nor would time permit me, to trouble the Society with a detailed account of the functions performed in the animal economy by these several groups of compounds, and I will content myself with such a general sketch as can be comprised within a few sentences.

To begin, then, with water. This compound not only performs the important office of carrier to and from the ultimate structures, but it forms itself an essential part of every structure in the body. Without water no molecular change could take place, and any manifestation of life would be impossible. It may be truly said that wherever there is active life there is water.

Mineral matters are largely concerned in the construction of the animal frame, and they are essential constituents of the secretions. They aid in the transference of oxidized materials to the various tissues, and in effecting those subtle changes in which perfect nutrition consists. The most important mineral or saline nutrients are common salt, potash and soda salts, salts of lime, and magnesia, and iron. Lime, in the form of phosphate, is present in every tissue; and, as Dr. Pavy remarks, "its incorporation with the nitrogenous constituent principles is so intimate, that much difficulty is experienced in effecting a complete separation without involving the destruction of the compound."* The relation of the organic and mineral principles to each other is so close as to render it possible that the union between them is that of actual chemical combination. It is important to remark that the various salts of mineral nutrients are not mutually replaceable; their distribution is not indiscriminate, but is determinate and fixed. Just as vegetables select from the soil in which they are growing the particular aliment which in each case is essential to their growth and development, whether it be lime, or potash, or silica, so do the individual tissues or fluids of the animal organism select and appropriate those salts which enable them to discharge their specific offices, the due performance of which is necessary to ensure normal development and vigorous life. Thus potash appears to be the alkaline salt for the blood cells and muscular fibre, while "the soda salts are more largely contained in the intercellular fluids which bathe or encircle the tissues."

The great importance of the mineral constituents of food is not sufficiently understood in the kitchen; and those who are helpless, as school-children, soldiers in barracks, lunatics in asylums, the poor in workhouses, and (may I not add) the rich in their mansions, are frequently deprived, through the ignorance of cooks, of those inorganic constituents which are as necessary to life as nitrogen itself. By way of illustration I will take boiled beef or mutton, which are common articles of diet, both in public institutions and private houses. In the preparation of this dish the object of the cook too frequently appears to be to abstract as large a proportion of the saline constituents as possible instead of retaining them in the joint; but even where skill is not wanting, a portion of the nutritive salts will escape into the liquor in which the meat is cooked, and this liquor or broth is too frequently thrown away, or does not bear a proper proportion to the ration or portion of meat served out. I will say nothing here of the injury done by salting, and the employment of too high a temperature in cooking; for to do so would lead me into questions of chemistry into which it would be out of place now to enter. I will therefore content myself for the present with stating that the various destructive processes to which a piece of boiled beef is subjected before it reaches the table usually convert it into a mass of but little nutritive value.

The important part played by mineral matters in the animal economy is perhaps most strikingly shown by the fact that the state of mal-nutrition which, in its highest degree, we call scurvy, appears to follow inevitably† on the absence of the lactates, citrates, tartrates, and other salts which form carbonates in the system. Dr. Guy has shown, in the valuable paper to which I have before referred, that the omission of these principles has been the true cause of outbreaks of disease which have been wrongly attributed to a mere reduction in the quantity of food.§ And, short of the production of scurvy, there are other forms of mal-nutrition manifested by the pallidity, decaying teeth, foul breath, and arrested development common among town populations, and probably due in a great measure to the partial absence of principles supplied by succulent vegetables in a fresh condition.

The poet, with a curious insight into physiology, has said:—

"Herbs gladly heal our flesh, because that they
Find their acquaintance there,"

as though he knew of the kinship shown by ready union and assimilation. The total quantity of salts in the blood, as shown in the table, amounts to between seven and eight parts per 1,000, and about half this quantity consists of common salt. The purposes served by some of the mineral matters are very evident. For example, bone acquires its solidity chiefly from lime in union with phosphoric acid. Analysis of dried bone shows that it contains from 66 to 70 per cent. of mineral matter, of which about 57 parts are composed of phosphate of lime, eight parts of carbonate of lime, one of fluoride of calcium, and one of phosphate of magnesia. The alkalinity of the blood enables it to hold albumen in solution, and the more readily to absorb digested food—hence the importance of the alkaline salts, which also assist in the removal and combustion of materials which have been used up and worn out. A scanty supply of vegetables, and of the saline matters which they convey, may not, perhaps, produce actual disease as an immediate and very obvious consequence, and yet, by undermining the general health, the approach of the enemy may be rendered fatally easy, and his final victory certain. I agree, in the main, with some remarks that were written more than forty years ago by an authority on the art of dining. "One of the greatest luxuries to my mind," he says, "in dining, is to be able to command plenty of good vegetables, well served up. But this is a luxury vainly hoped for at set parties. The vegetables are made to figure in a very secondary way, except, indeed, whilst they are considered as great delicacies, which is generally before they are at their best, and then, like other delicacies, they are introduced after the appetite has been satisfied.

* "Treatise on Food," page 137.

† "Practical Hygiene," by Dr. Parks, Fourth Edition, page 177.

‡ The following table shows the relative importance of the saline and other constituents of the blood:—

Water	784	Tribasic phosphate of soda ..	0.2
Albumen	70	Carbonate of soda	0.84
Fibrine	2.2	Sulphate of soda	0.28
Red corpuscles (dried) ..	131	Phosphate of lime and magnesia	0.25
Fatty matters	1.3	Oxide and phosphate of iron ..	0.5
Inorganic salts—		Extractive matters, &c.	5.47
Chloride of sodium	36		
Chloride of potassium ..	0.36		1,000

§ For important information on the subject of scurvy in its various degrees, I would refer to Dr. Buzzard's excellent article in "Reynold's System of Medicine."

... Excellent potatoes, smoking hot ... would confer merit on any dinner; but they are as rare on state occasions as if they were of the cost of pearls. Everybody of genuine taste is delighted with a display of vegetables of a superior order; and if great attention were bestowed upon that part of dinners, instead of upon the many other dishes, dinners would be at once more wholesome and more satisfactory to the palate, and often less expensive. I have observed, that whenever the vegetables are distinguished for their excellence, the dinner is always particularly enjoyed; and if they were served ... fresh from the dressing, it would be a great improvement on the present style." So wrote Thomas Walker in the "Original," a work which is, indeed, a "rich mine of profound wisdom." Changes have, no doubt, taken place since his day in the modes of preparing and serving up dinners, yet some of his remarks are only too true.

I will conclude what I have to say on the incombustible compounds by suggesting that it would be well to encourage, as much as possible, the consumption of lettuces and watercresses among the poorer classes of the population, who cannot afford to obtain the requisite quantity of saline matters in other forms.

Combustible compounds are gradually burnt within the organism by means of the oxygen which is taken into the lungs during respiration. A mixture of these constituents is necessary for perfect nutrition. They replace fat, muscle, and other structures, and supply the latent or potential energy which becomes converted into the dynamic or actual energy of heat and mechanical action. Thus is animal heat maintained, and internal and external work performed. Up to a very recent period, Liebig's doctrine that muscular action depended upon the oxidation and destruction of muscular tissue was accepted without question. Nitrogenous matter alone was supposed to constitute the source of muscular and nervous force, and the nutritive power of food was accordingly measured by the amount of nitrogen which it contained. At the same time, carbonaceous matter was supposed to be the chief source of animal heat. In this theory there is now found to be some truth and much error. The muscles and other nitrogenous structures of the animal body do not waste away during action any more than do the wheels and pistons of a steam engine, and there is no incessant transformation either in the one case or the other. It is now known that the chief source of mechanical power is the oxidation of carbon and hydrogen, and that there is an exact relation between the elimination of carbonic acid and the performance of work. The following comparison is made by Fick and Wislicenus—"A bundle of muscular fibres is a kind of machine, consisting of albuminous material, just as a steam-engine is made of steel, iron, brass, &c. Now, as in the steam-engine coal is burnt in order to produce force, so in the muscular machine fats are burnt for the same purpose; and, in the same manner as the constructive material of the steam engine (iron, &c.) is worn away and oxidised, the constructive material of the muscle is worn away, and this wearing away is the source of the nitrogenous constituents of the excreta." This theory explains why, during muscular exertion, these constituents are little or not at all increased, "while that of carbonic acid is enormously augmented, for in a steam-engine, moderately fired and ready for use, the oxidation of iron, &c., would go on tolerably equably, and would not be much increased by the more rapid firing necessary for working, but much more coal would be burnt when it was at work than when it was standing idle."*

It may be considered, therefore, that nitrogenous matter, as muscle, constitutes the apparatus, or machinery, which is set in motion by the oxidation of non-nitrogenous fuel.

Nothing, however, that has been said is intended to throw any doubt upon the important part which nitrogen plays in the phenomena of life; for it is certain that in the absence of this element the molecular changes which are coincident with life cannot be carried on. Its constancy, as the late Dr. Parkes has said, proves its necessity. The absorption of oxygen does not determine the changes in the tissues, but the changes in the tissues determine the absorption of oxygen, and this is equivalent to saying that without the participation of nitrogenous bodies no oxidation and no manifestation of force are possible. In the nitrogenous structures the elements are feebly combined; they are constantly undergoing changes, and arranging themselves in an endless series of fresh combinations. This occurs in a prescribed order; and although the manifestation of force may be immediately due to the oxidation of carbon and hydrogen, yet the change first takes place in the unstable nitrogenous molecules, which give the impetus and direction to the combustion of other structures.†

But an instrument in constant use is constantly disintegrating, and in order that the tissues may be renovated, the used-up nitrogen must be replaced, or the gearing of the animal machine becomes deranged, and finally refuses to work.

Without entering at present more fully into the physiological view of the subject, I may say, in a word, that the true food of man consists of water, saline matters, nitrogenous matters, carbo-hydrates, and fats. These different principles are associated together in the composition of the animal body, as well as in the aliments provided by nature; and if these are not each duly represented in our daily food, defective nutrition results.

2. The question arises—What are the amounts of these several principles necessary to support life, and to maintain health and strength? Before this question can be answered, the conditions under which existence is carried on must be known, inasmuch as the waste of this or that principle varies with the circumstances under which the organism is placed. The amount of labour performed, and the degree of external temperature, are the most important factors in the calculations necessary for framing a dietary in accordance with scientific standards; but I may remark that experience had taught different communities what selection to make ages before it was discovered that the oxidation of carbon compounds serves to keep up the heat and movements of the body, and that compounds of nitrogen constitute the chief formative and reparative constituents of food. Sir Anthony Carlisle (quoted by Dr. Pavy) states, that the most northern races of mankind were found by him to be unacquainted with the taste of sweets, and their infants made very faces, and sputtered out sugar with disgust; but the little urchins grinned with ecstasy at the sight of a bit of whale's blubber. On the other hand, the inhabitants of the tropics subsist largely upon fruits, vegetables, and other foods belonging to the group of carbo-hydrates, and they consume but little fat. In the one case the proportional amount of unoxidised carbon in the food is very large, and in the other, it is comparatively small.

* Quoted by Dr. Pavy, page 100.

† Gun cotton differs from ordinary cotton chiefly by the addition of nitrogen, by which it acquires the instability characteristic of nitrogenous organic compounds.

This distribution of carbon is that which on physiological grounds might have been predicated as necessary, so that theory and experience are here in perfect harmony. Experience has also taught us much with regard to the different qualities of food in feeding animals. The groom knows that oats are more sustaining food than grass, and beans than oats. The farmer knows that turnips and cabbage are inferior in fattening properties to oil cake and barley meal, and he puts this knowledge into profitable practice, although he may be ignorant of the chemical explanation of his success. Again, every day experience proves that the wants of the system increase, *pari passu*, with an increase in the amount of labour exacted, and that the fuel supplied must be apportioned to the work performed. So far general experience is in accord with the results of scientific research; but the agreement is less perfect when details take the place of generalities, and when theory is appealed to for guidance in matters practical. This particularly applies to the precise quantities of alimentary substances required for given purposes. I have already adverted to the fact that that up to a comparatively recent period Liebig's doctrine that muscular action depends upon the oxidation of muscular tissue was accepted without question. It is now well known that any standard of food supply based upon that theory would be too rich in nitrogen, and would therefore be wasteful and extravagant. This appears to me to show in a very striking manner the importance of attending to the teachings of experience as well as to theoretical rules, for, if experience had exercised its legitimate influence at the time that Liebig's doctrine was accepted as sound, that doctrine would have been corrected by the observation that wherever a large amount of work has to be done the diet of these performing it contains a much larger proportion of non-nitrogenous matter than where less activity is required. It might have been observed that the agricultural labourer in Scotland subsists from one year's end to the other on oatmeal and milk, while in harvest time the supply of nitrogenous matter is actually reduced by the substitution of beer for part of the milk.* It might have been noticed that railway navvies feed to a great extent on bread and fat bacon, and that fat pork, which is poor in nitrogen, is a favourite article of food with the labouring classes, while it is not relished by the rich, who, although frequently exerting themselves but little, indulge freely in butchers' meat and game. Liebig's doctrine may be said to have contradicted the accumulated experience of ages, and yet any one who might be bold enough to reject it would, ten or twelve years ago, have been looked upon as little better than a scientific outcast—a physiological heretic and infidel. The physiologist should recognize that a deeper wisdom than his own utters itself in our natural desires; and rather than attempt to dictate laws to nature, he should accept the part of interpreter, and explain that which instinct and experience prove to be true.

The figures given by Moleschott are now generally adopted as the standard by which to frame a diet for a man of average height and weight in moderate work. He gives a total of nearly twenty-three ounces of water-free food daily. Of this, about four ounces and a-half are composed of albuminates or nitrogenous matters, about fourteen ounces of carbo-hydrates, nearly three ounces of fatty substances, and rather more than one ounce of mineral matters. According to Dr. Playfair, the mean of the dietaries of the English, French, and Prussian soldiers in time of peace may be accepted as the model for full health and moderate work. In this diet the proportionate amounts of nitrogenous matter, fats, and mineral matters are less than those given by Moleschott, while the percentage of carbo-hydrates is considerably greater. Pettenkofer and Voit give more aluminous substances and fats, and less carbo-hydrates than either; while Ranke's numbers are lower than those of any of the foregoing authorities, and he adopts a standard which is remarkable as containing equal proportions of hydrocarbons and albuminates. Some persons who are inmates of a large establishment with which I happen to be connected, and who are engaged for about ten hours a day in what may be described as "industrial employment," receive 3.71 ounces of nitrogenous matters, and rather more than 17 ounces of carbo-hydrates. Now, as they thrive upon this diet, improving, as a rule, in health, and increasing in weight, it is clear that nothing would be gained by regulating their food supply by any one of the first three-named standards, while it is certain that the money of those who subscribe to their support would some of it be wasted. If, on the other hand, Ranke's standard were adopted, they would, in some respects, be insufficiently nourished. In order to facilitate comparison, the composition of the various diets to which I have referred is shown in a tabular form—

Water-free substances given daily.	Nitrogenous substances.	Fatty substances.	Carbo-hydrates.	Mineral matters.
	oz.	oz.	oz.	oz.
Moleschott	4.58	2.96	14.25	1.05
Pettenkofer and Voit	5.22	3.63	13.3	—
Playfair	4.21	1.39	18.69	0.714
Vierordt	4.0	3.0	11.5	1.0
Ranke	3.52	3.52	8.47	—
"Industrial employment" diet now in use	3.71	1.56	17.31	1.35

I am far, indeed, from presuming to say that the standards of Moleschott and other authorities are without value in the construction of dietaries; I say no more than this—that the calculations upon which they are based are not infallible, and that they can be safely used only when taken in conjunction with that continuous general observation, which is what I venture to describe as experience. Men differ in vigour; they differ in activity of vital processes, as of assimilation and elimination, and the temperature of the atmosphere by which they are surrounded, in this country at least, is continually varying. An army surgeon once wrote—

"I have wandered a good deal about the world, and have never followed any prescribed rule in anything; my health has been tried in all ways; and, by the aids of temperance and hard work, I have worn out two armies in two wars, and probably could wear out another before my period of old age arrives; I eat no animal food, drink no wine, or malt liquor, or spirits of any kind; I wear no flannel, and regard neither wind nor rain, heat nor cold, where business is in the way."†

The intricacies of nutrition are not yet fully revealed to us, and potential energy, therefore, is not always the expression of dietetic value. Again, it has been pointed out by Dr. De Chaumont* that in estimating the amount of work performed, a correction must be made for the velocity with which it is done, and that the ratio may be generally stated as inversely as the square of velocity. There is a velocity at which the maximum of work can be done with the minimum of expenditure; this may be accepted, generally speaking, as the most useful rate of work, and it is fairly represented by walking at the rate of about three miles an hour. I may mention, lastly, that the tables giving the percentage composition of the various articles of food, from which nutritive values are calculated, somewhat vary, and this is not surprising, inasmuch as the quality of the alimentary substances examined by different analysts necessarily itself varies. Seeing then that these sources of fallacy do exist, I think I may be allowed to say that whether it be necessary to frame a new dietary, or to judge of the merits of one already in use, the guidance to be obtained from experience cannot be safely dispensed with. The human digestive and respiratory systems are, no doubt, laboratories, but they are living laboratories, and we must not lose sight of the influences of habit, of hereditary disposition, and above all, of that power of accommodation which constantly tends to maintain a balance between daily supply and the calorific and mechanical work to be performed.

3. We must look to the organic kingdom for our supply of food, and it is generally agreed that a diet which is partly animal and partly vegetable is, on the whole, the best. While granting this I would at the same time venture to express an opinion that undue importance is now attached to meat as the natural storehouse of nitrogen, as though albuminates in sufficient quantity were not to be obtained from other sources, or, if obtainable, could not be utilized in the system. There is, however, but little difference between animal and vegetable albuminates, for vegetable albumen, fibrin, and casein have all a composition almost identical with animal albumen, chondrin, and casein, so that the two classes of foods are interchangeable, and it is manifest that they serve the same purposes in the animal body. The late Dr. Parkes remarks that well-fed corn eaters, or even well-fed rice and pea eaters, show, when in training, no inferiority to meat eaters. Dr. Bruce Thomson called attention some years ago† to the satisfactory condition of the convicts at hard labour in the general prison at Perth, and to the fact that meat entered but very sparingly into their dietary. He also mentions that the diet of Scotch agricultural labourers is composed of oatmeal and milk, to the exclusion of butchers' meat, and he adds that they are the best fed outdoor labourers in the United Kingdom. He thinks (though for my part I do not here agree with him) that the objection entertained in England to oatmeal has been derived from Dr. Johnson, who defined oats as "a grain which in England is usually given to horses, but in Scotland supports the people."

There is ample and unexceptionable evidence, as Dr. Carpenter has said, that where neither milk nor any of its preparations is in ordinary use a regimen consisting of bread, fruits, and herbs is quite adequate to the wants of a population subsisting by severe and constant toil. This evidence is to be gleaned from the dietetic habits and physical condition of the Russian peasants, of the greater portion of the population of Greece, and particularly of the Greek boatmen and sailors; of the entire population of Japan; of all the lower classes in China; of the high caste Hindoos; of the labouring classes in Egypt; and of numerous tribes or classes in America, as, for instance, the Indians of Mexico, the copper miners in Chili, and many of the Spaniards in South America. We may conclude, therefore, that the vegetable kingdom is perfectly capable of supplying the wants of man under a great variety of circumstances.

The active, patient, indefatigable Chinese labourer subsists mainly upon vegetable produce; he lives and works hard upon what an Englishman would starve upon, and he is accordingly able, in some parts of America and Australia, to run the European labourer very hard. I would submit that this and many other examples that I have not now time to enumerate tend to show the extent to which our requirements depend upon habit, and upon the degree to which we indulge in or control our appetites. The ancient Scotch are said to have developed a taste for shepherds, whom they preferred to their flocks, and we know that cannibalism is still practised in the Polynesian Islands, where negroes are still in request. When we hear that the ancient Persians lived a good deal on watercress we naturally connect in our minds their physical inferiority with the poverty of their diet; but finding, on the other hand, that the Romans, in the best period of the Republic, largely sustained themselves on turnips, and that degeneracy came in as turnips went out, we are compelled to reconsider our opinion.

An Irish labourer looks to hulk, and prefers a dinner consisting of half a stone of potatoes, with a little haddock or herring, to food in smaller bulk, even though it be more nutritious, and this is said to explain the circumstance that there is often at first a falling away in the condition of the inmates of prisons in Ireland, coupled with the inaptitude for labour, but that after a time the system seems to recover. A digestive apparatus habituated to deal with vegetable food does not at once furnish the secretion necessary for the digestion of food derived from the animal kingdom, and *vice versa*, sudden changes of diet should therefore, if possible, be avoided.

We possess a rich store of aluminoids, or flesh formers, in the pulses, or peas, beans, and lentils, which are largely consumed in Europe, North Africa, and India, and are unfortunately much neglected in England. The ratio of flesh formers and heat givers in these seeds is about 1 to 2½, instead of 1 to 5, as in wheat, or 1 to 10, as in rice.‡ The meal of the lentil, or *Ervum lens*, is of extreme richness, containing more casein than either peas or beans, yet it is to be obtained in England only under fanciful names, generally mixed with barley flour, and sold at many times its value. Notwithstanding however the price charged I think that those who patronise these preparations may read with some satisfaction the following verses out of the prophet Daniel—

"Prove thy servants, I beseech thee, ten days; and let them give us pulse to eat and water to drink; then let our countenances be looked upon before thee, and the countenance of the children that eat of the portion of king's meat. . . . And at the end of ten days their countenances appeared fairer and fatter in flesh than all the children which did eat the portion of the king's meat. Thus Melzar took away the portion of the meat and the wine they should drink, and gave them pulse."

* "State Medicine," pages 145 and 148.

† *Medical Times and Gazette*, February 1, 1868.

‡ "Chambers' Book of Days."

§ Hinton, *Op. Cit.*, p. 120.

|| "Food: Some Account of its Sources, &c." By A. H. Church, M.A., Oxon (Chapman and Hall).

* *Medical Times and Gazette*, October 27th, 1866.

† Quoted in Hinton's "Thoughts on Health."

I would call attention to the accuracy of the prophet in his use of the term "fatter in flesh," for the flesh-yielding as distinct from the fat-yielding qualities of food are those for which it is chiefly remarkable.

We have in the cereals a rich store of nutrients not as yet fully utilized, and I will venture to ask the attention of the society for a few moments to the important subject of bread. The fact that bread was called by the ancients the "staff of life" indicates that in the olden time it was a different article to that now supplied by the ordinary British baker. It doubtless contained the albuminoids, fats and mineral matters necessary to make blood and tissue, and to build up the frame. To this day the wandering Arab lives by choice almost entirely on bread, with a few dates as a relish, but then he bruises his own corn, and bakes his own flour, and thus supplies himself with nutrients which we, in London, obtain by having recourse to food of animal origin. A recent and very able writer in the *Pall Mall Gazette* states that "the yeomen of Elizabeth's reign, who drew their howstring to their ears, and sent a cloth yard whistling through a barn door at eight yards, ate meat about once a week, and lived the rest of the time on bread and cheese. And the servant of the last century, who often had to do battle for his master with highwaymen, was a tough fellow, though his nourishment was beef on Sundays only, and a thin mutton soup on other days with bread—but good bread."

The wheat grain is a fruit, and consists of a seed and its coverings. The central portion of the grain is chiefly composed of starch, but also contains nitrogenous and mineral matters. Around this centre portion is a layer of angular cells, rich in nitrogen and fat. External to this are the inner and outer envelopes of the seed. These yield mill products of different qualities which, in large mills, are usually classified as follows: Tailings or toppings, middlings, coarse and fine sharps, pollard, bran. They are all much richer in nitrogen, oil, and mineral matters, than the central or floury portion of the grain; but the outermost or branny layers contain silex, and are less digestible, and therefore less nutritious than the parts of the grain which they enclose. The flesh formers in white bread amount to seven or eight per cent., according to the quality of the wheat of which it is made. In bread containing the envelopes they amount to about 10 per cent. Experiments upon animals have proved that they can live upon brown bread without any other food; but if fed upon white bread alone, the health first suffers, and death finally ensues.

(To be continued.)

Replies to Queries.

Names of Plants.—Alpha.—No. 1. *Cryptomeria japonica*; 2, *Thuia occidentalis*; 3, *Retinospora filifera*; 4, *Sedum Sieboldi*; 5, *Thuia plicata*; 6, *Pteris serrulata*; 7, *Pteris cretica albo-lineata*; 8 can only be named when in flower or fruit. Orchids in Cigarette Box.—It is needless trouble both to you and to us to send invisible shrivelled mites stuck on pins like dead butterflies. No. 3 is *Oncidium Rogersi*; 4, *Oncidium varicosum*; 5, *Dendrobium chrysanthum*. R. Baxter.—Your specimens reached us in good condition, and it was a pleasure to see them. No. 1 is *Maxillaria nigricans*; 2, *Oncidium ornithorhynchum*; 3, *Zygopetalum crinitum cæruleum*; 4, *Huntleya cerina*. R. Hampson.—No. 1, *Schotia speciosa*; 2, *Omalanthus populifolia*; 3, *Hybanthera cordifolia*. G. M.—Your single blooms sent loose in a box were beyond identification when they reached us. The shrivelled mites appear to be, 1, *Stauhopea grandiflora*; 2, *Miltonia festiva*; 3, *Artemisia stellariana*.

Correspondence.

GISHURST COMPOUND.

WITH the numerous new inventions and suggestions for avoiding and getting rid of blight and other gardeners' plagues, it is satisfactory to see that the old-fashioned remedy, Gishurst Compound, keeps in the front rank in the colonies as well as at home. The writer of the note from which the enclosed extract is taken was president of the Horticultural Society of Victoria, and is a great authority in the horticultural world of Melbourne.

THE INVENTOR OF GISHURST.

"Melbourne, September 19, 1882.

"Please say to Mr. — that when in Sydney two weeks ago I went to Parramatta, and spent a day with an old friend, Alderman Pye. He was one of the first to plant oranges on a large scale. When I first saw his orchard, twenty years ago this month, I found his largest trees a mass of scale and smut, so suggested to him the use of 'Gishurst Compound': that, at that time, was not much known in this country, as I had to send to my London agents to get it for me. Mr. Pye acted on my suggestion, and now these trees that he planted upwards of sixty years ago are bright and clean, covered with fine fruit; have been lately figured in the *Town and Country* newspaper, an illustrated Sydney paper. I tried all I could to get a copy, but could not. The trees are now said to be 35 feet high, standing erect. I could not get my hands to meet round one. Mr. Pye said 'he had tried everything against scale, &c., but found Gishurst best of all.'"

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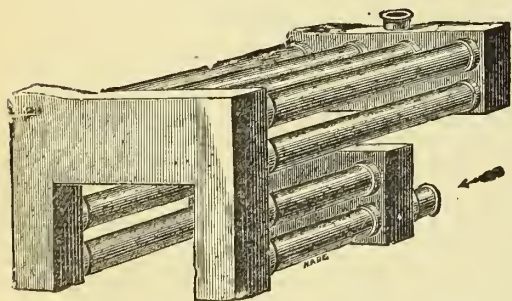
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CALIFORNIAN VINEYARDS.—There has been an enormous increase in the size of the vineyards in California. Not long ago a plantation of 200 acres was regarded as a very large vineyard, but now vineyards of five or six hundred acres are to be frequently met with, and one of not less than 1,500 acres has just been planted near Los Angeles. It is the opinion of a practised agriculturist that in the course of three years or so California will be able to boast of vineyards embracing five or six thousand acres each. The total number of acres at present under vine culture is estimated at about 100,000, all of which will be bearing in four years' time, with a possible production of from 40 to 50 million gallons yearly. The price of wines at the vineyards varies according to quality of grapes and the location of production. New wines are sold at 20 to 50 cents a gallon for dry wines, red or white; sweet wines range from 55 to 75 cents a gallon. The entire product of last year's vintage was 9,000,000 gallons, but more than one-third was destroyed through frosts. While the outlook for next year's crop is very good, it is stated that last year's prices for grapes will not be maintained, as the cellars of San Francisco are full, and prices in the Atlantic States are too low to pay for transportation thither.

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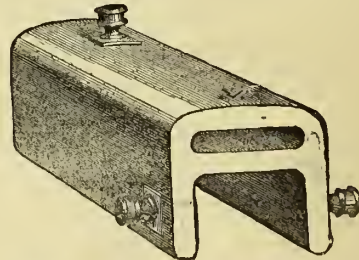
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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M temp. avg. of 10 yrs. Chiswick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Sets. before Noon.	Sets.	Rises. After.	Sets. Morn.	London Bridge.		Liverpool Dock.					
			H. M.	M. H.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG.			
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26	M	Princess Mary (of Teck) born, 1833.	7 39	12 11	3 56	6 35	9 39	2 53	3 29	—	0 23	41.4	Bouvardia umbellata alba, G.	White.	230
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The Gardeners' Magazine.

SATURDAY, NOVEMBER 25, 1882.

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Exhibitions and Meetings for the Ensuing Week.

WEDNESDAY, NOVEMBER 29, AND THURSDAY, NOVEMBER 30.—SOUTH SHIELDS CHRYS-ANTHEMUM SOCIETY.—Annual Exhibition.

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MONDAY, NOVEMBER 27, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden W.C.; Bulbs from Holland.

WEDNESDAY, NOVEMBER 29, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THURSDAY, NOVEMBER 30, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids and Lilium auratum.

SATURDAY, DECEMBER 2, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

FAILURES IN THE CULTIVATION OF THE PEACH AND NECTARINE are of such frequent occurrence that we might repeat, perhaps with special advantage, much that was said in this place three weeks back on the subject of grape culture and its difficulties. The crop of peaches on open walls in the past season was poor enough, and the present promise for next year is by no means of an agreeable nature, for the trees have made a poor growth and the wood is insufficiently matured. A point of the very first importance for the practical man is to keep in mind that in the cultivation of these fruits—as also of a large proportion of the whole class of peaches, plums, and cherries—he is dealing with foreigners that have been transported from climates that differ in many particulars from the climate they must endure while in our keeping. A few members of the great plum tribe are undoubtedly indigenous, as, for example, the sloe and the bird cherry. But we have no native peach or apricot, or plum, or cherry, in any proper sense of the term. All these fruits are natives of large continental lands, where, it may be, there is a real winter to be endured by them, but where, generally speaking, there is also a real summer to make amends for it. In this insular clime we sometimes miss the winter and then have a compensation in the form of half a dozen winters rolled into one; while, as to the summer, we know not what to say, for it is so long since we had any summery experiences. When speaking of failures in grape growing we urged that more care might in many instances be devoted to the subject of temperature, recent summers having supplied insufficient solar heat for the ripening of grapes that are, in a general way, perfectly suitable for cultivation in cool houses. The very same may be said of the peaches and nectarines. During a run of five years the summers have been too cold for them, and the trees on open walls are now in a very poor plight, having, instead of accumulated strength, an accumulation of weakness, if such a negative declaration may be allowed. It is a fair speculation that another run of five bad seasons would sweep the peach and nectarine trees from the walls altogether, except in the more favoured spots that are favoured by soft Atlantic breezes, for to the gloomy picture of the whole case there is a sort of silver lining that runs along the western coasts from the Land's End to points further northward than the untravelled southerner would imagine. But the general case is gloomy, and there is not much comfort to be derived from

proposals that have in view the protection of the bloom merely; what is wanted is a better climate for the growth of the wood and the ripening of the fruit. When the wood is sound the pretty pink flowers need very little protection to enable them to do their duty. As exceptions to rules are always to be looked for, we can comfort those who want well-matured trees for present planting with the declaration that well-matured trees exist, the product of extra good management under particularly favourable circumstances. But their number is not great, and they will not have to beg for buyers, and they will command prices much beyond the average of former years, when the elements were on their good behaviour.

When the trade growers are perplexed to produce good trees the gardeners may be excused if they are somewhat perplexed to produce good peaches. In the past season open walls were very thinly dotted with fruit, and in very many instances it refused to ripen. The question arises, What shall we do to keep these fastidious fruits in cultivation without resorting to the aid of glass? Now there can be no doubt that the unfavourable features of our climate may be mitigated by conditions and by management. In a run of hot summers trees of the plum tribe thrive on east and west walls and in deep damp borders. But in a run of cold rainy summers trees on south walls and in dry borders have the best of it. Now, as regards moisture at the root, trees of this class are thirsty and require a deep holding soil, and a good border should always be prepared for them. But a well-drained border is of the first importance, and the fear of drought should never interfere with the primary preparations. We have no faith in peculiar mixtures and special composts: the wise course always is to make the best of the staple, or, in other words, of the soil on the spot; but here exceptions must be allowed, and it is enough that the border is of reasonable depth, effectively drained, and of such substance as to be good enough to grow a cabbage. The aspect is of far more importance than the soil; for if the wood ripens perfectly fruit will follow, and in a droughty season one or two heavy waterings may, in most places, be given at small cost, to enable the trees to take heavy toll of the unaccustomed sunshine. The protection of the bloom has obtained abundant attention—perhaps more than it deserves—for more failures result from poor growth and immaturity of the wood than from the unkind weather that often assails the trees when in their first stage of productiveness. But we must not be understood to deprecate protection, for its advantages have been demonstrated too often and in too striking a manner to permit of any lingering doubt of its usefulness. But very many gardeners fail to obtain peaches and nectarines and apricots and plums, because they put their trust in nets and canvas and glass copings as means to render fruitful trees that are simply unable to produce fruit because the damp borders and the flimsy walls and the severe pruning have made it quite impossible for the poor trees to mature any of their new wood sufficiently for any useful purpose. In a run of hot seasons severe pinching and pruning are not particularly harmful; but in the last five years such practices have been simply destructive, because while early shoots have a chance of ripening, late shoots have no chance whatever, and there is an end of the matter.

The persuasions to the cultivation of these fruits under glass are too many to be resisted. It is a question of money; it is no question of taste or policy: the climate is against us, and glass is the proper adjuster of the difference. Fortunately, costly arrangements are never needed for ensuring a crop of any of these delicious fruits. Where there is no skill the outlay of money is mere folly, and where average skill is at command a very moderate outlay will produce a great result. The requisite adjustment in respect of climate is but trifling, for the forcing of these fruits is not to be thought of when we are dealing with the matter in an elementary way. It is time that in every good garden that is not happily situated in respect of these peculiar fruits a house was provided for them, the main conditions being a good border below, abundance of light and air above, and sufficient piping to exclude frost and make a dry comfortable atmosphere when the trees are flowering. As to the ripening of the wood, it always ripens well in the case of trees grown under glass, because they begin to grow earlier than those on the walls, and thus have a longer season to appropriate to their use the small doses of sunshine that characterize the so-called summers of these islands.

YORK CHRYSANTHEMUM SHOW, under the auspices of the Ancient Society of York Florists, will be held in the Fine Art Exhibition building, November 29 to December 1.

THE CHRYSANTHEMUMS IN THE GARDENS OF R.H.S. AT CHISWICK, and in the gardens of the Royal Botanic Society, Regent's Park, are now in good condition, and will refresh any wanderers who can devote an hour to look over them.

LIVERPOOL CHRYSANTHEMUM SHOW, announced to be held on Tuesday and Wednesday, was, at the last moment, postponed to Friday, November 24. A sudden change of date in an affair of this sort inconveniences many and damages the cause.

THE BANKSIAN MEDAL was awarded to Messrs. Sutton and Sons, of Reading, in recognition of the high merit of their exhibition of potatoes, cabbages, kales, &c., at the meeting of the Royal Horticultural Society, November 14. Mention of this award was accidentally omitted from our report of the meeting.

THE "CITY DIARY" for 1883 is on the plan that has answered for twenty years to render this the best desk diary current. It is destitute of fancies, and appeals to no class or interest in particular; but it is perfectly adapted for daily or hourly use, and should be always at the ready command of the man of business.

VAN HOUTE MEMORIAL.—At a recent meeting of the committee of this memorial it was determined to offer at the forthcoming great exhibition in Ghent two prizes, to be competed for by Belgian horticulturists. One of the prizes is for six stove and greenhouse plants in flower; the other for eight plants of imantophyllum. The value of the prizes is between £11 and £12.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The collection in aid of the Pension Augmentation Fund has this year reached a total of £478 8s. 7d., which is £83 4s. 9d. less than the amount collected last year. On the 11th of January next eighteen pensioners will be placed on the funds. The number of pensioners will then be brought up to 100, the largest number hitherto on the books at the same time. The voting papers will be sent to subscribers on or about December 16.

BOROUGH OF HACKNEY CHRYSANTHEMUM SOCIETY.—Mr. Kemp has kindly pointed out that in our report of the exhibition at the Royal Aquarium we have given first prize for twelve Japanese to Mr. Langdon instead of Mr. Langford. Mr. Kemp objects to a remark in the report on the high character of Mr. Monk's decorative group, but the only way to prevent the intrusion of such remarks would be to employ reporters entirely ignorant of the business. That is a course we are not prepared for at present.

SOCIETY OF ARTS.—The following lectures are announced to be delivered in the theatre at John Street, Adelphi:—November 29, Sir Frederic Bramwell, F.R.S., "Some Points in the Practice of the American Patent Office." December 6, William A. Gibbs, "The Artificial Drying of Crops." December 13, W. H. Preece, F.R.S., "Electrical Exhibitions." December 20, P. L. Simmonds, "The Utilization of Waste. A Quarter of a Century's Progress." The following are arranged for meetings after Christmas, but the dates are not yet fixed:—W. K. Burton, "The Sanitary Inspection of Houses." J. H. Evans, "The Modern Lathe." Captain J. H. Colomb, R.N., "Collisions at Sea." A. J. Hipkins, "The History of the Pianoforte." C. F. Cross, F.C.S., "Technical Aspects of Lignification." W. N. Hartley, F.R.S.E., "Self-Purification of River Waters." James J. Dobbie, D.Sc., and John Hutchinson, "On The Application of Electrolysis to Bleaching and Printing." D. Pidgeon, "Recent Improvements in Agricultural Machinery."

BIRMINGHAM CHRYSANTHEMUM SOCIETY,

NOVEMBER 22 AND 23.

THE annual exhibition of this important and flourishing society was held on Wednesday and Thursday, and, regarded as a whole, was so good that it may be averred that no more successful gathering has been held by the society during the twenty-two years it has been engaged in encouraging the cultivation of the chrysanthemum in the Midland counties. The magnificent Town Hall, in which the show was held, was admirably filled, the productions generally were exceptionally good, and the effect produced by the large array of plants, cut flowers, and fruit was of the most splendid character. Chrysanthemums in specimen form and in a cut state were strongly represented, miscellaneous plants were abundant and good, and offruit there was a very fine display, notwithstanding the fact that the fruit crop this year closely approached a complete failure.

SPECIMEN CHRYSANTHEMUMS were presented in capital style and in sufficient numbers to constitute one of the leading features. In the great class for nine specimens Mr. W. Showell (gardener Mr. W. H. Dyer), Edgbaston, was a capital first with a group in which George Glenney, John Salter, Mrs. G. Rundle, and Lady Slade were remarkably good; Mr. Hayman (gardener Mr. J. Newell) was a close second with a group of a highly meritorious character. The competition was remarkably keen in the class for six large-flowered varieties, and the premier award was made in favour of Mr. J. Crook, Calthorpe Road, Birmingham, who had a capital collection in which Prince Alfred and Empress of India were conspicuous by reason of their great excellence; Mr. W. Showell second with capital examples of John Salter, Prince Alfred, and other well-known sorts; Mr. R. P. Yates (gardener Mr. J. Padbury), Gravelly Hill, Birmingham, third with good specimens. For three large-flowered Mr. L. Hayman and Mr. R. P. Yates were first and second, and the prizes for a single specimen were awarded to Mr. W. Showell and Mr. J. Crook. Pompones were admirably shown, although hardly so fully in bloom as could have been desired. For six Mr. W. Showell and Mr. L. Hayman were first and second, and in the class for three the awards were

made to these exhibitors in the same order. In competition for a single specimen Mr. Hayman occupied the first place and Mr. W. Showell the second, and the award of an extra prize was made in favour of Mr. J. Crook. A class was provided for a single specimen Japanese, and the successful competitors were Mr. T. Tonks (gardener W. Shingler) and Mr. L. Hayman, in the order of their names. The class for a group of untrained chrysanthemums was well filled, and the prizes were taken by Mr. T. Tonks, and Mr. Showell, both of whom staged most effectively-arranged collections.

CUT BLOOMS were staged in large numbers, and in quality were considerably above the average. In competition for the prizes for eighteen incurved Mr. G. A. Everitt (gardener Mr. W. Comfort), Knowle Hill, Mr. T. Tonks, and Mr. R. P. Yates were, respectively, first, second, and third. For twelve Mr. G. A. Everitt, Mr. T. Tonks, and Mr. R. P. Yates were first, second, and third respectively, and staged capital blooms. In the class for twelve, in which the competition was limited to growers within a radius of three miles, Mr. T. Tonks was a capital first, closely followed by Mr. W. Showell, who was second. The special prizes for twelve Japanese flowers were awarded to Mr. T. Tonks and Mr. G. A. Everitt, and deservedly so, for the flowers were large, fresh, and well-coloured.

MISCELLANEOUS PLANTS, for which a large number of classes were provided, formed a very important part of the show. Chinese primulas were staged in immense numbers and in a condition seldom excelled. Mr. S. Eaton (gardener Mr. G. Stacey) worthily occupied the first place in the class for twelve primulas, and also for six, the plants being compact, leafy, and bearing good trusses of flowers. The first place in the class for six double primulas was occupied by Mr. Tomkins, Sparkhill, who is well known as a skilful raiser and cultivator, with splendidly-flowered examples, and in the corresponding class for fern-leaved primulas Mr. W. Matthews (gardener Mr. G. Caldicott) occupied the first place with examples bearing the impress of cultural skill of a high order. Messrs. Smith and Co.'s special prizes for six double primulas were awarded to the Rev. E. H. Kitchin, Boldmere Vicarage, and Mr. W. Matthews; and in the class for six single primulas, in which the prizes were provided by Mr. Tomkins, Mr. W. Matthews was first. In other classes for primulas Mr. S. Eaton, Mr. W. Matthews, Mr. L. Hayman, Mr. J. Crook, and Mr. F. Wilmot, Moseley, were the most successful of the competitors.

The groups of plants, exclusive of chrysanthemums and primulas, were numerous and good, and constituted an effective feature. In competition for nine Mr. C. E. Matthews was first, and Mr. L. Hayman second, and in the class for six the prizetakers were Mr. L. Hayman and Mr. R. P. Yates. Mignonette was hardly so good as usual, but Mr. W. Showell and Mr. J. Crook, to whom the prizes were awarded, had fairly good examples. On the other hand, the poinsettias were admirably represented, and their brilliantly-coloured bracts made a fine display of colour; the principal exhibitors were Mr. Hill, Edgbaston, and Mr. W. Showell. Epiphyllums were shown by Mr. S. Eaton; cyclamens by Mr. W. Showell, Mr. W. Randle, and Mr. J. Crook; solanums by Mr. J. Crook and Mr. Tonks, and epacris by Mr. C. E. Matthews and Mr. J. Crook, all of whom staged excellent collections. The cup given by Mr. Kimberley for nine plants with ornamental leafage was awarded to Mr. W. Showell, and the prize offered by Mr. B. S. Williams for nine plants suitable for the decoration of the dinner table was awarded to Mr. L. Hayman.

HAND BOUQUETS AND EPERGNEs were fully up to the average, and did not fail to receive the attention of visitors. Mr. J. Merriman and Mr. C. E. Matthews were successful in taking the prizes for épergnes for the table, and had arrangements that were at once rich and tasteful. The exhibitor last mentioned secured the first prize for a hand bouquet, and Mr. W. Randle the second, both having bouquets evincing much taste. Good stands of camellias were shown by Mr. T. Walker and Mr. C. E. Matthews, who were first and second in the class for six, and by Messrs. Perkins and Sons, Coventry, who were awarded the first prize in the class for twelve.

FRUITS constituted one of the most important features of the exhibition. In competition for the prizes for a collection Mr. W. H. Bannister and Mr. Ashman, Yardley, were first and second respectively, both staging excellent grapes, apples, and pears. Black grapes were both plentiful and good, and at the head of the competitors was Mr. G. A. Everitt, who was first for three bunches and for a single bunch, and staged in each class Barbarossa in splendid condition, the single bunches exceeding 4 lbs. in weight. The second prize for a single bunch was awarded to Mr. Gilman, who had an excellent cluster of Gros Colmar; and in the class for three bunches the second place was occupied by the last-mentioned exhibitor, who had fine examples, closely followed by Mr. W. H. Clarke, Ashbourne. White grapes were splendidly shown, and Mr. Gilman was first for three bunches with splendidly-coloured Muscat of Alexandria; and in the class for white grapes, from which Muscats were excluded, Trebbiano. Other successful exhibitors in the classes for white grapes were Mr. G. A. Everitt and Mr. W. H. Clarke. The premier award for one pine-apple was secured by Mr. L. Walker, Hall Green, with a well-ripened fruit of Black Jamaica.

Apples were splendidly shown by Mr. W. Gardiner, Lower Ealington Park, Stratford-on-Avon, who was successful in taking the first prize for six dishes; Mr. G. Mitchenson and Mr. Gilman were second and third with collections of great excellence. The special prizes offered by the Cranston Nursery and Seed Company for twelve dishes of apples were awarded to Mr. W. Gardiner and Mr. W. H. Bannister in the order of their names, and in the ordinary class for twelve dishes Mr. Gardiner was again first, and was closely followed by Mr. Clissold, who was second. The successful competitors for a single dish of culinary apples were Mr. Hayman and Mr. Gilman, both of whom exhibited remarkably well. It need hardly be said that such varieties as King of the Pippins, Court Pendu Plat, Cox's Orange Pippin, Blenheim Orange, Ribston Pippin, Alfriston, Wellington, Warner's King, Hawthornden, and Northern Greening were well represented in the several collections. The first prize for twelve dishes of pears was awarded to Mr. Clissold, and the first and second prizes for six dishes were taken by Mr. W. Gardiner and Mr. Gilman.

VEGETABLES included excellent cucumbers and mushrooms, and the awards for cucumbers were made in favour of Mr. L. Walker and Mr. T. Tonks. The finest dishes of mushrooms were those from the Hon. A. G. Calthorpe and Mr. J. Crook.

MISCELLANEOUS CONTRIBUTIONS included a fine display of zonal pelargoniums from Messrs. H. Cannell and Sons, Swanley, a group of hardy ornamental plants from Messrs. R. Smith and Co., Worcester, collections of plants from Mr. E. Holmes, Lichfield, who had Anthurium Andreanum in fine condition, Mr. H. Niemand and Messrs. Pope and Sons, and wreaths and crosses from Messrs. Perkins and Sons.

The judges were Mr. Greer, Enville; Mr. Downes, Coventry, and Mr. Cox, Madresfield Court.

The House, Garden, and Home Farm.

THE COURT OF TRUE HONOUR.

Why (worldlings) do ye trust frail honours dreams,
And leave to quitted glories which decay?
Why do ye toyle to registrate your Names
On yeo Pillars, which soone melt away?
True Honour is not here: that place it elames,
Where blacke-browed Night doth not exile the Day,
Nor no furre-shining lamp dives in the sea,
But an eternall Sunne spreades lasting Beames;
There it attendeth you, where spotless Bands
Of Spirits stand gazing on their Sovereigne Blisse,
Where yeeres not hold it in their oankring hands,
But who oueo noble, ever noble is.
Looke home, lest hee your weakened Wit make thrall,
Who Edens foolish Gardner earst made fall.

WILLIAM DRUMMOND.

THE HOUSE.

Those who have to keep their whole stock of plants indoors may now with advantage be reminded that such things as fuchsias, zonal pelargoniums, and myrtles may be kept safely through a severe winter without much difficulty or expence. They should be placed in a small spare room, and on the floor away from the window and outer walls. In mild weather the window must be opened sufficiently both at the bottom and top to ensure a free circulation of air amongst the plants. During spells of frost keep the window shut as a matter of course, and suspend some thick woollen material in front of it. With these precautions the frost will not penetrate into the room until very severe, and then a large petroleum lamp or small stove will suffice to keep it out. The fuchsias and zonal pelargoniums should be kept perfectly dry and the myrtles ought not to receive more water than is absolutely necessary, and advantage should be taken of a period of mild weather when the window can be opened for applying it.

THE GARDEN.

ALPINES suffer more from wet than frost; choice kinds had best be potted and put in frames, as during January there is usually much havoc committed among alpine on rockeries. The only safe way to keep up a collection is to have duplicates of all the species in pots.

ARTICHOKES to be dressed for the winter by removing any late heads, the stalks of which can be inserted in a bed of earth under cover till wanted; next remove the large leaves, and mould up the plants without throwing any soil into the centre.

BEANS and PEAS may yet be sown for speculative crops where the ground is dry. Choose a dry sheltered position. If there is plenty of spare room in frames or pits, preparations may be made for early crops without incurring the risk of sowing out of doors. Fill a frame with turfs cut of about four inches in width, and laid grass side downwards. Sow the seeds pretty close together along the centre of each breadth of turf, and then sift over some fine soil, just to cover them, and shut up. As soon as the seeds have started give air cautiously, and keep them as hardy as possible.

CAMELLIAS DROPPING THEIR BUDS are the subject of frequent complaint at this season of the year. We have frequently advised the use of liberal waterings after the buds are set and the wood as hard as necessary, and we can only repeat that in the majority of cases the buds drop because the roots are dry. But watering on the ordinary plan is not always a remedy, for while the plants were out of doors in the summer the soil about the roots may have become hard and impervious to water, and now when water is given it all runs away next the side of the pot without moistening the roots at all. The remedy is easy enough. Fill a tub with soft water, to which add a quart or so of boiling water, to make the whole nearly tepid. Then lower the plants into it a few at a time, and let them soak for half an hour. The rush of air bubbles from the pots will prove what a dry state the roots had come to.

CHRYSANTHEMUMS may be kept in trim to keep the houses gay for some time yet, if a little care is bestowed on removing dead leaves and keeping the foliage healthy. Some of the later kinds will now be coming into bloom, and a little fire heat will be good for them if the weather is severe. The whole stock should be looked over now to see that all the plants are tallied correctly, to prevent errors in propagating next spring. Put in cuttings at once of the varieties to be grown as specimens for next year. The mild heat of a bed of leaves will promote their rooting, and it is as well to give them a little help, as if they remain in the cutting pots a long time before they make roots they get exhausted and do not grow with proper vigour.

ERICAS of the winter-blooming kinds are to be kept as well aired and as hardy as possible.

EUPHORBIA JACQUINLEFLORA will soon be in fine condition if carefully treated. Let it have good stove temperature and plenty of light, but be careful to give it very little water.

FLOWER BEDS not occupied should be deeply stirred and kept rough. The fear of an untidy appearance causes many a flower garden to become sour and full of vermin, whereas the soil should be periodically as thoroughly broken and pulverized as that of the kitchen garden.

GARNISHING and FLAVOURING HERBS should be taken up and potted, in case of severe weather. Parsley and mint are generally scarce in February, because there is no care taken in time to secure supplies.

HYACINTHS that have filled their pots with roots may now be pushed on by placing them over a moderate bottom heat.

ORCHID HOUSE to be kept at as low a temperature as is consistent with safety. The use of excessively high temperatures has been the cause of more mischief than all the rest of the mistakes in orchid culture. Keep the atmosphere of the house moderately dry, and as sweet as possible. One of the most important matters for the young beginner is to learn to decide when the pseudo-bulbs are ripe and ought to be at rest, and to proportion the period of rest to the habit of the species—matters which depend more on personal observation than on the precepts of books.

PINES in fruit will need a moist air and a good bottom heat. The general stock must have as low night temperatures as will be safe—say, 55 deg. for a minimum, and by day 70 deg. to 75 deg., and not higher.

VINES now to be started should not have much heat—say, 55 deg. by day and 45 deg. by night, to be increased gradually.

THE HOME FARM.

The most important of the operations on the home farm now requiring attention include the ploughing of stubbles, sowing wheat, getting up and clamping roots, thrashing grain, the mending of hedges and ditches, the carting out of manure, and the carting home of coal and faggots. The carting of manure will make work for the horses when they are not employed in ploughing stubbles; and marl, clay, and lime may be got on the land when such things are needed on the one hand and are obtainable on the other. The books say that winter weather spoils all kinds of manure laid in heaps on the land, but we protest that such teaching is at once erroneous and injurious. It is erroneous because, although the rain may wash the alkalis and soluble phosphates and other fertilizing constituents out of the manure, the very same process will wash them into the land; whereas, if the manure remained in the cart road in the long-continued heap the goodness would be washed out there, to form a mahogany-coloured rivulet winding its slow way to the brook or to the house-well, to kill little fishes in one case, and little children in the other. Thus, to employ to best advantage the fertilizer made on the farm, every opportunity should be embraced for getting it on the land, and the notion that it requires a very considerable time to rot it down should be abandoned as nonsense.

FORESTRY IN GREAT BRITAIN.

The following is an abstract of the report made by M. Boppe, Inspector of French Forests, to the India Office:—

The total area of Scotland is about 20,000,000 acres, hardly one quarter of which may be reckoned as arable, forest, or pasture land, the remainder being occupied by the lakes, rivers, peat-mosses, moorlands, bare rocks, and mountains. It is surprising then to find that against such a vast area of uncultivated ground only 734,490 acres, according to the official returns of 1872, are classed as woodlands.

There is every reason to suppose that, at a remote period, both the Highlands and Lowlands of Scotland were covered by dense forests, which were successively destroyed by the fire and steel of conquerors, and during the anarchy existing under the old feudal system, as well as by the fearful storms which at almost regular intervals sweep over certain districts. So complete, indeed, was this devastation, that, in 1707, all that remained of the grand old Caledonian forests were a few shreds, and those in a most deplorable condition.

Under the wise patronage of the "Select Society" of Edinburgh, founded in 1754, the area of forest land augmented rapidly, so that in 1812 Scotland possessed, besides 500,000 acres of natural forest, about 400,000 acres of plantations.

The year 1815 marks a pause in the work of replanting which had been so vigorously begun.

The returns of 1872, as compared with those of 1812, show a diminution of some 200,000 acres in the area of forest land in Scotland. Whether it was a portion of the old natural forest or the newly planted ones that had disappeared during this period of 60 years, the documents extant do not show. There is, however, good reason to suppose that both suffered equally in this respect. For, on the one hand, the construction of the Highland Railway necessitated the employment of a large number of sleepers, which could be procured from the woods of from 50 to 80 years of age, along the line of route; and, on the other hand, the increased facilities of transport, and the scarcity of wood in England, gave an unexpected value to certain tracts covered with birch, and so tempted many of the proprietors to cut down the old forests composed of this species.

In 1870 the work of replanting seems to have recommenced with increased ardour, and on all sides may be seen young plantations vigorously striving to fill up the gap which separates them from those of half-a-century's standing.

From a forest point of view, Scotland may be divided into two distinct regions, by an imaginary line drawn from Perth, on the Firth of Tay, to Greenock, on the estuary of the Clyde. To the south of this line we find the Lowlands, a country which agriculture and manufactures have combined to render one of the richest in the world. The economic situation of this wealthy district is as prosperous as possible, and the thoroughly developed system of high farming which is there employed leaves but little room for forest cultivation. The Lowlands are bounded on the south by the Cheviot Hills, which afford excellent sheep walks. To the north of this line lie the Highlands, intersected in all directions by the far-stretching chain of the Grampians, whose rugged nature gives to the country an aspect not unlike that of the western coast of the Scandinavian peninsula. One would imagine that at some earlier geological period immense polar glaciers, flowing over the solidified North Sea, traversed the whole of the North of Scotland, polishing on their way the mountain sides, excavating the lake beds, and breaking off abruptly the cliffs surrounding the coast. The culture of cereals is here confined to a few favoured localities, situated near the mouths of the rivers or on the low-lying ground bordering the sea, where the glacial deposits constitute an excellent soil. The rest of the country is wholly occupied by water and heather, and thus out of the 13,000,000 acres which this region comprises, only 1,600,000 (or less than one-eighth) are classed as arable, forest, and pasture lands. If out of the remaining 11,000,000 acres of unproductive land we allow a half for the lakes, bare ridges, and sterile mountain tops, there will still remain 5,000,000 acres capable of furnishing valuable timber forests. Here, then, is a problem for British economists, and a vast field for enterprise and capital.

In the Highlands, to which we principally directed our attention, the districts around Perth, Elgin, and Inverness, are those in which the most extensive forests are to be found. These three counties together contain about 247,700 acres of forest, and being well served by the Highland Railway system, these are easier to visit than any of the other Scotch forests. Starting from Perth, we made our way across the Highlands, visiting *en route* the towns of Dunkeld, Blair Athole, Aviemore, Grantown, Forbes, Inverness, and Beaulieu. We were thus enabled, not only to make an inspection of some of the finest forests in Scotland, but at the same time to obtain a fair idea of the general aspect of the country.

In the low-lying districts, at an altitude of from 250 to 300 feet, we found growing, both singly along the roadside, and collectively in the forests, magnificent specimens of oak, maple, elm, ash, beech, and lime, which, by the vigour of their growth, and the rich colouring of their foliage, bore testimony to the favourable conditions of soil and climate under which they grew. We were struck with admiration in beholding the colossal trees of every description forming the avenues at Scone, Dunkeld, Blair Athole, and Darnaway. It

was near the first of these places that the venerable father of Scotch forestry, Mr. McCorquodale, showed us, with legitimate pride, a small oak forest of about 400 acres, which, 60 years before, he had himself assisted to plant. In this forest, the trees were standing about 24 to 30 feet apart, and their diameters measured from 12 to 18 inches, whilst their magnificent tops formed a perfect canopy of leaves above the bright rhododendrons, in which colonies of young pheasants found a home. In the spring time this ought indeed to be a fairy-like spot. But, independently of this undergrowth, which is, after all, only suitable for the wealthy few, we cannot help thinking that a more careful study of this superb forest would go far towards clearing up some of the doubts which have always surrounded the difficult question of the cultivation of forests composed solely of oak.

(To be continued).

Notes of Observation.

AUTUMN ROSES.

To some extent our roses have made amends in the autumn for the somewhat light crop of flowers they gave us in the spring. During the past six weeks we have had some good blooms, and on November 6 I cut some nice flowers from Mabel Morrison, Sénateur Vaisse, Jules Margottin, Exposition de Brie, Annie Wood, John Hopper, John Bright, Centifolia rosea, Alfred Colomb, and Nardy Frères. Amongst teas and noisettes, Souvenir de la Malmaison, Aimée Vibert, Shirley Hibberd, Niphetos, Madame Falcot, Gloire de Dijon, and President have given us plenty of buds and open flowers. It may be of some service to remark that, in a general way, I find those I have named to be good autumn bloomers.

THE EARLY INDIAN CROCUS.

Mr. B. S. Williams's *Pleione praeox* is a most delightful member of this little family of terrestrial orchids. This plant agrees in general habit with *P. lagensia*, and others of the genus, but the flowers display a splendid combination of colours, in which a lovely tone of rosy violet takes the lead. The pan shown demonstrated the shallowness of the complaint that these orchids produce their flowers in advance of their leaves. To have mixed fern fronds or any other greenery with them was certainly not needful, and probably would have been a mistake. The pan was densely packed with flowers, all so fresh and bright and rich as to constitute an episode in a gathering of more than ordinary interest.

THE EUPATORIUM FOR WINTER FLOWERS.

It appears that many fail to flower the eupatorium in winter when it is of most value, and this through treating it as a cold plant. As I can always cut a lot through the winter, I may usefully make a note on the subject. When my plants have done flowering I shake them out, and repot without cutting back, and I put the plants in the cool end of the stove to make a new start. When they are fairly growing they are cut back moderately and removed to the warm greenhouse, and as the season advances they go to a cool house, and finally to a warm border in the open to ripen the growth. As the chilly days approach I take them to the cool house, then to the warm house, and they soon flower profusely. If more than once potted, or if the potting is delayed, the growth is not matured when winter comes, and a poor bloom is the result. The variety I find best of all for beauty and sweetness is *Eupatorium gracile odorata*.

CHEAP PLANTS FOR THE ALPINE HOUSE.

Where choice alpine plants are flowered in cool houses in spring there is often wanted a few bolder subjects to give fullness to the display. Little drabas, and gentians, and anemones attract by their exquisite delicacy, but they want help, and a class of plants is always at hand for the purpose that can be associated with them most fitly. The whole of the more refined varieties of variegated-leaved hardy plants are never seen to such advantage as when grown as pot plants and gently forwarded under glass, so as to show their leafage in early spring. They are then most lovely, and they add greatly to the attractions of a snug sheltered alpine garden. My selection of such would include the variegated-leaved varieties of symphitum, hemerocallis, convallaria, polygonatum, funkia, ajuga, aubrietia, and some others that may be easily found. I keep my alpine house as crowded as possible with attractive plants from March to May, after which it is cleared out. To ensure plenty of colour I include in the collection several species of galanthus, as also chionodoxa, a few of the small iris, the lovely basket daffodil, a few myosotis, and all the early-flowering saxifragas.

A LOVELY ODONTOGLOT.

One of the sweetest of many sweet varieties of *Odontoglossum crispum* ever certificated is assuredly that which obtained the high award of the Floral Committee on the 14th, under the varietal name of *Dormanianum*. This was brought up by Mr. Coningsby, gardener to C. M. Dorman, Esq., Sydenham, and was as well grown as any plant in the room. The casual notice of this plant in a report cannot by any possibility do it justice. The flowers of this variety are heavily blotched with rich chestnut-brown on the usual and proper white ground, and the effect is somewhat singular, and certainly delightful. The interesting point about such a plant is the possible multiplication of it with sufficient rapidity to gratify a few of the present generation of cultivators. Mr. Stevens, of Trentham, sent a few varieties of *O. crispum*, whereof one named *Wilsoni* was thought worthy of special notice. In this variety there were a few brown spots, but the principal feature is a delicate shade of purple produced on the back of the segments and showing through on the face of the flower.

FUCHSIA ARBORESCENS.

This fine species, figured in the Magazine of April 22, was brought before the Floral Committee, November 14, in beautiful condition, and as illustrating the uses of a temperate house. Mr. Green, who presented this interesting subject, made the remark that while stoves and cold houses are common, the temperate house for the accommodation of first-class plants requiring good cultivation in proper greenhouse temperature is a thing almost unknown. The exceedingly beautiful rosy lilac colour of this fuchsia would mark it out as a distinct and attractive subject in any general collection. The flowers are small, and are produced in large loose bunches in all parts of the tree, which is thereby rendered a splendid object. This fuchsia is not sufficiently hardy for the cool house, but is scarcely happy in the stove; for when grown in a high temperature the flowers are of brief duration, and the plant is liable to become infested with vermin, which never happens in the intermediate house.

CESTRUM AURANTIACUM.

This interesting solanaceous plant, a very near relation of the habrothamnus, was brought forward by Mr. Green, on the same occasion and for the same reason as the arborescent fuchsia. Although introduced quite forty years since, this plant has made no way, and is now comparatively unknown. Yet it is singularly elegant, with its ample leafage and curious tubular flowers of a soft amber-toned orange colour. The main reason of its obscurity is that it has been usually grown in too high a temperature, and not prospering, has not obtained the admiration it might have if grown in the temperate house. The species of cestrum are, as a whole, scarcely to be desired, for they have but little beauty, but this central American species is well worth the attention of lovers of good plants.

CHRYSANTHEMUM KING OF THE CRIMSONS.

The reflexed flower which has been twice certificated this season under the designation of King of the Crimson is so valuable an addition to its class that it cannot be too widely known, and growers may be advised in their own interest to at once take it in hand. The flowers have size, colour, and finish to recommend them, the habit is good, and it is not less useful for the decoration of the conservatory than for supplying bloom for exhibition purposes. In size the flowers are about equal to Dr. Sharpe and Chevalier Damage, to which they will be capital companions, and in form and colour they closely resemble those of Julie Lagravere. They are not quite so flat as those of the variety last mentioned, but in all other respects they are so much alike that it will perhaps be safe to suggest that King of the Crimson is a seedling from Julie Lagravere. As a little confusion exists with reference to the identity of the variety in question, it is necessary to state that King of the Crimson is perfectly distinct from Purple King, introduced by Messrs. J. Veitch and Sons two years since, for the latter has flowers of smaller size, and a very rich shade of purplish magenta; it is undoubtedly very useful for the embellishment of the conservatory because of its distinct and pleasing colour, but whether it will be suitable for exhibition purposes remains to be seen, but so far it appears extremely doubtful. Of the history of King of the Crimson but little is known. Mr. N. Davis, the well-known trade grower, of Camberwell, appears to have met with it at some of the northern exhibitions, and recognizing its value secured a stock, and in the usual course of trade distributed it amongst the growers round London and in the south. Mr. Davis, it may be mentioned, was awarded a first-class certificate for it at the exhibition of the Borough of Hackney Chrysanthemum Society; but in the certificate placed upon the stand it was described as a "Japanese," a mistake which cannot be too quickly corrected, for if exhibited with tasselled flowers disqualification will assuredly follow, if the judges are up to their business. Messrs. Dixon and Co., of Hackney, exhibited six excellent blooms at the November meeting at South Kensington, when they were granted a first-class certificate; but the finest that have been presented to public notice this season were the two in the stand of twelve reflexed flowers staged by Mr. Molyneux, at Kingston.

GEORGE GORDON.

DICK TURPIN POMPONE.

The sticklers for quality will not care for this variety, but it is one of the most distinct and brilliant for colour. It is one of the "anemone-flowered" class, with conspicuous orange-coloured disc and brilliant guard florets of a magenta-toned rose colour. It reproduces at this dull season the very characters that are most prized in the single summer-flowering pyrethrums, and there is nothing in the whole range of the pompone so conspicuously telling as regards colour. The plant is a good grower, and flowers freely; its only fault is that it does not quite square with the notions of the fancy.

BOB.

CHRYSANTHEMUM SŒUR MELANIE.

This pompone is one of the best of all the white chrysanthemums both for market culture and home decoration, and those who have not grown it should lose no time in securing a stock. It has a capital habit, is very free in blooming, and the flowers are so large that it is a nice point whether or not the variety should be classed with the intermediates. They are very elegant and of the purest white, in the latter respect being quite unsurpassed. When the buds are thinned moderately the flowers attain a size most suitable for decorative purposes in a cut state, and can be employed to great advantage in combination with those of the small high-coloured Japanese varieties, Tokio for example. The more recently-introduced La Vierge is said to surpass Sœur Melanie, and if so it will be no easy task to set a proper estimate upon its value. Upon the relative merits of the two I cannot offer an opinion, not having grown La Vierge, but I know Sœur Melanie to be thoroughly good, and therefore have no hesitation in most heartily recommending it.

CHRYSANTHEMUM GROWER.

GREEN OAK TREES IN THE MIDDLE OF NOVEMBER.

I think it worthy of a note of observation to say that it is a very unusual occurrence to be able in the middle of November to look up, as we can here, over many acres of well-wooded plantations and to see many of the oak trees with leaves on them as green as they are in other years in September. Nevertheless such is the case; for many of the oak trees that felt the full force of the severe gale of wind that occurred on the 29th of April last were denuded of all the earliest leaves; the cause therefore of their green appearance at the present time is not far to seek. After that terrific storm some people supposed that such an early defoliation would kill the trees outright. But such was not the case. However, it is only right to say the trees remained in their denuded state for many weeks, but as the summer advanced and the time came for them to produce their second growth the disfigured trees recovered in a surprising manner, and made what is known as the midsummer's growth in such a way as to dispel any doubt of their recovery. Indeed, at the time of writing they appear to be the most vigorous trees in the plantation. Their present appearance is due to an untimely defoliation, and although now late in shedding their leaves they will, under ordinary circumstances, respond to the calls of nature another year in due time. It is not difficult to believe that a less vigorous subject than the oak might have taken a longer time to recover from such cruel treatment. From the same cause we all know that our fruit trees suffered a good deal, but what effect it may have on the next year's crop it is yet too early to say. But if the fruit trees have recovered themselves to the same extent as the oak the outlook is promising. As a matter of fact, however, we at present know very little as to next year's fruit crop.

J. C. CLARKE.

THE FOOD OF MAN.

DIETARIES, IN THEIR PHYSIOLOGICAL, PRACTICAL, AND ECONOMICAL ASPECTS.

By R. M. GOVER, M.R.C.P., Lond. Read at a meeting of the Society of Arts.

(Continued from page 634.)

“BROWNISH bread,” says Dr. Brinton, “of simple white meal, with even an admixture of a fourth or fifth of rye, would, for equal money value, give the labouring population a food incomparably more abundant and nutritious than that which they now make use of as pure white bread; and in no way could the dyspeptic affluent set their poorer neighbours a better example than by adopting, were it at some little pains, a bread which might sometimes cure their own ailments by its mechanical quality, as well as prevent disease and deformity among the lower classes by its nutritive value.

The following passage occurs in Dr. Prout's clinical work on "The Nature and Treatment of Stomach and Renal Diseases," fifth edition, page 43:—

"Bread, therefore, made with undressed flour, or even with an extra quantity of bran, is the best form in which farinaceous matters can be usually taken in most of the varieties of dyspepsia, accompanied by obstinate constipation. This is a remedy the efficacy of which has long been known and admitted; yet, strange to say, the generality of mankind choose to consult their taste rather than their reason, and, by officiously separating what nature has beneficently combined, entail upon themselves much discomfort and misery."

Liebig states* that "many millions more men could be daily fed in Germany if it were only possible to persuade the population of the advantages which bread made of unbolted flour has over that which is ordinarily eaten." Numerous other authorities might be quoted to the same effect.

By utilizing a portion of the coverings of the wheat grain, we should be materially assisted in introducing an adequate proportion of nitrogen, as well as of phosphate and other mineral matters, into our dietaries at a low cost, inasmuch as we should obtain the required constituents in the inexpensive form of coarse and fine "pollard," "middlings," and "sharps," and should thus be enabled to draw less largely than would otherwise be necessary upon the most expensive article entering into any dietary—that of butcher's meat. The brown bread usually made and sold by bakers is nothing more than white bread with a sprinkling of bran; it contains, therefore, the least valuable covering, and the more nourishing sharps and middlings, &c., are excluded. I would recommend that the coarse bran be always rejected, and that the bread be made of the remaining mill products, in their natural proportions. These products together I would describe as "whole meal," as being a term which implies the separation of the outer lamellar and highly silicious envelope of which the coarse bran is composed. This constitutes about 5 per cent. of the product of grinding, and I exclude it as being, in some cases, difficult of digestion, and apt to set up irritation of the alimentary canal. The composition of the meal, and the precise meaning of the term "whole meal" (as distinct from "whole wheat flour," and other like terms) may, I think, be clearly shown by the simple diagram in the next column.

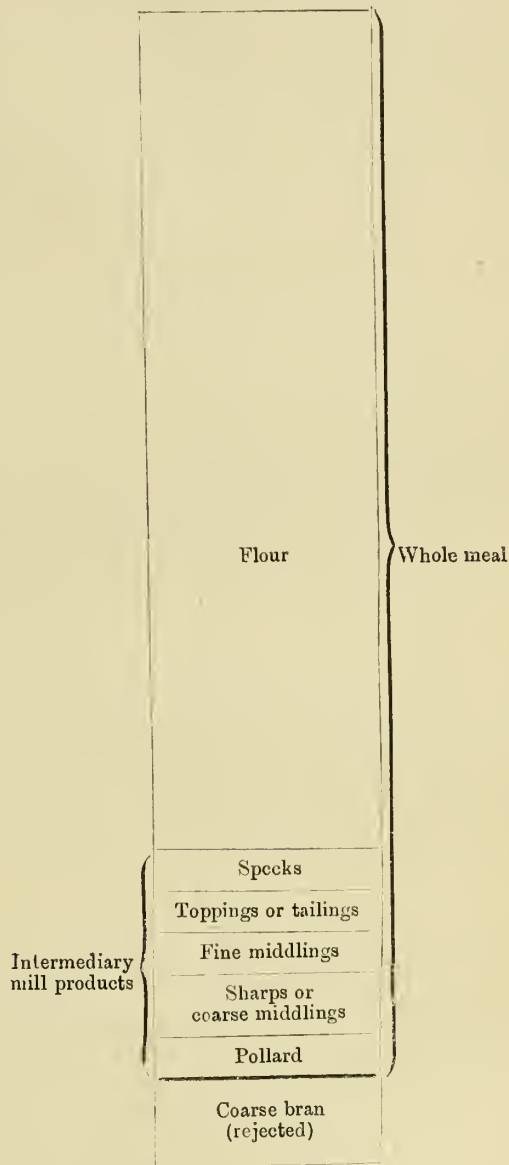
If, in the manufacture of bread, the whole meal be subjected to the same treatment as ordinary flour, the result will be a somewhat heavy loaf, owing to the presence in all the envelopes of a ferment termed "cerealín." This ferment is analogous to the diastase of malt, and under certain conditions exerts a peculiar influence on starch, giving rise to a compound of dextrin and sugar, which, by its viscosity prevents the dough from being sufficiently puffed up by the carbonic acid generated in the process of fermentation. In order to avoid this inconvenient action of the cerealín it is necessary to make the sponge and dough of flour only. The middlings, &c., should not be added until the dough is nearly ready to be baked, when the whole should be kneaded together quickly, weighed off into loaves, and baked in the usual way. The reason for keeping the intermediary products apart from the dough until the latter is nearly ready for the oven is, that the period of incubation is then so short that the leavening action of the cerealín does not take place, and the bread produced is light and porous. A process resembling this, but somewhat more complicated, is already in use in Paris, and was introduced by M. Mège-Mouries, who first discovered the existence and properties of cerealín, and suggested that the intermediary products should be kept apart from the dough until the latter is nearly ready for baking.†

But, irrespective of any particular process of manufacture, I would remark that is of national importance that the labouring man should be able to obtain a good and unadulterated article for himself and his children. The flour of the present day is too often adulterated with bone-dust, porcelain earth, powdered gypsum, and other ingredients : the baker may add alum and sulphate of copper to produce whiteness ; he frequently uses boiled rice to increase the yield, and thus the quality of the bread, as a life-sustaining food, is still further reduced. The adulteration of bread adds seriously to the expenses of house-keeping among the poor, who formerly depended chiefly upon bread for nourishment, but now consume it less and less. This is said, by the writer just quoted, to be noticed also in France, which till now has been a great bread-eating country. He adds that he does not advocate a diet entirely of bread, but only the purification of bread, that it may be restored to its proper function as the staff of life to those who can ill afford fancy props. "Let those," he says, "who please buy dear meat and bad butter ; but let those who desire to live largely on bread be enabled to do so. It might be done, if half the attention which is paid to checking the adulteration of beer were bestowed on stopping the poisoning of the loaf. Beer has become pretty good from being constantly looked after. The great brewers have a character to lose ; a prosecution would ruin them ; so they send out barrels of drinkable liquor, and any gentian root, salt, sugar, or soda, which may be subsequently added is the work of the publican selling by retail over his counter. Anybody can get good beer by purchasing it in the cask direct from the brewer ; but anybody cannot secure good flour by getting it direct from wholesale millers, who are on their guard, and refuse to supply any but the 'trade.' The well-to-do, who patronize fancy bread at fancy prices, are treated to as much adulteration in their flour as the poor ; their breakfast rolls are whitened with alum, which is an astringent, hindering the digestion, and which also, be it noted, acts as a corrosive on the teeth, causing the enamel to decay prematurely. The rich, however, have only themselves to blame if their bread is not pure wheaten ; for pure wheat yields a greyish loaf, and if whiteness and sponginess be insisted upon, they can only be obtained at the expense of quality." The poor "do not prosecute their bakers because they cannot afford to do so. . . . It would cost several pounds to institute a prosecution, and, after all, it would not reach the real offender. A baker knows, of course, that his flour is

adulterated, but if he sold pure bread he would have to raise his prices to compete with unscrupulous rivals. . . . Thus, we turn in a vicious circle, and it becomes manifest that the millers are the persons who should be brought to book. Public analysts ought to visit millers' sacks as vigilantly as they are beginning to inspect milk, and, after this, they should overhaul the loaves in the baker's shop. . . . How excellent pure bread is all who have tasted a home-made country loaf know. It remains fresh a fortnight after baking. It requires no condiment to make it acceptable, but supplies an all-sufficient meal to the hungry man, without cloying the stomach or ever tiring the palate. A very different substance this from the heavy city-baked half-quarter No man ever derived strength from this burlesque of bread; and the city child, who has learned to think poorly of it from his infancy, naturally grows up to think that the prayer for 'daily bread' sums up but a small part of man's needs in respect of diet." *

A simple mode of increasing the percentage of nitrogen in a dietary, to which but little attention has been paid in England, would be to wash out some of the carbonaceous or starchy matter, as is done on so large a scale in Italy, in the manufacture of macaroni and vermicelli, and many other pastes. The starch is a valuable commercial article, and is therefore not wasted.

I would here call attention to maize, or Indian corn, as an article which affords a large amount of nutriment at a cheap rate, and the use of which should therefore be encouraged as being a most valuable addition to our food supply. It cannot be manufactured into bread, on account of its deficiency in gluten, unless mixed with wheat or rye flour, but it can be made into cakes,



which when roasted are very palatable, and are largely eaten both in the United States and in Spanish America. The article of food so largely used in northern Italy under the name of polenta is an Indian meal pudding, and this dish is now so much appreciated in many districts of the west of Ireland as to be gradually displacing the potato. The flavour of maize is sometimes considered harsh by those who are not accustomed to it, but this objection may be entirely avoided by using it in combination with oatmeal. A most nutritious and digestible porridge, or strabout, may be made by an admixture of the two meals, but inasmuch as Indian meal takes rather a longer time to cook than oatmeal, some little care is required in manipulation. Maize contains about the same proportion of flesh formers as wheat, and three times the amount of fatty matter, so that it stands high in the grass order, or *Graminaceae*, in point of nutritive value. Now, as the diet of the poor is liable to be deficient in fat, and as the introduction of a due proportion of this important aliment into the dietaries of workhouses, prisons, schools, reformatories, asylums, and other public institutions, is a matter which is frequently attended with difficulty, I would submit that Indian corn is worthy of more attention than it has yet received. Before quitting this subject, I may mention that the much-advertised preparations sold under names intended to imply some connexion with or derivation from Indian corn are mere washed out substances

* *Lancet*, January 23, 1869.

† See "Ency. Britt.:" New Edition, Art "Baking."

* *Pall Mall Gazette*, Feb. 8, 1878.

which are destitute of the materials necessary for the formation of bone and flesh.

In the slaughtering of animals much blood is wasted, which, if saved, would furnish a food scarcely less nutritious than flesh itself. It has been supposed* that the objection to eating blood is based in some degree upon the Levitical law: "Ye shall eat the blood of no manner of flesh; for the life of all flesh is the blood thereof: whosoever eateth it shall be cut off;" but it may be doubted whether this prohibition has any weight in these days. It was one which the Jews themselves could not obey, inasmuch as it is impossible, by any mode of slaughtering to extract all the blood from the body. The value of blood as a food may be gathered from the table to which I have invited attention, and I am not aware of any good and valid reason why it should not be cooked and eaten.

If time permitted, it would be easy to point to other neglected foods, but I must content myself with having merely indicated what is to be done in this direction, and I will now venture to state, as a distinct proposition for the consideration of the society, that the tendency in modern times is to attach too much importance to meat as furnishing the chief formative and reparative food compounds, and that the displacement of vegetable by animal nutrients to the extent which is now common in the dietaries alike of private individuals and public institutions is wasteful, and apt to be injurious to health. The prominence now given to the various meats may, no doubt, be traced partly to the doctrines laid down years ago by Liebig, who, as I have already stated, taught that the nitrogenous constituents of food alone supplied the materials of growth and repair, and gave to animal food the first and most important place in the construction of dietaries. How far increasing wealth and the habits of a luxurious age may have operated to bring about this change it is not for me now to inquire; but it cannot be doubted that the excess of animal albuminoids now consumed by many classes of society is not only wasted, but that the abnormal activity of the processes of deoxidation and excretion rendered necessary by this excess imposes an undue amount of work upon important organs, and especially upon the liver and kidneys; that the competency of these organs is eventually injured, and that a train of evils then follows from the accumulation of imperfectly-oxidized *débris* in the system.

I will not now attempt to deal with a subject of such enormous scope and vast importance as the effects of the accumulation and deposit of waste products in the human organism, and I will pass on to consider for a moment the subject of the cost of meat in hospitals and other institutions. It is stated by Dr. Steele, the Medical Superintendent of Guy's Hospital,† that the cost of butchers' meat in hospitals is three times that of any other aliment employed in the diet of the sick, and it is well known that in all institutions the outlay thereon continues to increase from year to year. It is therefore a question for serious consideration whether any means can be found to moderate this outlay by diminishing the amount hitherto thought necessary for invalid requirements, and to compensate for that loss by the substitution of other foods of an equally nutritive but less costly character. In attempting a change of this kind, the main difficulties would, in all probability, arise, as Dr. Steele remarks, on the part of the patients themselves, who are accustomed to look upon animal food as their mainstay in illness, and who eagerly expect to obtain in hospitals luxuries which their position in life permits them to obtain only occasionally in their own homes.‡

As meat is costly, it should be turned to the best account, and the careful preparation of this and all other foods is a matter of so much sanitary importance that it should not be looked upon as a subject only for the gourmand. Yet treatises on food and digestion are written; the phenomena of nutrition and the diseases of mal-nutrition are carefully described; standards and scales of diet are drawn up; and the cook, upon whom so much depends, receives but little chemical and physiological instruction. I am not presuming to deliver a lecture upon cookery, and will not therefore attempt to enter into details; but I would venture to remind the society that cooking is as much a science as an art, and that, for want of a due recognition of this fact, vast quantities of food are wasted or rendered unwholesome. If as much scientific attention had been paid to cooking as to brewing the old saying, that a cook is born and not made, would long ago have been forgotten, instead of being very generally and helplessly accepted as an expression of a fact.

How, I would ask, can a cook, who is ignorant of the important part which mineral matters play in the economy—who does not know that the salts enumerated in the table showing the composition of the blood, and weighing only a few grains, are as essential to nutrition as the ounces or pounds of flesh in which they are naturally found—how can such a cook be expected to adopt processes by which these few and precious saline matters may be retained? How little is known by ordinary cooks of the behaviour of animal albumen at different temperatures—how it coagulates very slowly at a temperature of 140 deg. Fah., and very rapidly at 212 deg.—and yet how all-essential is this knowledge, in order that the nutritious properties of food, particularly of animal food, may be fully secured! I have frequently seen in public establishments, in which soup is an important feature of the diet, the meat, bones, and vegetables simmering or boiling all together for hours, the result being that the meat for nutritive purposes has been destroyed, though its presence in the soup or stew, in the form of minutely-divided fragments of muscular fibre, is pointed to with some exultation as a proof that the meat is "all there," and that the soup must therefore be nutritious. The meat is certainly "all there," but its albuminous principles are effectually scaled up and placed out of reach. When the soup cools, a spoon will stand upright in it, just as it would in a pot of glue, and this erect attitude of the spoon is to this day considered by many as an infallible proof that the soup is nutritious in the highest possible degree, whereas it is only a proof that it is highly gelatinous. I do not presume to

assert that gelatine is wholly without dietetic value, but it is admitted by its stoutest defenders that it will not serve as a substitute for the albuminoids.

Before quitting this branch of my subject I would venture to raise a question as to whether baking meat, which is now practised on so large a scale in some clubs, as well as in most hospitals, restaurants, and other large establishments, is a satisfactory mode of cooking a joint. The temperature employed is frequently too high, and the empyreumatic products, or volatile fatty acids, which are generated having no means of escape, saturate the meat, and render it ill-flavoured and indigestible. At the end of the process the cook places the overbaked meat immediately before the fire in order to brown the outside, and to produce a fraudulent appearance of roasting; but this still further imprisons the unwholesome products which have resulted from charring in the oven, and the result is not usually satisfactory. Dr. Chambers, in his excellent work,* maintains that no kitchen is complete without an open range, and that it is impossible to have a properly-roasted joint by any other means, as he learnt "by visiting the private premises of a 'patent kitchener'" manufacturer, and finding there an old-fashioned fireplace in full operation. He cared too much for his dinner to employ his own works. Experience leads Dr. Chambers to question even the economy of the close fire in practical working.

But the preparation of food for the stomach does not end with cooking. The solid portions of the food must be properly masticated, and the evils resulting from imperfect mastication are so serious that I may perhaps be excused for briefly drawing attention to them. The subtle changes of alimentary substances that are collectively called "digestion" are commenced in the cavity of the mouth, where the food is finely divided, and is so intimately mixed with fluids as to be converted into a pulp which can be easily swallowed. There are four pairs of large salivary glands, and numerous smaller glands whose ducts are scattered thickly beneath the mucous membrane of the cheeks, soft palate, and at the root of the tongue. The flow of saliva, which never ceases in health, is much quickened by mastication, and is also greatly accelerated by mental impressions, as, for example, by the view of wholesome food, which makes the "mouth water." The mechanical purposes served by the saliva are probably not of greater importance than the chemical part which it takes in digestion, especially that of transforming starchy matters into soluble dextrin and grape sugar, thus rendering them fit for absorption. If mastication be partially or wholly omitted the first stage of digestion is not completed, and the subsequent stages are more or less abortive.

A medical gentleman of my acquaintance, an acute observer, and a man of great scientific attainments, whose evidence is valuable, was for some years subject to sub-acute attacks of rheumatism, which completely laid him up once or twice every year, and he always believed his attacks were due to taking cold. About twelve months ago he visited a dentist, who informed him that his molar teeth were defective; that they were not placed in apposition in the upper and lower jaw, and that he consequently must have bolted his food. My friend replied that he was not conscious of any defect in mastication; nevertheless he took the dentist's advice and was supplied with a double set of molars. After becoming accustomed to them he masticated every morsel vigorously, and observed that the time spent over his meals was much longer than before. He has never since been troubled with any sign of rheumatism, and has gained four pounds in weight; he assures me that he now feels himself to be quite a different being, and that he has not been so well as he now is for many years. The explanation of what has occurred is that the process by which his teeth became inefficient was gradual, and that his partial omission of mastication was not observed; imperfect digestion and assimilation followed; incompletely oxidized and organized materials accumulated in his system, and thus the rheumatic diathesis was developed. He derived no benefit from alkalies, salicin, warm clothing, change of climate, or any other remedies adopted; but when, at last, the cause of his malady was removed, the effect at once disappeared.†

And now that the brief hour allotted to me has expired, I feel that I have undertaken more than can be achieved within the limits of a single paper. I see that I am still but on the threshold of a subject the boundaries of which are ever illusory, mysteriously melting into distance just when their searcher persuades himself that he descries their outline. In order to treat intelligibly of dietaries in their practical and economic aspects, it is indispensable, in the first place, to take a general survey of the subject, to ask questions which are necessarily questions of principle, for who can rear a superstructure without laying a foundation, and of what use is a foundation unless materials be provided with which to build? I am far indeed from presuming to say that adequate preparations have been made in this paper for the architecture of dietaries; on the contrary, I feel that I have penetrated but little below the surface, and that my building materials, thus far, consist of but a few fragments unshaped, and thrown but loosely and promiscuously together. As the subject, however, cannot be pursued farther on the present occasion, I can only ask for the indulgent consideration and discussion of what has now been said, and will take some future opportunity, if the society should deem the subject of sufficient interest, of bringing under review the dietetic habits and resources of different classes of the community; the requirements of youth and age; of the different kinds of idlers and workers; the errors committed, and the means by which they may be avoided. I will now, with your permission, briefly summarize the contents of this paper, and in so doing supply one or two omissions.

We are taught, then, by science and experience that the nitrogenous, oleaginous, saccharine, and mineral constituents of food must all be duly represented, and that the absence or even deficiency of any one of them is incompatible with vigorous growth and the maintenance of perfect health.

Granting that a mixed animal and vegetable diet is well suited to the climatic conditions of this country, the proposition, however, is stated that, whether the albuminates and fatty matters be obtained from the animal or vegetable kingdom is not a matter of primary importance. It has been pointed out that we should learn to change our diet with seasonal variations; for to live, as many of us do, very much in the same way both in summer and winter, is as unreasonable, and may be, in its degree, as fatal as it would be for an Esquimaux to endeavour to sustain himself on a diet suitable to the tropics, or for an Indian to feed on the flesh of the walrus and whale blubber. If more care were exercised in this particular there would be less autumnal diarrhoea, which is due in many cases, not to eating fruit, but to the accumulation in the system of superfluous material, for which there has been no natural demand, and which is liable to be a source of disease so long as it continues to overload the circu-

* "Diet in Health and Disease," p. 83.

† In this case the lactic or rheumatic fermentation was probably brought about by the catalytic action of imperfectly-digested and decomposing nitrogenous substances. (See case reported by Dr. Moss, R.N., *Lancet*, January 2, 1875.)

* "Dr. Smith on Food," page 84.

† Guy's Hospital Reports, 1873.

‡ I would here ask attention to an interesting table extracted from an article by Baron Liebig, which appeared in the *Lancet*, of March 13, 1869, showing the cost of one pound of albuminate in different kinds of food calculated upon the prices prevailing at that time in London:—

One pound albuminate in cheese costs	d.	20
Ditto ditto milk	"	35
Ditto ditto meat	"	42
Ditto ditto eggs	"	113
In vegetables:—		
One pound albuminate in flour costs	d.	7½
Ditto ditto peas	"	5
Ditto ditto potatoes costs	"	38

lation. With regard to the dietetic importance of fresh vegetables, I will only repeat that their omission is attended with a fearful deterioration of the blood, and that their diminution below a certain point results in a train of evils which are apt to be ascribed to other causes. As to the total quantity of food necessary for the maintenance of health, I have said that our most valuable practical rules are furnished by experience and not by theory, and that the part which can be most appropriately accepted by science is not that of dictator, but rather that of interpreter.

I must reserve what I have to say on the subject of alcohol and the other food adjuncts for that future opportunity which the society seems so generously willing to grant me. With reference to the use of alcohol, I will only now remark that in the discussion of this subject too much reference appears to me to be made to a theoretical standard; the great difference between individuals and between the requirements of the same individual at different times, are in my opinion, too much lost sight of. We are, no doubt, all agreed as to the injurious effects of immoderate indulgence in alcohol, but then, what is moderation to one person is drunkenness to another. There is no fixed standard by which to be guided, and so we must be satisfied with an approximation to the truth, and that approximation is to be deduced very largely from personal experience. Nothing varies so much as the key in which the nervous organism is strung. Those whose sensibilities are excessively or even morbidly delicate know to their cost how—

Dearly-bought the hidden treasure
Finer feelings can bestow;
Chords that vibrate sweetest pleasure
Thrill the deepest notes of woe.

These organizations are peculiarly liable to suffer from the evil influences of alcohol, while others, differently tempered, resist its power. The poet, describing the various effects of wine, truly says:—

Brisk wine some hearts inspires with gladness,
And makes some droop in sober sadness;
Makes politicians sound to battle,
And lovers of their mistress prattle;
While, with "potations pottle deep,"
It lulls the serious sort to sleep.

The attention of the society has been directed to the subject of neglected sources of nitrogen, and to the importance of turning food to the best account by modes of preparation in accordance with natural laws. I may perhaps venture here to interpolate the suggestion that much good might be done by giving cooking utensils to the most deserving among the poor, and by instructing them how to make use of them in their own houses. Money given for this purpose is likely to be diverted to other, and perhaps less wholesome, uses; and a lesson in cookery, to be really serviceable to the wife of a labouring man, must be given to her in her own poor room, where she can be taught, with some prospect of success, how to make the most of scanty resources.

And now, if I refer once again to the evils of over-indulgence in eating and drinking, it is because it appears to me that the physiological teaching of the present day tends to increase a danger already sufficiently great—that, namely, of exceeding the actual requirements of the system. It is now laid down in most of the leading works on physiology and dietetics that a man in health, taking moderate exercise, requires daily an amount of nutriment that may be fairly represented by two pounds of bread, and one pound of uncooked meat; and I think I may appeal to experience as showing that this is too high a standard for such an amount of exercise, or work, as, in the ordinary use of language, would be described as moderate. To insist upon such a standard appears to me to increase the difficulties, both of those whose means enable them to indulge their appetites without stint, and of those who cannot obtain enough to maintain health and strength. Men often blame their ancestors for disease which is, in reality, due to the consumption of nutriment which is not required. Matters which are oxidizable do not become oxidized, nitrogenous waste takes the form of uric acid instead of the more highly-organized urea, and thus the whole class of disorders called gouty may be generated. Too much variety every day at dinner is often to blame for this, inasmuch as the appetite is unduly stimulated. And here, if I may venture to say so, a gastronomic, as well as physiological mistake is committed; for dining, as Walker says in the "Original," is an every-day occurrence, or nearly so, and when great variety is constantly attempted at the same meal there is apt to be a great sameness at different meals. What is wanted is variety at different meals, for the differences in the productions of the different seasons and of different climates point out to us unerringly that it is proper to vary our food; and one good rule by which not only to maintain health, but fully to secure and enjoy the variety provided by nature, is to abandon everything out of season. When, however, I read a modern *menu*, I am sometimes reminded of the lines in Ben Jonson descriptive of luxury:—

My meat shall all come in in Indian shells,
Dishes of agate set in gold, and studded
With tongues of carps, dormice, and camels' heels,
Boiled i' the spirit of sol and dissolved pearl;
Apicius' diet 'gainst the epilepsy;
And I will eat these broths with spoons of amber,
Headed with diamond and carbuncle;
My footboy shall eat pheasants, calver'd salmons,
Knots, godwits, lampreys; I myself will have
The beards of barbels served instead of salads;
Oil'd mushrooms.
We will eat at such a meal,
The heads of parrots, tongues of nightingales,
The brains of peacocks and of ostriches
Shall be our food, and could we eat the phoenix,
Though nature lost her kind, she were our dish.

But I would not have it supposed that because I am alive to the evils of excess, I am oblivious of the corporeal and mental degeneration which result from a deficient diet. I know well that famine breeds crime and pestilence, and that where food is deficient—

Age and youth, their landmark ta'en away,
Look all one common sorrow.*

I know that good food is one of the means of health, and to good food must be added temperance. The elaborate mechanism by which we move, and feel, and think, and act, which excited so much astonishment in the minds of the first anatomists, and which, perhaps, astonishes still more the modern physiologist, has a marvellous power of self-adjustment; but it may be put

* Dryden.

hopelessly out of gear by continued ill-usage, whether it be that of undue abstinence or that of excess. Liebig has it that he who has learned the art of living according to fixed principles has learned something of the art of prolonging life. "Even the act of eating and drinking may teach us that we are under the influence of natural laws which act upon our bodily condition, and, as a consequence of such influence, upon our acts also. A knowledge of natural laws contributes to make man what he ought to be; they determine the rank he holds above the other animals; and it is just this in which their value lies." Old Isaac Walton says that "he that loses his conscience has nothing left that is worth keeping. Therefore be sure you look to that. And in the next place, look to your health; and if you have it, praise God, and value it next to a good conscience; for health is the second blessing that we mortals are capable of, a blessing that money cannot buy; therefore value it, and be thankful for it." Health is indeed worth preserving: it is the soul that animates all enjoyments of life, which fade, and are tasteless, if not dead, without it.

CELEBRATED TREES.

THE age of very ancient trees can be determined only by the very imperfect testimony of tradition, and as even approximate exactitude is therefore unattainable, it would be hazardous for one to constitute himself the champion of any venerable member of the fraternity in particular. It may, however, be assumed that if tradition errs at all, it is on the side of exaggeration; and if this be so it is difficult to understand why the Greendale Oak, in Welbeck Forest, should be called distinctively "the Methuselah of trees." Writing of it in 1790, Major Rock said it was then thought to be 700 years old, which would give it at the present time an age of just over 800 years. But the oak at Windsor, which is named after William the Conqueror, is reputed to have battled with the breezes of a thousand years, having attained quite a respectable age in the time of the Norman usurper, with whom it is said to have been a favourite. It was the popular belief that until a few years ago the oak around which Herne the Hunter was wont to walk "at still midnight" held its own against winter storm and summer tempest. There seems, however, to be good reason for believing that the genuine Herne's Oak was accidentally removed in the time of George III., and that the more recent tree, which fell during a storm in the present reign, was but a pretender to the historic honour.

Another wonder of the forest world is the renowned Swilcar oak of Needwood, in Staffordshire, which, according to the lowest computation, is 600 years old; it is 21 ft. in girth, and contains 1,000 ft. of solid timber. Epping Forest does not seem to possess any tree which is known to history; and the neighbouring forest of Hainault has lost its famous Fairlop Oak, which was for nine or ten centuries the admiration of visitors and the centre and *raison d'être* of the fair which originated in the bequest of a Wapping "hock maker," who, having been in the habit of periodically dining with his friends under the branches of the tree, left a sum of money that others might perpetuate the custom. But more remarkable, perhaps, than any tree which has yet been mentioned is the Spread Oak of Thoresby (the ancient seat of the Dukes of Kingston), which extends its arms over 180 ft. of ground, and can give shelter to 1,000 horsemen. In the hollow of Major Oak seven persons have dined—not as they dine at public banquets, but with abundance of elbow room. This tree is uncommonly perfect in form; it is the true type of the sturdy oak which, not without vanity, we have made the symbol of British character. The Parliament Oak is a more decrepit patriarch of the forest, over which the exploits of Robin Hood and his "Merrie Men" have cast such a romantic glamour.

The New Forest, so far as I know, derives its renown rather from its unique beauty as a whole than from any individual tree. As, however, I am writing to a paper which is interested in the management and use of land, I may recall the fact that in Queen Anne's reign a suggestion sprang from the fertile brain of the author of "Robinson Crusoe," to the effect that a portion of this forest should be parcelled out into twenty farms as a settlement for the Palatine refugees. Fortunately the proposal was not accepted, nor was that of a certain meeting of Southampton burgesses, who recommended that the forest should be utilized in the creation of a peasant proprietary. The legislation of the Session of 1875 probably determined the disposal of the forest once for all in a way much more satisfactory to the nation at large. SYLVIA, in *Land*.

RUBUS ROSÆFOLIUS.

To whom we are indebted for the introduction of this plant is not within my knowledge, but whoever it was has rendered a service to those who require choice flowers in the winter for button-hole making. Seeing that it was well figured and described in the GARDENERS' MAGAZINE of June 5, 1880, I procured some plants, and I am very glad I did so, for I find it most valuable for the purpose named. Those who see it for the first time are struck with its great beauty. As a button-hole flower, when made up with its own leaves, it is unique. I cannot describe it as I should wish, but briefly I may say it is a double rose in miniature, made up of innumerable closely-packed petals of the most delicate whiteness. Its cultivation appears to me of the most simple kind. When I received my plants last spring they were in four-inch pots, and I shifted them at once into pots two sizes larger, in which they now remain. All the summer the plants stood under a south wall, having plenty of water when they wanted it. Early in October they began to show signs of flowering, and I had them placed in an intermediate house where the temperature is maintained at about 50 deg. during the night, with a slight rise in the day. In this position they have given us flowers for several weeks past, and they appear as if they would continue to do so all the winter. They do not produce many flowers at one time, and therefore are not to be characterized as decorative plants. But this lovely rubus is easily managed, and is, therefore, a plant that will suit the convenience of many people who require button-hole flowers during the winter. J. C. CLARKE.

"AS CLEAN AS A PINK."—Why a pink more than any other flower, and is a flower referred to in this proverbial saying? Might not the "pink" be the scarlet coat of the hunting field, which is familiarly known as a "pink"? This morning (October 30) the Cottesmore hounds had the first meet of the season; and, according to custom, the huntsman and three whips appeared in their new scarlet coats, which as yet were unstained by rain and mud; and as they rode by me I thought that each one of them looked "as clean as a pink." —CUTHBERT BEDE, in *Notes and Queries*.

* *Lancet*, March, 1869.

THE NEW FERNERY IN THE MANCHESTER BOTANICAL GARDENS.

IN the useful and economical series of houses lately erected in the Manchester Botanical Gardens, known as the "new range," a very agreeable and useful feature has been formed by Mr. William Clapham, of Shaw Heath, Stockport, in the shape of a picturesque fernery. The illustration represents one of many pleasing scenes in this fernery, the ruling idea of which is to imitate nature, and thus display the plants amid harmonious surroundings. The constructor has made an ingenious use of a very moderate water supply by leading it over a series of rocks in small streamlets and "dripping wells," in which filmy ferns and other moisture-loving forms of delicate vegetation are accommodated. Very many of the specimens are in pots plunged in stations prepared for the purpose, this plan admitting of an occasional change of furniture, while, if carefully managed, it does not in any serious degree restrict the growth of the plants. The visitors to the new range have universally testified to the admirable construction of this fernery, and the pleasure it affords in its picturesque arrangements.

scene, was no catholic florist when he looked upon his special pet as a possible adornment of the parks and squares of the metropolis, for he collected at random, and fully nine-tenths of his favourites were unworthy of a place in any good garden. In any case, we do not want these flowers in July and August; but Salter had some miserable buttons of a dirty red, or indescribable brown, that had the daring to show their flowers when the pelargoniums and calceolarias were at their brightest. In the course of September a few may be welcome. But in October we want them, and in November it is as well to have done with them, for rain spoils them and frost kills them, and the disappointments are far too many, unless we secure a good bloom before the running out of St. Martin's summer at the very latest. A few good sorts repeated, well grown, and suitably disposed amongst greenery, will make a really brave show in October, when perhaps there may remain a few phloxes and some of the snow-white flowers of the Japan anemone.

It is not unusual for amateurs to buy such plants in the spring, and to be guided in their selection by the trade catalogues. Now as, according to my estimate of merit, a considerable proportion of the catalogued sorts for early flowering are poor things I could not recommend this plan. For a prompt and definite effect it would be better to



VIEW IN THE NEW FERNERY, MANCHESTER BOTANICAL GARDENS.

EARLY CHRYSANTHEMUMS IN LONDON GARDENS.

THE recurrence of the chrysanthemum season has given special interest to the subject of herbaceous plants in London gardens. It needed but a timely word, founded on the observation of years, to dispel the long-cherished illusion that gives encouragement to the growth of chrysanthemums in the open ground in the gardens of smoky towns. They are entirely unfit for any such purpose, and it is better to own the truth than to dally with it. But to the general rule there are agreeable exceptions, as I pointed out in introducing the subject to our readers. A certain section of chrysanthemums, few in number and flowering neither too early nor too late, may be taken into the townsman's care with advantage; and from these he will have to select with judgment to avoid the burden of a gathering of rubbish. All the experimenters with so-called "early" chrysanthemums, from Salter downwards, have made the mistake of confounding quantity with quality, and the result is a long list comprising many sorts that are comparatively worthless. On several occasions I have planted a complete set of these early-flowering sorts, and the pleasure derived from a few good ones was sadly discounted by the predominance of bad ones. Dear John Salter, of whom I can never think without a deep sense of the loss we have sustained in his removal from this busy

buy the plants in flower and turn them out into well-prepared beds a once, and there leave them to brave the winter in the spots where they are to flower again next year. In the very first instance you see the sorts and their effect when planted, and as the winter will not harm them, and pot plants are never too large to make a proper beginning, you make a safe selection of sorts and dispose of the planting at one operation, and you are sure of a free and fine growth in the year following. But there is another mode of procedure, full of interest for a certain class; and it is the one I have several times adopted and have already advised the reader not to follow. It is to select an open sunny spot in the winter and prepare it well with deep digging and liberal manuring, and in the spring plant out about eighteen inches apart a complete collection of small nursery plants and leave them to compete amongst themselves for prizes in October. It matters little what order you arrange them in, but as a matter of taste it will be well to look out all the whites and yellows and put them aside, but you need not separate any other colours. Then, in planting, dot these whites and yellows about at nearly equal distances amongst the rest, and your chromatic scale will be fairly proper. If you do not proceed in some such way you will probably have a lot of whites or yellows together in one place, and elsewhere a scarcity of these colours, with a consequent want of balance. As for reds, purples, browns, and the rest, they may

be mixed indiscriminately and they will harmonize fairly well, but whites and yellows are too distinct to be allowed to wander about in the way of fortuitous atoms. When these are in flower you can pick and choose at your leisure, and my advice is that you mark all the bad ones, and as soon as the flowering is over you lift them and destroy them or give them away, so as to purge the garden of the washy and indefinite flowers, reserving only the very best for future use. In the succeeding spring—say, as early in March as may be convenient and agreeable—lift these, part them, and plant again in *fresh soil* well prepared, and you will have a more delightful because more positive bloom than in the trial season, and the display will have a peculiar interest, because of the trouble taken to secure it. Should it happen that after the first bloom you want to obtain possession of the beds for the planting of bulbs or shrubs, the whole of the plants may be taken up and replanted in some dry sheltered border very close together. They will occupy but little room and no frost will hurt them. The course of procedure thus suggested may appear costly, but the truth is, these plants are so cheap and may be increased so easily, and are moreover so hardy that one never need lose them, that the money cost is practically of no consequence whatever. But the cheapest, surest, and quickest mode of procedure will be to follow the first advice given above. Secure the best sorts in the first instance, and ensure a satisfactory bloom without any experiments.

The tendency of beginners is to crowd plants injuriously, for the little mites we begin with seem to the inexperienced eye quite unable to spread out and cover considerable spaces. But October chrysanthemums in good ground may be a foot to eighteen inches apart with advantage and the ground between them may be occupied with showy annuals or bedders of moderate growth to make a gay garden during the summer, and as the season wanes these will have to be removed to give fair play to the chrysanthemums. It is poor policy to crowd plants overmuch, but in such a case a good bloom cannot, and will not, be produced. It is therefore important to fill in between them for the first display with subjects that will not wage injurious war to the spoiling of the October flowers. Such annuals as *clarkias*, *balsams*, *asters*, and *stocks* may be regarded as model plants for the purpose, and to these the fresh green of the *pompones* will afford a valuable relief, so that from the beginning of the summer the latest blooming plants will be rendering useful service.

It has become unnecessary for me to offer lists of sorts, because generous and well-informed correspondents have taken up this subject, so that where John Salter failed, and Dr. Denny failed, and thousands of less famous cultivators have failed, there need be no more failures: the knowledge has been sifted, the husks removed, and the good grain is at our disposal. Instead, therefore, of discussing the merits of particular varieties, I will make a few remarks on a difficulty of town gardening which this very subject forces upon our attention.

It will be seen that I advise lifting and dividing annually. A first-class cultivator would probably put the stock under glass in the spring and propagate from cuttings. But the average town gardener need not take this trouble, for if the old plants, or, as we call them, stools, are simply divided into smallish pieces with a fair proportion of roots to each, and in this state are planted where they are to flower, the result will be quite satisfactory. But the man who fears this annual propagation will say, "If these are perennials, why should they not remain for several years in the same spots, and altogether undisturbed?" Now in those words is concealed a roek on which not only do town gardeners founder, but gardeners everywhere make shipwreck of an important part of the charge that is upon them to do justice to the plants that are best adapted for all soils and all weathers. You may plant trees and shrubs where they are to remain, and leave them undisturbed for ever. If they are planted aright as to aspect and soil they will be ever growing in dimensions and beauty, for their strong roots will search far and wide for such nourishments as they require. But herbaceous plants are in a different plight, and if left long where first planted they exhaust the soil at their immediate command, and, being unable to send out foraging parties as the trees do, will sink to a starved condition, making a poor growth, few blooms, and showing no beauty. This is one reason, and a good reason, why in town gardens the ordinary bedding plants, such as *pelargoniums*, *verbenas*, *calceolarias*, and the like, obtain a preference over all the hardy plants that ever were seen or heard of. These, indeed, have to be renewed annually, and require the aid of glass for the purpose; but they make a brave show with some degree of certainty, and appear to obviate the need for the proper management of herbaceous plants. But the proper management is worth the little labour it involves, and it may be all summed up in seven words—Divide annually, and plant in fresh soil.

For a general consideration of the case, herbaceous plants may be divided into fibrous-rooted and tap-rooted. The *pyrethrums*, *phloxes*, and *chrysanthemums* are examples of the fibrous rooted; the *aconites*, *thistles*, *perennial poppies*, and *lupins* are examples of the tap-rooted. In many instances the tap-rooted plants hold their own for several years together without deterioration, and instead of lifting and dividing it is better to destroy old plants when their vigour is visibly declining, and plant young ones—always in *fresh soil*—to replace them, and carry on the grand traditions, whatever they may be, say, of the fiery poppies in Uncle Fozzle's garden. But without any exception whatever the fibrous and surface-rooting plants do soon become aged and lean if allowed to remain for several years untouched; and a rich top dressing of half-rotten manure, which is found to refresh many subjects, is less beneficial to these than lifting, parting, and planting in fresh soil. I have said "without any exception." Permit me to make exception in

favour of *Sedum spectabile*, for a lot of great clumps in my borders have stood four years, and in the past season they flowered in the most perfect manner. I might say the same of the lovely white variety of *Aucumone japonica*, which after four years' occupation of the same spots has given myriads of lovely flowers, which, however, were somewhat smaller than they ought to be; and thus when we deal with the exceptions we sail near to the eye of the wind. Per contra, a lot of *pyrethrums* and *chrysanthemums* that I left in the same way undisturbed for only three years have actually flowered this year for the last time, and are not now to be found! These two classes of plants are peculiar in this respect: they soon eat up the surface soil, and if there is no more dinner provided they flower freely, as if to turn the final crumbs to the best account, and then make as quiet an end of it as Falstaff when he "babbled of green fields," and "his nose was as sharp as a pen." The *phloxes* last longer than either of these two, for I have had them in strong soil holding their own for seven years in succession. But this is not gardening, and is only tolerable in a great country garden, where there is so much to fill the eye and gratify the mind that a starved herbaceous border is overlooked as a weedy affair, and the big trees, and the fresh grass, and the clear sky, and the merry birds divert attention from a slovenly system that often brings upon hardy plants a discredit not of their deserving. Where hardy plants, and especially those very showy sorts that are surface-rooted, are grown in a town garden means must be found for their systematic renewal, if not annually, at least every two years, and all that is needed is to tear them up and plant small rooted pieces in quite fresh soil, or in soil well stirred up and refreshed with leaf-mould and well-rotted stable manure. The stuff they have extracted the goodness from and converted into colour for your delight will not serve their purpose again without some kind of refreshing, and sometimes the trenching of a bed two spits deep will be as effectual for the purpose as the more troublesome task of obtaining maiden loam from the country. There may appear a lot of trouble in all this; but the amateur who loves a bit of garden work, and has been taught by pleasant experience that work well done is always profitable in one way or another, will rather gladly enter upon a spirited treatment of hardy plants, and with *pyrethrums*, *phloxes*, and early *chrysanthemums* at command he may be sure of a gay garden, and every turn of the spade will bring up better gold than ever Timon discovered.

MOSES.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

SOWING EARLY CROPS OF PEAS.

To prepare for early crops of peas it is necessary in the first place to select those sorts that combine earliness and productiveness with good table qualities. In respect of earliness, it is doubtful if we have gained anything for many years past, as I find that the variety known as *Suttons' Ringleader* is still the earliest. But where the object of a few days' waiting for other sorts is of no consequence, I must confess that in quality some of the newer kinds are better than the old ones. Therefore, my advice to those who require a dish of peas at the earliest possible moment is to sow *Ringleader*; but if waiting for a week or ten days is immaterial, then I should select *William the First* or *Kentish Juvicta*. Report speaks favourably of *Laxton's Earliest* of All, also known in trade as *Hooper's Earliest* of All, but as I have not grown it I cannot say any more about it.

Having made the selection suitable to the requirements of each case, the next business will be to choose the ground and prepare it for sowing the seed. A warm south border is undoubtedly the best position for them, and the soil should be stirred to a depth of eighteen inches or two feet, and be made fairly rich with thoroughly rotten stable manure, which should be well mixed with the soil at various depths, especially from twelve to eighteen inches below the surface.

Most people have their favourite time for sowing early peas. But soil and climate ought to influence that part of the business to a certain extent, and I may say here that I have never found very early sowing to be of any advantage, and those who have to deal with a stiff cold soil and a low situation will do well to wait until the month of January has nearly run out before they sow their early peas. In more favoured soils and situations the middle of December is early enough, for if they are sown earlier, and a mild winter follows, the chances are that they will get so forward that the cold winds of March will seriously cripple them, and I have known them killed altogether from the same cause. At whatever time they are sown, it is best to sow them in very shallow drills, and where the soil is of a cold retentive nature it is best to sow them on the surface, and to cover the seed an inch deep with fine dry soil. In gardens where mice are troublesome, the seed should be made damp and then placed in a large saucer and a sprinkling of red lead shaken over them. This will invariably keep the mice away. Some gardeners defer the sowing of early peas until early in March, and then raise them under glass, and transplant them. Under certain circumstances this plan is a good one. When this is practised the seed may be sown in narrow boxes, and when large enough they may be transplanted without seriously disturbing the roots. Others secure narrow strips of turf, and turn them grass side downwards, and then cut out a channel in the soil for the reception of the seed, which is then covered with fine earth, in the same way as shallow sowing in the open ground. The turfs are then placed in a warm house until the peas are fit to be taken to a cold frame to be hardened off previous to being planted out. Some prefer to sow the peas in five-inch pots, and transplant them from these. But if I were asked to say which plan I like the best, I should give the preference to the turfs. I have practised all the above

methods, and noted the difference between them and those sown in the open ground nine or ten weeks earlier, and I have found that under ordinary circumstances the transplanted crops were as early as the others, although, as regards time, the difference was, as above remarked, nine or ten weeks to their disadvantage.

EARLY CAULIFLOWERS.

I find that the earliest cauliflowers I can obtain are those that are preserved under hand lights through the winter. Our hand lights are about eighteen inches square, made of cast iron, with moveable tops. I place these about four feet apart on a rich piece of ground, and about the middle of November five strong plants are put under each light. They give very little trouble during the winter, as we do not close the lights altogether, except in frosty weather, and during very hard frost the lights are covered with some old mats.

As the spring advances the tops of the hand lights are taken off on fine days, until the weather permits of their being left uncovered altogether. Plants so protected we find come into use fully a fortnight before those that are wintered in frames and transplanted in the spring. For a later supply we put a hundred or two in pots, and keep them all the winter in a pit or frame. I pot up the plants some time in November, using three-inch pots, one plant in each; but I find it necessary to thoroughly harden them in the month of February, and finally plant them as early in March as the weather permits. For if the plants remain too long in the pots they "button" instead of starting into a strong growth.

EARLY RADISHES OUT OF DOORS.

To secure young radishes as early in the spring as it is possible to have them the seed should be sown about the end of December. The best sort to grow for this purpose is Wood's Short Top, as it is as hardy as any, and as it has very short leaves the cold weather does not produce the same effect on it as it does on the other kinds which produce much longer leaves. Moreover, Wood's Short Top has the character of making a larger root in a shorter space of time than the others. The position for the beds must be the warmest and most sheltered in the garden. A border under a south wall will suit it admirably. The ground must be in good heart, and the surface worked down quite fine to receive the seed.

Instead of raking in the seed in the ordinary way, it is better to get some fine sifted soil and spread evenly over the surface, this will bury the seed much more evenly than can be done by raking it in. As soon as the seed is sown the surface of the bed should be covered with some long dry litter, which should be allowed to remain there until the young plants begin to grow, and then it should be taken off very carefully. During mild open weather the bed should be kept clear, but on the appearance of frost the litter should be lightly shaken over the young plants, to be removed again as soon as the frost is gone. As a matter of course, a good deal will depend upon the season and the progress of the crop. If the spring should be a mild one, the radishes will be ready for use about the end of March. I have not often found them to be later than the middle of April, even when the winter has been moderately severe.

The Household.

THE SOUP MAKER.—No. III.

THIS is to be the last chapter for the present on this subject; and it should be brief, because, while we might multiply advices *ad infinitum*, there will always remain to the practitioner the learning of the art by actual practice. The object of these papers is to help the inexperienced and generally to augment the sum total of domestic comfort.

In the storeroom of the soup maker should be found at all times supplies of the following articles:—Liebig extract, amber gelatine, Italian paste, macaroni, vermicelli, split lentils, pea flour, bottled herbs, celery seed, three sorts of pepper, soy, Worcester and Harvey's sauces, mushroom ketchup, burnt onions, sugar, salt, flour, vinegar, tinned peas, and tinned tomatoes. Some anxious one will ask about colouring. In my opinion it is never wanted by those who make real soup; it is a cheap resource of the cook at a restaurant: colouring is the colour-sergeant of the hotel kitchen and all the like territories. I have advised the folks who desire to be well nourished to ensure good colour by using good materials in their soups, and in any case of emergency a dash of Worcester and a nugget of Liebig will give colour enough, unless the so-called soup is mere water flavoured with salt, in which case colouring will only communicate a taste of tar, and make the starving stuff offensive. A little colouring in a good soup does no harm, because the tarry taste is overwhelmed by the goodness, but it does no good; it is in its very nature and purport a cheat; and if I am to advise, my advice is that you buy it and pay for it and then throw it away, and this course of procedure will make a salutary impression to the saving of your money and comfort in the future. On some rare occasions, however, a little colouring may be needful, in which case I recommend "Breton's," which is an artistic preparation, perfectly harmless, and without taste or smell. But whereas other colourings are brown, Breton's are of all colours, some of them brilliant in the extreme. We will suppose you have made a good green pea soup and the colour is a little dull. A very minute allowance of Breton's green (prepared from spinach and caustic soda) will communicate a beautiful colour and finish the thing artistically. Or, suppose you have made a good tomato soup, and being perhaps too meaty (for tomato soup should not be at all meaty), the colour is rather more brown than

seems satisfactory. Then Breton's red, sparingly and carefully used, will make all right, and you will have the colour as well as the flavour of tomatoes. But, I repeat, these good ingredients give good colour, and for brown soups, if the meat and sauces do not give colour enough, there is the old panacea of a burnt onion, and you must be careful how you use that, for a very little goes a long way.

In making soups without stock, the amber gelatine will be found of great service. Any kind of gelatine will, indeed, answer fairly well, but the amber gelatine mingles with clear soups perfectly, and gives richness without clouding them. How much should be used will depend on the requirements of the occasion, and this is one of the useful things one must become accustomed to. But combined with Liebig extract it gives the basis of a real soup at a moment's notice, for it dissolves in the process of boiling, giving substance to the clearest soup, without in any way affecting its appearance. But this clear soup is an old trouble of the kitchen, and deserves a special paragraph.

CLEAR SOUPS are best made as already directed, taking the first stock after a brief period of cooking from leg of beef or other good lean meat, which can be again cooked, even to rags, to supply stock for thick soups. But you may need to clarify a stock for a particular purpose, and it is easily done. First remove all grease from the cold stock, and then put it on the fire. To every quart of stock you must allow one egg. Break the egg and remove the yolk. Now break up the shells with the whites, and mix a little cold water with them. Add more water, and whisk well; then add a little of the stock, and again whisk the mixture, taking particular care that it does not become ropy. Finally, add this to the stock, and stir altogether. Put it over the fire, and let it remain until nearly boiling; then draw it aside, and leave it untouched for half an hour. The last stage will be to pour it carefully through a cloth into the tallest jug you can find, and again let it remain half an hour. Then you may pour it from the jug into another vessel, taking care to allow none of the sediment to pass over with the clear stock, which will be as bright as sherry. In all ordinary straining of soups and stocks I use a colander first, and then strain again through a conical perforated tin strainer into a tall jug. This plan saves time, prevents waste and the consequent disorder, and facilitates any settling that may be needful to clear the soup quickly.

THICK SOUPS should be somewhat fuller in flavour than clear soups, but care should be taken not to make them too thick or too rich with either meat or flavouring. In all cases where the name of a soup suggests a certain flavour care must be taken to bring out that flavour and to avoid the use of any dressing that might diminish it or make a discord. For example, in making a rich brown gravy, a little soy may be used to advantage. But soy in tomato soup communicates a certain coarseness, while disguising the delicious flavour of the tomatoes. When a light piquant soup is wanted, a little vinegar and red pepper may be added in the finishing, but care must be taken with all such things not to run to excess, for a full-flavoured soup is never wanted as a prelude to a good dinner. The degree of thickening is of very great importance, and where there is any doubt about the result a little of the thin soup or original stock should be reserved. Then if you find you have made the soup as thick as porridge you can take out a pint or so, and set it aside and add a pint of the clear stock to take its place, and if well stirred and boiled up again all will be right. As a rule, a fair tablespoonful of flour is enough to thicken three pints of soup and the best way of adding it is to mix it quite smooth with the needful complement of sauces and a little of the stock, and then stir it in well and boil up for a few seconds. (Pea soup and other soups that are necessarily substantial, and therefore are never served up at a proper dinner, may be made much thicker than any of the artistic soups. An excellent thick soup for an invalid may be made by using a large quantity of vermicelli broken up short, with strong brown stock and a little Worcester for flavouring, and boiling it for twenty minutes. The vermicelli will melt into an agreeable pulp, very nourishing and easily digestible. But for a proper dinner soup vermicelli requires only five minutes' cooking at the least, and should appear in the clear soup as white as snow and broken only to about half the original length. On special and peculiar soups I will endeavour to advise from time to time as the seasons bring new subjects, but for the present I have nothing more to say on the general subject of soup making. X. Y. Z.

PLANT LABELS.—Since our last note on this subject was published, the Society of Arts' proposals have been enlarged, and the following is the present official form of them: The Council, on the recommendation of the judges in the late competition of plant labels, are prepared to renew the offer of a Society's Silver Medal, together with a prize of 5*l.*, which has been placed at their disposal for the purpose by Mr. G. F. Wilson, F.R.S., for the best label for plants. The object of the offer is to obtain a label which may be cheap and durable, and may show legibly whatever is written or printed thereon; the label must be suitable for plants in open border. These considerations will principally govern the award. In addition to the prize offered by Mr. Wilson, a prize of five guineas has been placed at the disposal of the Council of the Society by Mr. E. G. Loder, for the best permanent border label suitable for private gardens, the cost of which should not exceed 4*l.* per thousand. Both awards will be made on the recommendation of the committee appointed for the purpose by the Council. Specimen labels, bearing a number or motto, and accompanied by a sealed envelope containing the name of the sender, must be sent in to the Secretary of the Society, not later than the 1st of May, 1883. The Council reserve to themselves the right of withholding the medal and prizes offered if, in the opinion of the judges, none of the specimens sent in are deserving.

Exhibitions and Meetings.

KINGSTON AND SURBITON CHRYSANTHEMUM SOCIETY, NOVEMBER 16 AND 17.

THE exhibition of this flourishing society, to which cultivators in all parts of the country looked forward with much interest, exceeded both in extent and quality the anticipations of the most sanguine, and may be safely described as one of the most splendid exhibitions of its kind ever held. The large Drill Hall, in which the show was held, as in previous years, was filled to its fullest extent, notwithstanding the fact that on this occasion its capacity was increased to a very considerable extent by the removal of the stagio for theatrical and musical performances, and the whole of the plants and blooms, although differing in relative merit, were of high-class quality. The plants and groups of chrysanthemums, and of miscellaneous subjects, were arranged along one end and two of the sides of the hall; the other end was occupied by a collection of specimens of the most magnificent character from the gardens of T. H. Bryant, Esq., Surbiton, and the cut blooms, the table plants, and the fruits were arranged on six spacious stages, of which four were placed lengthwise and two across the hall. The matter of greatest interest in connexion with the gathering was the final competition for the valuable Challenge Vase, first offered in 1879, and unquestionably the most important prize ever contested by chrysanthemum growers. There was no lack of interest in the contest for the second Challenge Vase, which was commenced this year, and the four or five hundred blooms staged in the two classes produced a display of the most splendid character. All the other classes for cut blooms were so well filled that from twelve to fifteen entries were quite common, and it will be well within the mark to say that at no time in the history of the chrysanthemum has there been such an immense assemblage of high-class blooms as on this occasion. It may be mentioned with considerable satisfaction that the arrangements were in keeping with the importance of the exhibition, and that Mr. Jackson, the honorary secretary, and the committee of management, of which body Mr. Puttock is a leading member, were on all sides congratulated on the completeness of the details. As showing the interest taken in the exhibition by the residents in the district, it may be mentioned that the takings at the door exceeded by about £10 those of last year, notwithstanding the fact that the weather on the first day was most unfavourable, whilst last year it was fine on both days.

CUT BLOOMS formed the most important feature of the exhibition, for incurved and tasselled flowers were staged in immense numbers and in splendid condition, and other sections were well represented. The only growers eligible to compete for the Challenge Vase of 1879 were Mr. Harding, gardener to T. D. Galpin, Esq., Bristol House, Putney Heath; Mr. W. Tunnington, gardener to C. McIver, Esq., Liverpool; and Mr. Faulkner, gardener to F. R. Leyland, Esq., Wootton Hall, Liverpool. The death of Mr. Faulkner about ten days previously gave a melancholy interest to the competition, but Mr. Leyland very generously had his flowers, which had been entered, staged. The contest between Mr. Harding and Mr. Tunnington was very close, but not so close as to occasion any special difficulty to the judges. Mr. Harding was strong both in incurved and Japanese flowers, whilst Mr. Tunnington was strong with incurved blooms and rather weak with Japanese flowers, as compared with those from Mr. Harding, but of splendid quality nevertheless. Mr. Leyland's flowers were rather small, but of excellent quality. The Challenge Vase was awarded to Mr. Harding, whose twenty-four incurved flowers consisted of Le Grand, Princess of Teck, Queen of England, Golden Empress, Hero of Stoke Newington, Mrs. Haliburton, Pink Perfection, Novelty, John Salter, Princess of Wales, Nil Desperandum, Lady Hardinge, Jardin des Plantes, Prince Alfred, Venus, Alfred Salter, Mrs. Heales, Princess Beatrice, Golden Queen of England, Mr. Brunnles, Mr. Bunn, Empress of India, White Venus, and Empress Eugénie. The twenty-four Japanese flowers were Elaine, La Nympe, Bonquet Fait, L'Incomparable, Fulgore, Triomphe de Chatelet, Mdle. Moulise, Plantagenet, M. Ardene, Criterion, Marguerite, Monarch, Thunberg, Curiosity, M. Plancheau, Garnet, Baronne de Prailly, Comte de Germiny, Madame Burnet, Fair Maid of Guernsey, Comtesse de Beauregard, Dr. Masters, Madame C. Audiguier, Bronze Dragon, and Fanny Bouchardet. Mr. Tunnington second, and Mr. F. R. Leyland third.

There were five entries for the second Challenge Vase, which also is of the value of twenty-five guineas, and will have to be won twice by the same exhibitor, and the blooms were good throughout. The winner of the vase was Mr. Molyneaux, Swanmore Park, Bishop's Waltham, who was well ahead of the other competitors with blooms of magnificent quality, Japanese and incurved being alike good. The incurved flowers comprised Mrs. Heales, Hero of Stoke Newington, Queen of England, Prince Alfred, Mr. Bunn, Orange Perfection, Empress of India, Refulgence, White Venus, Princess of Wales, Cherub, Lady Hardinge, Beauty, Guernsey Nugget, Eve, Mr. Howe, Jardin des Plantes, Nonpareil, Alfred Salter, Baron Beust, Barbara, Golden Empress, Princess of Teck, and Mabel Ward, a pretty yellow sport from Eve. The twenty-four Japanese or tasselled flowers were Baronne de Prailly, Fair Maid of Guernsey, The Daimio, Mdle. Moulise, Boule d'Or, Alba Plena, Peter the Great, M. Ardene, Aurantium, Meg Merrilies, Comte de Germiny, Soleil Levant, Sarnia, Criterion, Kry Kwang, Thunberg, The Khedive, M. Delaux, Elaine, Madame Bertier Rendatler, Golden Dragon, Madame C. Audiguier, Hiver Fleuri, and Oracle; Mr. C. Gibson, gardener to J. Wormald, Esq., Morden Park, Mitcham, second with splendid stands of flowers. The incurved varieties represented were Empress of India, Hero of Stoke Newington, Princess of Teck, Princess Beatrice, Golden Eagle, Mrs. Dixon, John Salter, Lady Slade, Barbara, Golden Empress, Princess of Wales, Mrs. G. Rundle, George Glenn, White Venus, Alfred Salter, Mrs. Heales, Nil Desperandum, Pink Venus, Jardin des Plantes, White Beverley, Cherub, Queen of England, Refulgence, and Isabella Bott. The Japanese flowers were Elaine, Fanny Bouchardet, Red Dragon, Alba Plena, Arlequin, The Daimio, Peter the Great, Nagasaki Violet, L'Incomparable, M. Ardene, Ethel Garnet, Criterion, La Nympe, Mdle. Moulise, Comtesse de Beauregard, Madame Bertier Rendatler, Fair Maid of Guernsey, Oracle, M. Delaux, Baronne de Prailly, Grandiflora, and Hiver Fleuri. The third prize was awarded to Mr. J. Jellicoe, Camp Hill, Liverpool, with flowers of excellent quality.

Very strong was the competition for twenty-four incurved flowers, and the marble timepiece offered as the first prize was awarded to F. R. Leyland, Esq., for large well-finished flowers of Beauty, Jardin des Plantes, Hero of Stoke Newington, Golden Empress, Mrs. Heales, Mr. Howe, Cherub, Princess Beatrice, Little Pet, Alfred Salter, White Beverley, Refulgence, Empress of India, Pink Venus, Blonde Beauty, Incognita, Novelty, Yellow Formosa, Princess of Wales, Barbara, Miss Hope, Mr. Bunn, Princess of Teck, and

White Venus; Mr. Harding, second; Mr. Tunnington, third, and Mr. E. Beckett, gardener to J. P. Currie, Esq., Sandown House, Esher, fourth.

In the class for twelve incurved blooms the competition was very severe, and the premier award was made in favour of Mr. E. Molyneaux, who staged fine blooms of Golden Empress of India, Mr. Howe, Alfred Salter, Princess of Wales, Baron Boust, Queen of England, Mrs. Heales, Prince Alfred, Hero of Stoke Newington, Refulgence, Nonpareil, and Jardin des Plantes; Mr. Woodgate, Warren House, Kingston Hill, was a close second; and Mr. Strong, Weybridge, a good third; Mr. Burns, fourth; and Mr. J. W. Moorman, Coombe Bank, Kingston Hill, was awarded an extra prize. For six incurved flowers the prizetakers were Mr. T. Benson, Mr. C. Slade, and Mr. J. Coombes; and in the "maiden" class for a similar number of blooms Mr. Gibbons, Mr. F. Death, and Mr. Stephenson were the successful competitors. In competition for the prize for six blooms of any one variety, Mr. Molyneaux was first with grand blooms of Princess of Wales, and Mr. Benson was second with Empress of India.

The class for twenty-four Japanese flowers was a very strong one, and the contest for first place between Mr. E. Beckett and Mr. G. King, Wolsey Grange, Esher, was so close that it was no easy task to assign them their proper place on the prize list. In the result Mr. Beckett was placed first, his blooms being of good quality, and Mr. King second, with a fine stand, but a trifle unequal. In the first prize stand were M. Delaux, Bronze Dragon, Fanny Bouchardet, Meg Merrilies, The Sultan, Comte de Germiny, Triomphe de Chatelet, Thunberg, Magnum Bonum, M. Ardene, Père Delaux, Hiver Fleuri, Apollo, L'Incomparable, Boule d'Or, Sarnia, Striatum, Guernsey Nugget, Criterion, Garnet, Alba Plena, Comtesse de Beauregard, and Grandiflora. Mr. King had a grand flower of Boule d'Or, a remarkably fine variety in the way of Yellow Dragon; Mr. Harding third, and Mr. Woodgate fourth. For twelve Japanese flowers Mr. Burns, Wykeham Lodge, Hershaw, first with Elaine, Baronne de Prailly, Meg Merrilies, M. Ardene, Thunberg, Guernsey Nugget, The Sultan, Criterion, Père Delaux, Peter the Great, Garnet, and Boule d'Or; Mr. W. Croxford, Surbiton, second, and Mr. Strong third. For six blooms of any one variety Mr. Molyneaux was first with glorious blooms of Madame C. Audiguier; Mr. C. Herrin second with Hiver Fleuri, and Mr. King third with Baronne de Prailly. Extra prizes were awarded to Mr. Buss, Ewell, and Mr. Strong, who had Elaine and Triomphe du Nord respectively.

Reflexed flowers were shown in splendid style, and Mr. Molyneaux, who was first for twelve, had immense and well-finished blooms of Golden Christine, King of Crimsons, Chevalier Damage, Mrs. Forsyth, Cloth of Gold, Emperor of China, Dr. Sharpe, and Pink Christine; Mr. Coombes was second with excellent flowers, and Mr. J. Hill, Chertsey, was third. Large anemones were presented in capital style by Mr. C. Gibson, Mr. Molyneaux, and Mr. Orchard, Coombe Leigh, Kingston, who were first, second, and third respectively; and anemone pompons were superbly shown by Mr. Lyne, Wimbledon, and Mr. E. Beckett, who were also first and second respectively for pompons in bunches, with Mr. J. W. Moorman third.

SPECIMEN CHRYSANTHEMUMS.—The most important of the specimens were those exhibited not for competition by Mr. C. Beckett, gardener to T. H. Bryant, Esq., Glencairn, Surbiton. These numbered about thirty, and comprised standards, pyramids, and dwarf trained, the latter measuring from five to seven feet in diameter, and all were splendidly flowered and highly finished. The dwarf-trained specimens were unquestionably some of the very finest that have ever been exhibited, and the liberality of Mr. Bryant and the skill of his gardener were warmly eulogized by the visitors to the exhibition. In the competitive class for six large-flowered specimens Mr. Burns was first, and Mr. J. Sallows, Twickenham, second. In the class for three Mr. G. Stevens, Putney, was first with capital specimens, and in the classes for standards and single specimens Mr. G. King, Mr. W. Burns, and Mr. J. Sallows were the prizetakers. The prizes for pompon specimens were well contested, and in the several classes the most successful of the competitors were Mr. J. Hoskins, Mr. J. Lyne, Mr. J. Watson, Mr. G. Stevens, and Mr. Child.

GROUPS ARRANGED FOR EFFECT formed a distinct and attractive feature. In the class for a group of chrysanthemums Mr. C. Orchard was first with a splendid lot of plants, which were very tastefully arranged, Mr. Croxford second, and Mr. Buss third. In the corresponding class for miscellaneous plants Mr. C. Attrill was first, Mr. G. King second, and Mr. Brand, gardener to W. Clay, Esq., Elm Villa, Kingston, were the prizetakers in the order of their names.

TABLE PLANTS AND PRIMULAS were shown in considerable numbers and in first-class style. For nine plants for table decoration Mr. J. Munro, Twickenham, Mr. W. Bates, Poulett Lodge, Mr. E. Beckett, and Mr. J. Buss were the prizetakers; and in the class for six the awards were made in favour of Mr. G. King, Mr. O. Hickie, and Mr. L. Stephenson. Primulas and cyclamens were successfully shown by Mr. E. Beckett, Mr. J. Buss, and Mr. Strong.

FRUIT was represented in capital style. Good collections of six dishes were staged by Mr. Bates, Mr. Beckett, and Mr. Munro, and apples and pears in collections of four dishes were admirably shown by Mr. C. Attrill, Mr. G. King, Mr. E. Beckett, Mr. C. Waite, Mr. J. Child, and other exhibitors.

NEW CHRYSANTHEMUMS.—Several new chrysanthemums were exhibited, and first-class certificates were granted to Messrs. T. Jackson and Son for *Madame Brun*, *M. Desbreaux*, and *F. A. Davis*, three splendid tasselled flowers, and to Mr. Orchard for *Lord Wolseley*, a fine amber-coloured sport from Prince Alfred.

The judges were Mr. W. Earley, Mr. George Gordon, Mr. J. Douglas, Mr. J. James, Mr. George, and Mr. A. Dean.

TUNBRIDGE WELLS CHRYSANTHEMUM SOCIETY, NOVEMBER 16 AND 17.

From the first the exhibitions of this important and flourishing society have been remarkable for the splendid condition in which the specimen plants are staged, and the successful gathering on the above-mentioned dates was no exception to the rule. So far from this being the case, there was a considerable augmentation in the competing collections, and a decided improvement in the style and finish of the individual specimens, and the effect produced was such as to surprise those who have regularly visited all the leading exhibitions during the past twenty years, as well as those who have but little practical acquaintance with the capabilities of the chrysanthemum. There was as usual an abundance of excellent cut flowers, but the great and distinguishing feature of the show was formed by the specimens, which exceeded two hundred and fifty in number, and were all of large size and more or less good. Last year the society found it necessary to move from the Great Hall, which is perhaps quite double the size of any building at the command of other chrysanthemum societies, to the Skating Rink, and this was so well filled in every part as to suggest the idea that in a very few years it will, vast as are its proportions, be inadequate to the requirements of the society. As, at the last exhibition, the

collections of specimens were arranged round the sides of the room, and the banks at the ends, having a slope of about twenty feet; and the cut blooms, miscellaneous plants and fruits were arranged on a series of tables extending the whole length of the rink, with openings in the centre for the convenience of the visitors, who were by no means few in number, so popular have the exhibitions become amongst the residents in the town and the surrounding villages. The staging arrangements were carried out under the direction of Mr. J. Charlton, and to that gentleman and Mr. E. Charlton, the indefatigable secretary, the highest praise is due. During the evening of both days the Skating Rink was, through the kindness of Dr. Siemens, illuminated by the electric light, which proved a great success, the soft colours of the chrysanthemums appearing to great advantage under its influence.

SPECIMEN PLANTS had a large number of classes provided for them, and as they were, with but one or two exceptions, well filled, the result was the large number mentioned above. The leading exhibitors in the plant classes were Mr. R. Beilby, gardener to W. H. Tindall, Esq., Hollowshaw, Tunbridge Wells; Mr. F. Earley, gardener to G. A. Brittain, Esq., Ferndale, Tunbridge Wells; Mr. J. Adams, Mr. J. Allan, and Mr. J. Wilkins, Langton. There were three divisions for plants, as for cut flowers and miscellaneous subjects, the first being open, the second limited to gardeners and amateurs resident within fourteen miles of Tunbridge Wells, and the third limited to single-handed gardeners within a radius of eight miles of the town. Taking the open division first, it must be mentioned that in the class for six large-flowered specimens Mr. R. Beilby was first with examples of good size, and bearing flowers of exhibition quality. The varieties staged were Guernsey Nugget, Mrs. G. Rundle, Mrs. Dixon, Mrs. Haliburton, Dr. Sharpe, and Jardin des Plantes. Mr. Wilkins second with a fine group, in which Baron Beust and Chevalier Damage were conspicuous. For six large-flowered pyramids Mr. Earley was first, and for six pyramids, varieties at the discretion of the exhibitor, the prizes were awarded to Mr. Beilby, Mr. J. Allan, gardener to G. B. Field, Esq., Ashurst, and Mr. Earley in the order of their names. The prizes for eight specimens were contested with much spirit, and the post of honour was worthily occupied by Mr. R. Beilby with splendidly-developed pyramids of Mrs. Dixon, George Glenny, and Mons. C. Hubert, and dwarf examples of Dr. Sharpe, Venus, Mrs. G. Rundle, Fanny, superbly coloured, and Peter the Great, which is not well suited for specimen culture. Mr. Earley second with a fine group, comprising excellent specimens of George Glenny, Mons. C. Hubert, Dr. Sharpe, and other well-known varieties; Mr. Killick third. The first prize for six pompones was awarded to Mr. R. Beilby, who had splendid specimens, although hardly out enough, of Golden Cedo Nulli, White Cedo Nulli, Antonius, and Fanny; Mr. W. Earley second. For one specimen pom-pone Mr. Beilby was first with Mr. Astie; Mr. W. Berwick second, and Mr. Mitting, Ashurst, third.

In the second of the two divisions the first prize for eight specimens was awarded to Mr. J. Adams for capital examples of Lady Hardinge, Mons. C. Hubert, Mrs. Dixon, Mrs. C. Rundle, Golden Cedo Nulli, Venus, and President; Mr. Berwick a good second with fine examples of Baron Beust and Mons. C. Hubert; and Mr. Wilkins third. Mr. Stringer and Mr. Turner also exhibited well in the class. In the class for four large-flowered varieties Mr. J. Allan and Mr. Killick were first and second; and in the corresponding class for pompones Mr. Wilkins and Mr. W. Berwick occupied the first and second place. In the two single specimen classes the most successful exhibitors were Mr. Beilby, Mr. A. Stringer, Mr. F. Earley, Mr. J. Wilkins, and Mr. E. Killick. The classes for plants in the division limited to single-handed gardeners were all well filled, and the specimens were equal to those in the other divisions. In the three classes for large-flowered varieties the prizetakers were Mr. J. Adams, Mr. W. Cripps, Mr. J. Ovenden, Mr. Mansell, Mr. G. Ticknor, and Mr. T. Mitting, and in the corresponding classes for pompones these exhibitors occupied a prominent position.

CUT BLOOMS were represented by fifty or sixty stands, and the majority were of a high order of merit. In the open division the first and second prizes for twenty-four incurved were awarded to Mr. G. Ware, Hungershall Park, Tunbridge Wells, and Mr. F. Earley. The awards in the class for twelve incurved were made in favour of Mr. Ware, Mr. Stringer, and Mr. F. Earley, and in the classes for twelve Japanese and twelve large anemones the first prizes were awarded to Mr. Earley. For twelve anemone pompones Mr. Hollamby, Speldhurst, and Mr. F. Earley were first and second respectively. The flowers were on the whole of splendid quality in the classes for gardeners and amateurs, and the chief prizes were awarded to Mr. Henderson, Mr. W. Check, Mr. G. Stanlen, Mr. J. Allan, Mr. Earley, and Mr. G. Paine. In the division for single-handed gardeners Mr. Ware, Mr. J. Roberts, and Mr. W. Read specially distinguished themselves.

MISCELLANEOUS PLANTS, such as primulas, celosias, gesnerias, cyclamens, and poinsettias, formed an important part of the exhibition, and added much to its interest and attractiveness. The poinsettias were shown very largely and in grand condition, and produced a splendid display of colour. In the open class for six Mr. J. Charlton, Summerville Nursery, Tunbridge Wells, was first with remarkably fine examples of the Major variety, the six plants, which were in six-inch pots, carrying twenty-one heads, averaging not less than twelve inches in diameter. Mr. Allen and Mr. Earley, who were second and third respectively, had capital examples of the same variety, as did also Mr. Ticknor and Mr. Adams, who were first and second for four. Epiphyllums were staged in capital style by Mr. Hollands, and gesnerias in magnificent condition by Mr. D. Buchanan, gardener to Dr. Siemens, Sherwood, Tunbridge Wells. Mr. Read also exhibited gesnerias. In competition for the prizes for celosias Mr. Earley and Mr. D. Buchanan were first and second with admirably-grown examples, which presented a very pleasing appearance. Primulas were particularly good, and the prizetakers in the open classes were Mr. G. Ticknor, Mr. J. Allan, and Mr. G. Farmer; in the gardeners' class Mr. Allan, Mr. Buchanan, and Mr. G. Farmer; and in that for single-handed gardeners Mr. Read, Mr. Ticknor, and Mr. J. Roberts. Berry-bearing plants were admirably shown by Mr. Ticknor, Mr. Check, Mr. Mitting, and Mr. Wells; and plants for the dinner-table by Mr. Wilkins and Mr. G. Goldsmith, Hildenborough, Mr. Read, Mr. G. Farmer, and Mr. Ticknor.

TABLE DECORATIONS remarkable for great taste were shown by Miss Henderson and Miss Blanche Charlton, who were first and second respectively on the prize list, and quite equal as regards the merit of their arrangements.

FRUITS were hardly so plentiful as last year, but there was an extensive display, and the quality was high. For nine dishes of fruit Mr. Henderson was first with an excellent collection, containing splendid dishes of Alicante and Golden Queen grapes, and excellent examples of Doyonné du Comice, Beurré Diel, and Glou Morceau pears; Mr. Allan second, and Mr. Goldsmith third. In the class for a dish of black grapes Mr. Bashford was first and Mr. Henderson second with Alicante of grand quality. In the corresponding class for

white grapes Mr. Johnston, Baynham Abbey, was first with splendid bunches of Muscat of Alexandria, Mr. Pope second with Trebbiano, and Mr. Wilkins third with Golden Queen. The first prize for six dishes of desert apples was awarded to Mr. Goldsmith for Golden Pippin, Court Pendu Plat, Colonel Vaughan, Ribston Pippin, Cox's Orange Pippin, and King of the Pippins. Mr. Goldsmith was also first for six kitchen apples and for six pears, other successful exhibitors being Mr. Hutchinson, Mr. Bridger, Mr. Johnston, and Mr. Allan. Mr. Rust, of Eridge Castle, and Mr. Bridger exhibited large and remarkably fine collections of fruit not for competition.

BRISTOL CHRYSANTHEMUM SOCIETY, NOVEMBER 15 AND 16.

This society, which has now been in existence some nineteen years, has for its especial object the encouragement of chrysanthemum cultivation and early spring flowers, the exhibitions for both of which take place in the Victoria Rooms, Clifton, and hold a proud rank amongst the most successful gatherings of their kind. On the present occasion chrysanthemums, both in the shape of cut flowers and plants, were numerous represented and in exceptionally fine condition, a commendable feature in the plants being that there was less of the severe formality in training than was at one time the rule, and which is yet too often seen. It is only reasonable that exhibitors should endeavour to make the most of their plants by arranging prominently before the eye the whole head of bloom, which, combined with ample healthy foliage, is the touchstone of high-class cultivation; but it is possible to do this successfully and still train the plants so as to show more nature and less art than has for some years been the fashion. For six large-flowered varieties Mr. Bradner, nurseryman, Bristol, was well in front with a grandly-managed lot profusely flowered, the individual blooms unusually large and backed up with good foliage; they consisted of Barbara, Princess of Wales, Mrs. Dixon, Alma, White Globe, and Mrs. Heale; second Mr. E. T. Heale, gardener to T. Pease, Esq., and third Mr. W. Lintern, gardener to W. Butler, Esq. Three large-flowered varieties: here Mr. Bradner was again first, having, along with others, a very fine example of bronze Jardin des Plantes; second Mr. F. Cordeux. Pompones varieties were also well represented, but some of the plants staged were a little short of being at their best. Mr. Bradner took first with six, his best plants being Mme. Marthe and Antonius; second Mr. Lintern; third Mr. E. S. Cole, gardener to W. Pethick, Esq. Four pompones, first Mr. Bradner, who in this class likewise had a well-grown lot of plants just timed to the day, the most meritorious of which were Golden Cedo Nulli and Mustapha; second Mr. E. T. Hill. Two Japanese varieties, first Mr. E. T. Hill; second Mr. W. Lintern. Standards on a single stem are always well managed here. In the class for three—the prizes offered by W. E. George, Esq.—Mr. Bradner was again to the fore with beautifully-bloomed examples of White Globe, Barbara, and Prince Alfred; Mr. W. Rye, gardener to J. Derham, Esq., a close second; third Mr. E. T. Hill. Single specimen large-flowered variety, first Mr. Bradner, who had a large and splendidly-flowered plant of Mrs. Dixon; second Mr. E. T. Hill. Single specimen large-flowered variety, grown pyramid shape, first Mr. H. Smith, gardener to A. Shipley; Esq.; second Mr. E. T. Hill.

CUT FLOWERS.—For twenty-four varieties of large-flowered chrysanthemums, exclusive of Japanese and anemone-centred kinds, the competition was unusually close, all the exhibitors staging excellent blooms, the first prize and the Royal Horticultural Society's silver Banksian medal being won by T. Hobbs, Esq.; his best flowers were Empress of India, Mr. Howe, Pink Perfection, Mrs. Dixon, General Bainbridge, and Beverley. Messrs. Garaway, who were second with flowers a few days short of being at their best, had, amongst others, Jardin des Plantes, the bronze variety of Jardin des Plantes, Prince Alfred, Barbara, and Mrs. Heale, large and in fine trim. Twelve large-flowered kinds (amateur), first Mr. E. S. Cole, who had a fine dozen, the most noticeable of which were Empress of India, Lady Talfourd, Prince Alfred, and Princess of Wales; second Mr. J. Waite. Six large-flowered varieties, first, Mr. T. Hobbs, who here likewise had an extremely good stand; second Mr. Winterbourne, gardener to J. Baylis, Esq. Twelve large-flowered anemone centred sorts, not less than six varieties, first, Messrs. Garaway, who staged large and finely-finished blooms with a good assortment of colours, the best of which were Madame Clos, Lady Margaret, Gluck, Prince of Anemones, and Acquisition; Mr. Winterbourne second. The prizes offered by R. H. Taylor, Esq., Bath, for twelve Japanese varieties were well won by Messrs. Garaway with an excellent dozen large fully-developed blooms, noteworthy amongst which were Baronne de Prailly, Criterion, Bertier Rendatier, Fair Maid of Guernsey, Sarnia, and Monsieur Delaux; Mr. Winterbourne a good second. Twelve large-flowered incurved varieties, in two distinct colours, prizes offered by S. Derham, Esq.; these were well shown, Mr. Winterbourne and Mr. T. Hobbs taking first and second in the order of their names.

MISCELLANEOUS GROUPS of flowering and fine-leaved plants formed one of the principal features of the show. On this occasion they were well represented, the treasurer's prize (W. Derham, Esq.) being won by Mr. Rye, who in an effective collection had Calanthe Veitchi, C. vestita, several varieties of cypripediums and zygotepalum, intermixed with bouvardias and Pancratium fragrans, associated with palms, ferns, crotons, and other ornamental foliage subjects. Messrs. Maull and Sons, second, also having a well-balanced group, in which were different varieties of Vanda tricolor, cypripediums, Dendrobium heterocarpum, D. chrysotoxum, and D. Picardi, with autumn-flowering heaths, palms, ferns, and various fine-leaved plants. The classes devoted to ornamental-leaved plants were well filled; the different exhibits being large, and in good condition, made an effective centre to the fruit stage; with six Mr. Rye took first, Mr. T. Bush second, these gentlemen occupying the same positions respectively in the class for four.

STOVE AND GREENHOUSE FERNS were well shown, the first prize in a class of six being taken by Mr. H. K. Ward, gardener to W. H. Budgett, Esq., whose collection contained beautiful plants of Gymnogramma Lauchiana and Davallia Mooreana; second Mr. W. H. Banister, gardener to H. St. V. Ames, Esq. Single specimen stove or greenhouse plant, first Mr. H. K. Ward, with Anthurium Andreanum; second Mr. W. Fox, gardener to Mrs. Hurlo.

PRIMULAS are usually better done at Bristol than generally met with. For six Mr. E. S. Cole had first honours with large and profusely-bloomed plants, foliage and flowers alike remarkable for good condition; second Mr. Bodham, Castle, who also had an excellent half-dozen. A nice lot of those most useful and continuous-flowering plants, bouvardias, were shown, Mr. Rye taking first, and Mr. J. H. Stevens, gardener to S. Budgett, Esq., second.

MISCELLANEOUS CUT FLOWERS, in the shape of centre pieces, bouquets, and button-hole flowers, were present in considerable numbers, and beautifully arranged, as also were the stands of autumn foliage and berries, the

bright and sombre tints of which harmonize well together, and go far to illustrate the pretty and artistic arrangements that can be made without flowers. Mr. E. S. Cole was first with a contre-piece of flowers nicely filled; Mr. T. Meakins second. Bouquets were confined to a more reasonable size than appears to be the fashion nowadays. Mr. E. S. Cole and Mr. R. H. Symes being first and second in the open classes, and Mrs. M. Cole and Mrs. F. F. Stevens occupying the same positions in that restricted to ladies. Three button-hole bouquets, first Mr. W. Cooper, second Mr. H. K. Ward.

FRUIT.—Grapes, as well as apples and pears, were very well shown; the two latter especially, both in quantity and condition, were such as might have led to the conclusion that it had been a plentiful season, the reverse of which is the case to an extent rarely experienced. With six dishes Mr. W. Nash, gardener to the Duke of Beaufort, took first with beautiful Black Alicante and Muscat of Alexandria grapes, apples, pears, medlars, and a melon; second Mr. W. H. Bannister. Three bunches of black Hamburgh, first (amongst numerous competitors) Mr. Gibson, gardener to Mrs. J. Miller, with fruit in excellent condition for the lateness of the season; second Mr. W. Cooper. Three bunches of Muscats: these likewise were in beautiful order, Mr. Nash again taking the lead with handsome bunches, well up in every way; second Mr. Gibson. Two bunches any black variety, first Mr. Huzzard, gardener to J. Challin, Esq., Bath, with good examples of Madresfield Court, black, plump, and as fresh as this excellent grape is usually seen earlier; Mr. Nash second with Alicante. Four bunches, not less than two varieties: here Mr. Nash took the lead, staging Muscat of Alexandria and Black Alicante, both in good condition; second Mr. Huzzard, who had nice bunches of Muscat of Alexandria and Mrs. Pince. Dessert apples and pears were remarkable for their high colour. In the competition for six sorts of pears Mr. Rye took the lead with beautiful dishes of Doyenné du Comice, Duchesse d'Angoulême, Conseiller de la Cour, Beurré d'Anjou, Beurré Diel, and Chaumontel; second Mr. A. T. Hall, Bath, who had fine fruit of Haddon's Incomparable and Beurré Diel. Four varieties, first Mr. Rye; second, Mr. W. H. Bannister. Six dishes dessert apples, first Mr. Bannister, having Scarlet Pearmain, Kerry Pippin, King of the Pippins, and Claygate Pearmain; second Mr. A. T. Hall. Four dishes dessert apples, first Mr. A. T. Hall; second Miss Richardson. Culinary apples were not so large as usually seen; with six varieties Mr. E. T. Hill took first, Mr. R. H. Symes second. Single dish of culinary apples, first, Mr. T. Bush with a distinct-looking kind named Bush's Seedling, of full size, and having the firm appearance characteristic of a good keeper; second Mr. Mr. Heber, Marden.

A number of other classes, of which space will not permit notice, went to make up an excellent show, which only wanted better weather to make it in every way successful.

CROYDON HORTICULTURAL SOCIETY, NOVEMBER 17 AND 18.

The exhibition of chrysanthemums, fruit, and vegetables held by this society on the dates above mentioned was decidedly above the average, for the staging had to be extended to an almost inconvenient extent, and every inch of space was occupied. There was also a decided improvement in the quality of the productions staged and the show was in every way a credit to the society and the town.

CUT BLOOMS were so numerous and of so high an order of merit that they well deserve to have first mention. There was a spirited competition in the open classes provided, and the growers in the district were well able to hold their own. For twenty-four incurved varieties Mr. Gibson was first with a magnificent stand, the blooms being chiefly those with which he achieved so much success at the Royal Aquarium on the Wednesday and Thursday previous. Mr. J. Fewell was a good second, his blooms being large and finished in excellent style. In the corresponding class in which the competition was limited to growers within the district, Mr. Fewell was first with flowers even finer than those he staged in the open class, and Mr. Johnson, Kenley, was a good second. For twelve incurved Mr. T. Sadler, Streatham, was first, with Mr. Fewell and Mr. Johnson second and third. The first place for six incurved was also occupied by Mr. Sadler, who was closely followed for second place by Mr. A. C. Roffey, the able and indefatigable secretary. The Japanese flowers made a splendid display. In competition for the prizes for twenty-four Mr. Gibson and Mr. Fewell were first and second with flowers evincing cultural skill of the highest order; and for twelve the successful competitors were Mr. Alderman, Mr. Fewell, and Mr. Johnson, the prizes being awarded in the order in which the names are here placed. Large and pomponé anemones were splendidly shown by Mr. Fewell, who was first in both classes provided for these sections. Mr. T. Sadler secured the premier award for twelve incurved blooms staged with foliage, which is a most objectionable way of showing them, and the second award was made in favour of Mr. Fewell, who was first for six blooms, incurved, of any one variety with Prince Alfred. In a similar class for Japanese Mr. Alderman was first, and Mr. Sadler second, with Elaine; and Mr. Johnson third with Fulgore. In the numerous classes for amateurs and single-handed gardeners the most successful of the competitors were Mr. Reed, Mr. Brice, Mr. Dobson, Mr. Staines, and Mr. Elsey.

GROUPS OF PLANTS ARRANGED FOR EFFECT were numerous, and placed at intervals round the hall produced a rich and striking effect. In the class for a group of chrysanthemums Mr. Welstead was first with an elegant arrangement, and Mr. Bowman and Mr. Elsey, who were second and third respectively, had most excellent groups. In a similar class limited to amateurs and single-handed gardeners Mr. Minchiner was first. The competition was very strong in the trade class for a group of chrysanthemums and other plants, and Mr. Curd, Addiscombe, was first with a beautiful bank, and Mr. Cooper, Sydenham Road, was a capital second. Mr. Curd staged also a group, not for competition, for which he received a high commendation.

VEGETABLES made a distinct and important feature, for all the three classes were so well filled that the competing collections sufficed to fill a stage extending the whole length of the hall. In competition for the prizes offered for a collection not exceeding twelve kinds Mr. Cooper, Waddon, was first with a splendid lot, closely followed by Mr. Fewell and Mr. Rodbourn for second and third place. In the class for a collection of six kinds Mr. Brown and Mr. Welstead were first and second. The cottagers well deserve a word of praise for the great excellency of their vegetables, the collections from Messrs. King and Moss being of the highest quality. Potatoes were particularly good, and Mr. Osman staged a most excellent collection, but much disfigured by the examples having stuck over them a plurality of prize cards, ranging from first to fourth, for the evident purpose of showing the success achieved by the exhibitor during the past season.

FRUITS were plentiful and good. In the class for three dishes of pears Mr. Jones, Carshalton, was first with Chaumontel, Glou Morceau, and East-r

Beurré, and in the class for dessert apples the same exhibitor was first with King of the Pippins, Ribston Pippin, and Wormsley Pippin; and for three dishes of kitchen apples he was first with Golden Noble, Dutch Codlin, and Holland-bury Pippin. Other successful exhibitors of fruit were Mr. Cooper, Mr. Rodbourn, Mr. Fewell, Mr. Crouch, and Mr. Alderman.

CHRYSANTHEMUMS AT THE BRIGHTON AQUARIUM.

On Tuesday, Wednesday, and Thursday last there was a pretty exhibition of chrysanthemums in the Aquarium at Brighton, under the management of Mr. I. Wilkinson, the space around the seal pond in front of the waterfall being devoted to the purpose. In common with many other provincial districts, those of Brighton have as yet something to learn, but they are moving in the right direction, and in this particular show there were some capital examples both of plants and blooms to serve as models of the cultivation that is required.

In the class for six plants Mr. Spottiswoode, gardener to G. Duddall, Esq., Brighton, put up fine plants of Mrs. G. Rundle, Mrs. Dixon, Venus, Mandarin, Christine, and Robert James. Mr. Balchin, of the nurseries, Cliftonville, made a fair second with plants too loose and open, but comprising good specimens of Mrs. G. Rundle and Mrs. Dixon. Standards were very effective. Those from Mr. John Turner, placed second, comprised Baron Beust, Peter the Great, Fair Maid of Guernsey, Mrs. Dixon, The Cossack, and Elaine. Mr. Spottiswoode had nice standards of Elaine, Robert James, Venus, and Mrs. Dixon. Mr. Balchin put up a lot of very fine standards with leafy heads carrying an abundance of flowers. They comprised Mrs. G. Rundle, Peter the Great, Empress Eugénie, Lord Derby, Fair Maid of Guernsey, and Jardin des Plantes. The standards from Mr. Hyde, placed first in the class for four, were the most ugly things we have seen for many a day; trained as flat as drumheads and the tying so recently and so severely done that the flowers showed only their backs and sides; they would not face the spectator. In a class for four plants a good place was made by Mr. Spottiswoode. Mr. Meacken also contributed creditably. Free-grown pompones were poorly shown by Mr. Miller, of Southdown Nursery, Shoreham. Trained pompones from Mr. Spottiswoode were good; his first six comprised a beautiful Bob, Antonius, Dick Turpin, Mrs. Turner, Mr. Astie, and a very grand Rose d'Irevenna. The most striking plants in the show were Dr. Sharpe, Dick Turpin, and La Nympe, the last named a delicate pearl colour.

The best twenty-four cut blooms came from Mr. Ridout, gardener to J. B. Haywood, Esq., Reigate. They comprised beautiful blooms of Queen of England, Golden Queen of England, Nil Desperandum, John Salter, Empress of India, Princess of Wales, Emily Dale, White Venus, Hero of Stoke Newington, Princess of Teck, Cherub, Lady Slade, Duchess of Manchester, Jardin des Plantes, Venus, Beauty of Stoke, Mrs. Halliburton, Mrs. Dixon, Barbara, Mrs. G. Rundle, Antonelli, Gloria Mundi, Mr. G. Glenny, and Abbé Passaglia. In another class Mr. J. Wyatt was first with a capital lot of twenty-four blooms. The best twelve show flowers came from Mr. J. Ridout, who had Cherub, White Venus, John Salter, Princess of Wales, Barbara, Mrs. Dixon, Nil Desperandum, Mr. G. Glenny, Mrs. Halliburton, Gloria Mundi, Venus, and Mrs. G. Rundle. The same exhibitor presented the best lot of anemone flowers and the best twelve Japanese. Various honours in cut blooms were taken by Messrs. Jupp, Wyatt, Lipscomb, and others.

Mr. Charlton, of Tunbridge Wells, presented some grand poinsettias. Mr. Spary contributed freely various decorative features, and Mr. Balchin was not a whit behind the rest in assisting to make an interesting show.

TWICKENHAM HORTICULTURAL SOCIETY, NOVEMBER 14 AND 15.

The autumn exhibition of the Twickenham Horticultural Society was hardly so good as usual, the departments devoted to vegetables and fruit showing a decided falling off; nevertheless, the productions staged produced a display of considerable beauty and interest.

The most important of the classes in the first division was that for a group of chrysanthemums occupying a space not exceeding fifty square feet. The competition for the prizes was very keen, and in the result Mr. J. Sallows, Twickenham, was first; Mr. J. Munro, gardener to Lady John Chichester, second; Mr. W. Brown, Richmond, third; Mr. J. Coombes fourth, and an extra prize was awarded to Mr. J. Parsons. In the class for six large-flowered specimens the most successful competitors were Mr. Sallows and Mr. G. Trussler; for six untrained plants Mr. W. Cowler and Mr. C. Murdon were first and second respectively. Cyclamens were admirably represented by the contributions of Mr. W. Fitzwater, Mr. J. Munro, and Mr. J. Parsons, and primulas by those of Mr. J. Munro, Mr. G. Trussler, and Mr. T. Buckland. Plants suitable for the decoration of the dinner table were presented in capital style by Mr. J. Munro, Mr. J. Parsons, and Mr. Otto Hickie. Zonal pelargoniums were represented by fine collections from Mr. J. Parsons, Mr. G. Purkiss, and Mr. J. Wild. Tastefully-arranged baskets of plants were contributed by Mr. Munro, Mr. G. Trussler, and Mr. T. Buckland.

The classes for cut flowers were mostly well filled and the stands of good quality. In these the leading prizes were taken by Mr. J. Sallows, Mr. G. Trussler, Mr. W. Brown, Mr. T. Gibson, and Mr. R. Thrupp.

The fruit, although rather limited in quantity, was not wanting in quality. In the class for a collection Mr. Munro and Mr. G. Trussler were first and second respectively, and in the class for a dish of black grapes these exhibitors reversed their positions. Mr. Fitzwater was successful in taking the premier award for four dishes of pears, and in the class for four dishes of apples the first prize was awarded to Mr. Stroud. In competition for the prizes for collections of vegetables Mr. Munro, Mr. Lane, and Mr. T. Buckland were the prizetakers in the order of their names; and in the classes for vegetables shown in single dishes Messrs. Gilbert, Mason, Phillips, Cartwright, Allen, and Mager occupied prominent positions.

BROMLEY CHRYSANTHEMUM SOCIETY, NOVEMBER 16 AND 17.

This newly-formed society held its first annual exhibition in the Drill Hall, Bromley, on the above dates, and if weak in some of its features, was thoroughly satisfactory, and gave promise of taking a foremost position in future years. The plant classes were not so well filled as could have been wished, and many of the specimens were wanting in finish, but the competition was very spirited for the prizes offered for cut blooms, and the majority of the stands were of a high degree of excellence. Miscellaneous subjects, comprising groups arranged for effect, primulas, and plants suitable for the decoration of the dinner table, were contributed somewhat liberally and added much to the attractions of the show. Fruit was remarkably good, and formed a capital feature.

CUT BLOOMS.—Foremost amongst the exhibitors in the classes for cut blooms were Mr. Griffin, Mr. Pascoe, Mr. Elliott, and Mr. Phipps. In the class for twenty-four incurved flowers the first prize, consisting of a cup and £1 in cash, was awarded to Mr. Griffin for a very fine stand, the flowers large and well finished; Mr. Pascoe, who was second, staged capital blooms, and Mr. Phipps was a close third. For twelve incurved, open, the prizetakers were Mr. Tucker, Mr. Real, and Mr. Mumford, all of whom exhibited remarkably well, and in the corresponding class for subscribers within a radius of four miles of Bromley the prizes were awarded to Mr. Griffin, Mr. Pascoe, and Mr. Elliott. For eighteen incurved Mr. Griffin and Mr. Phipps were first and second; and the prizetakers for six incurved were Mr. Griffin, Mr. Pascoe, and Mr. Skinner in the order of their names. In competition for twelve of any class Mr. Griffin, Mr. Pascoe, and Mr. Eke were the prizetakers, and had fair flowers, but the effect was not good, and the staging of Japanese, incurved, reflexed, and anemone varieties on the same stand is thoroughly unsatisfactory, and the class should have no place in the schedule of a society embracing a district so important as Bromley. Japanese flowers were hardly so plentiful as the incurved, but they were nevertheless well represented both in quantity and quality. The most successful of the exhibitors of these were Mr. Pascoe, Mr. Griffin, Mr. Levey, Mr. Elliott, and Mr. Hatchett.

PLANTS were not numerous, and many of those staged were hardly up to the mark. The best of the several collections were those from Mr. Real, Mr. Griffin, Mr. Cole, and Mr. Thornton, and they, it may be added, consisted exclusively of large-flowered varieties, for pompones are entirely excluded from the schedule, which, considering their effectiveness when grown with a moderate degree of skill, must be regarded as a grave mistake.

The groups of chrysanthemums made a pleasing display, and those from Mr. Maynard, Mr. Real, and Mr. Lewis must be specially mentioned for their great excellency. In the class for a group of miscellaneous plants Mr. Lyon, gardener to Sir E. Scott, Bart., Sundridge Park, was first with an excellent and very tastefully-arranged collection. Particularly good in the group were the poinsettias and primulas, and the examples of *Dendrobium nobile* and *Cypripedium caudatum*. Mr. Sharland and Mr. Pascoe also exhibited well in the class, and were second and third respectively.

PRIMULAS AND TABLE PLANTS were admirably shown, but in awarding the prizes for the latter the judges appeared to set too much value upon mere size. In both classes for primulas Mr. Lyon was first with splendidly-flowered examples, and Mr. Pascoe, who was second for six, and Mr. Maynard and Mr. Gammon, who were second and third for twelve, had capital collections. The first prize for twelve table plants was awarded to Mr. Lyon.

FRUIT was fairly plentiful and thoroughly good. In competition for the prizes for four dishes Mr. Neighbour, Bickley Park, was first, and Mr. Tucker second. For a dish of white grapes Mr. Mumford was first with Muscat of Alexandria; and in the corresponding class for black grapes Mr. Gammon was first with Alicante, and Mr. Tucker was second, and Mr. Cooper third with Gros Colmar. Mr. Mumford staged immense bunches of Mrs. Pince, but much wanting in colour. The prizes for four dishes of pears were awarded to Mr. Neighbour, Mr. Sharland, and Mr. Elliott; and for four dishes of apples to Mr. Neighbour, Mr. Cole, and Mr. Real, in each case in the order of their names.

MISCELLANEOUS CONTRIBUTIONS comprised a splendid display of zonal pelargoniums from Messrs. H. Cannell and Sons, and excellent collections of plants from Messrs. Laing and Co., Mr. Wingfield, and Messrs. Ponsford.

WIMBLEDON HORTICULTURAL SOCIETY, NOVEMBER 22.

The exhibition of chrysanthemums and miscellaneous subjects held by this enterprising society on Wednesday far surpassed previous autumn shows held at Wimbledon, and was in every way a splendid success. The spacious Lecture Hall was filled to overflowing: the quality of the various productions was high throughout, and, thanks to the taste shown in the arrangements, the effect produced was remarkably good. Specimen plants, groups of chrysanthemums, and of miscellaneous plants and cut blooms were particularly good, table plants and primulas were well represented, and of fruit there was a good display.

The great feature of the exhibition was formed by the cut blooms, which were sufficient to fill a broad stage extending the whole length of the hall, and of surpassing excellence, not an indifferent flower being staged. There was a spirited competition for the prizes for twelve incurved blooms, and in the result Mr. Woodgate, gardener to Mrs. Hammersley, Warren House, Kingston Hill, was placed first with a splendid stand, containing, amongst others, a good bloom of Lord Wolseley, the fine sport from Prince Alfred on which certificates were conferred at South Kensington and Kingston. Particularly good also were the blooms of Mr. Brunlees, Alfred Salter and Princess of Wales. Mr. Gibson, Mitcham, and Mr. Strong, Weybridge, were second and third respectively with excellent stands, and high commendations were awarded to Mr. E. Beckett, Sandown House, Esher, and Messrs Mahood and Sons, Putney, for flowers of a most meritorious character. For six incurved the prizetakers were Mr. J. Strong, Mr. Woodgate, and Messrs. Mahood and Son, the first prize stand containing one of the finest blooms of Alfred Salter ever staged. Mr. Harding, Putney Heath, staged, not for competition, a stand of twenty-four, the blooms large, but in some instances rather rough. Large anemone flowers were grandly shown by Mr. Orchard, Coombe Leigh, Kingston Hill, Mr. Bentley, and Mr. Gibson, and the exhibitor last mentioned staged a stand of anemone pompones of exceptional excellence. The Japanese flowers were quite equal in number and quality to the incurved, and made a very fine display. For twelve Mr. E. Beckett was first with a stand of which it would be difficult to speak too highly. In the stand were Thunberg, the finest bloom of this superb yellow flower shown this season; Boule d'Or, a much-improved Yellow Dragon; Balmoreau, a fine purple flower, and Comte de Germiny, a bold flower remarkable for its distinctness; Mr. Gibson a good second, and Mr. Strong third. In the amateurs' classes for cut blooms the leading prizetakers were Mr. H. R. Rolt, who had flowers of superb quality, Mr. E. Collins, and Mr. J. S. Amoor. Mr. Logan exhibited a very tasteful design for a flower garden executed in chrysanthemum flowers.

The groups were very fine, and contributed much to the attractions of the exhibition. At the head of the competitors was Mr. E. Saunders, Fairlawn, Wimbledon, whose plants were exceptionally well flowered and tastefully arranged. Messrs. S. Mahood and Son and Mr. G. Stevens, Putney, were second and third with groups of the most attractive character. In the amateurs' class for a collection Mr. G. Dovo was first, and Mr. E. Collins second, the collection in each case being highly meritorious. Mr. Lyne, Belvedere, Wimbledon, exhibited, not for competition, a beautiful group of flowering and ornamental-leaved plants, comprising, amongst other good

things a score or so of splendid examples of *Calanthe Veitchi* and *C. vestita*. Mr. Lyne also contributed six remarkably fine specimen pompones. In competition for the prizes for three trained specimens Mr. Bentley, Messrs. S. Mahood and Son, and Mr. G. Stevens were first, second, and third respectively. Mr. D. S. Thomson, Wimbledon Nursery, and Mr. Runnacles, Cannizaro, Wimbledon, exhibited excellent groups of ornamental plants.

Prominent amongst subjects of a miscellaneous character were the primulas and table plants. In the classes for the former the most successful of the exhibitors were Mr. Woods, Mr. Beckett, and Mr. Elliott. The leading prizes for table plants were awarded to Mr. Beckett and Mr. Bentley, both of whom staged capital collections.

Although fruit had no provision made for it in the schedule, the contributions were plentiful enough to produce an excellent display. Especially deserving of mention were the apples and pears from Mr. Haines and Mr. Goodyear, and the apples and grapes from Mr. Alderman.

The arrangements were such as to do great credit to Mr. Rolt, the courteous secretary, and to the committee. The judges were Mr. Orchard, Coombe Leigh; Mr. Harding, Putney, and Mr. Lyne, Wimbledon.

MANCHESTER BOTANICAL SOCIETY, NOVEMBER 21.

The exhibition of chrysanthemums held by this society on Tuesday was of so large an extent and so excellent in quality that there was a general concurrence of opinion that it was the finest show of its kind ever held in Manchester. The Town Hall, notwithstanding its immense size, was hardly sufficient to afford accommodation to all the productions contributed, and the plants and cut blooms, if not quite up to the average of London and other great centres of chrysanthemum culture, were decidedly good, and far superior to those exhibited at Manchester in previous years. There was a large assemblage of miscellaneous plants and fruits, and Messrs. Sutton and Sons, of Reading, exhibited an important collection of potatoes, comprising about one hundred varieties, and including the many fine sorts introduced by themselves. The financial results were highly satisfactory, for from the opening to the close of the exhibition the hall was crowded with visitors.

In the plant classes one of the most successful competitors was Mr. Agnew, of Prestwich, who occupied the post of honour in the great class for nine large-flowered varieties; Mr. W. Scott, Higher Broughton, was a good second, and Mr. E. G. Potter, Rusholm House, a capital third. For four large-flowered Mr. Agnew was again first, closely followed by Mr. J. G. Best, Withington, and Mr. O. Schneider, who were second and third. The prizes for four pompones were well contested, and at the head of the competitors was Mr. George Cooper, Timperley Hall, and the second and third prizes were awarded to Mr. T. Dickens, Higher Broughton, and Mr. H. Slatter, Stand. The chief prizetakers for six Japanese plants were Mr. John Allen, Altrincham, and Mr. O. Schneider, and in the class for untrained plants the premier award was made in favour of Mr. George Cooper.

The cut blooms made a very attractive display. Foremost among the exhibitors in the division provided for flowers was Mr. John Allen, who was successful in taking the first prize for twenty-four; Mr. George Cooper was a close second, and Mr. J. H. Kenworthy, Hurst Hall, was a good third, the flowers in the several winning stands being very fine. In competition for the prizes for twelve large-flowered varieties Mr. John Allen was again first, closely pressed by Mr. J. W. Moorman, Coombe Bank, Kingston-on-Thames. In the class for twenty-four blooms, including anemone, pompones, and Japanese varieties, Mr. G. Cooper and Mr. John Allen were placed equal first, Mr. J. W. Moorman second, and Mr. D. M. McClure, third.

The competition for both Roman hyacinths and Chinese primulas was very spirited, and the respective collections made an attractive display. The prizes for primulas, which were exhibited in collections of ten each, were awarded to Mr. John Allen, Mr. S. Hazzopulo, Higher Broughton, and Mr. E. J. Potter, all of whom staged plants bearing large trusses of well-coloured flowers. The successful competitors in the class for hyacinths were Mr. E. G. Potter, Mr. T. Dickens, and Messrs. Jones and Son, Shrewsbury. The floral decorations were attractive and tasteful, and special mention must be made of the arrangements exhibited in the class for a vase for the decoration of the dinner table by Messrs. Jones and Son, Lord Howard, and Mr. R. P. Gill, who were awarded the prizes in the order of their names. The prizes for three hand bouquets were awarded to Messrs. Jones and Son, Mr. J. H. Kenworthy, and Mr. John Allen; and in the class for one hand bouquet the first prize was awarded to Mr. R. P. Gill, Woodheys, and the second and third were taken by Messrs. Jones and Son and Mr. J. H. Kenworthy. Plants suitable for the decoration of the dinner table were admirably represented by the contributions of Mr. O. Schneider, Mr. E. G. Potter, and Mr. R. A. Farington, Wigan.

Miscellaneous collections were exhibited by Messrs. Dickson, Brown, and Tait, Messrs. G. W. Yates, Mr. Leech, Fallowfield, and other trade and amateur cultivators. Mr. Leech exhibited a good specimen of *Dendrobium Leechianum*, a fine hybrid between *D. nobile* and *D. heterocarpum*, and closely resembling the beautiful *D. Ainsworthii*, which also was obtained from a cross effected between the two species mentioned. Mr. Leech also exhibited a fine collection of calanthes, for which he was awarded a First-class Cultural Certificate. Messrs. Sutton and Sons and Messrs. Dickson, Brown, and Tait were also awarded First-class Cultural Certificates for their respective contributions to the exhibition.

TOOTING HORTICULTURAL SOCIETY, NOVEMBER 14 AND 15.

This society held their first grand annual exhibition of chrysanthemums, fine-foliage plants, stove and greenhouse flowering plants, primulas, fruits, vegetables, &c., in the Vestry Hall, Lower Tooting. This society was formed in the early part of the present year for the promotion of horticulture in this and the surrounding districts, by holding monthly floral meetings, at which papers are read and discussions take place, and cultural certificates are awarded for any meritorious specimens the members may bring to the meetings. The society can boast in having done some good during the year. The president, H. Goodhart, Esq., has taken a lively interest in the proceedings by being present on several occasions. The present exhibition might be termed a grand success for a first attempt, and by far exceeded any anticipations the committee might have formed in the early part of the year. There were more than sufficient entries to fill the hall in which the show was held, so that a tent had to be erected at the rear of the building, which was filled with some splendid collections of vegetables. Specimen chrysanthemums were not shown in large numbers, but were excellent in quality. Groups of chrysanthemums formed a very good feature. Cut blooms made a splendid show, there being between four and five hundred blooms staged. Stove and greenhouse plants were shown in really first-class condition and in large numbers. Great credit is due

to Mr. H. Gower, the courteous secretary, and the executive committee for the way the arrangements were carried out.

Chrysanthemum plants occupied both ends of the hall. At the far end three very meritorious groups were staged. Mr. C. Collins, gardener to J. A. Rose, Esq., Nightingale Lane, was first with a very pretty group, well varied in colour; Mr. Bunby second; Mr. Luff, gardener to R. Hyatt, Esq., Streatham, third. For six specimens Mr. C. Salter, gardener to J. Southgate, Esq., Leigham Court Road was first; Mr. Bunby second. For three specimens Mr. C. Salter was again first.

Cut blooms: In the class open to all England for forty-eight varieties, twenty-four incurved and twenty-four Japanese, Mr. A. Holmes, gardener to B. Hill, Esq., Clapham Park, was first with a splendid stand, having well-finished blooms of Venus, Queen of England, Empress of India, Cherub, Barbara, White Beverley, John Salter, Nil Desperandum, Princess Beatrice, Prince Alfred, Yellow Dragon, Cessack, L'Incomparable, Criterion, Red Gauntlet, Curiosity, &c.; Mr. W. Glide, gardener to J. Wilson, Esq., Upper Tooting, second; Mr. J. Holmes, gardener to G. M. Storey, Esq., Nightingale Lane, a very close third.

For twelve cut blooms, incurved, Mr. A. Holmes was first with a very even lot; Mr. Salter second; Mr. Eade third. For six incurved Mr. J. Holmes was first; Mr. F. Ball, gardener to H. Doulton, Esq., Tooting Common second; Mr. Cushion, gardener to A. Grote, Esq., third. In the corresponding class for six incurved Mr. W. Clark, gardener to J. Rains, Esq., Clapham Common, was first; Mr. Cooke, gardener to E. M. Parrot, Esq., Upper Tooting, second; Mr. Greenfield third. For six blooms of any one variety Mr. Alderman first with Elaine, Mr. Eade second with Lady Margaret, Mr. J. Holmes third with Barbara. In the class for twelve Japanese Mr. Alderman was first with a stand well varied in colour. For six Japanese Mr. Eado, Mr. Cooke, and Mr. Alderman were the prizetakers, and for Anemone pompones Mr. Cooke was the only exhibitor.

Stove and greenhouse plants, orchids, primulas, and ferns formed a good feature. For three orchids Mr. C. Salter was first with well-flowered examples of Masdevallia Tovarense, Dendrobium heterocarpum, and Oncidium crispum; Mr. Luff second. For six flowering plants Mr. Nunn first, having amongst others well-flowered examples of Eucharis amazonica and Franciscea calycina; Mr. Bunby second. For fine-foliage plants Mr. R. Austin was first with well-grown plants of Alocasia gigantea, Cocos Weddelliana, &c.; Mr. Nunn second; Mr. Luff third. Primulas were exhibited well by Messrs. Sansbury, Ball, and Eade. The prizetakers for table plants, ferns, and bouvardias were Messrs. Austin, Ball, Luff, Nunn, Alderman, and Bingham. Grapes, apples, and pears, in conjunction with table decorations, made a very attractive display. For three bunches of black grapes Mr. R. Holmes, gardener to J. Wallace, Esq., Clapham Common, was first; Mr. Hoves second; Mr. Alderman third. For three bunches of white Mr. Eade and Mr. Alderman were equal first. The prizetakers in the other classes for fruit were Messrs. Ball, Nunn, Bunby, Alderman, Cushion, and Barringer. Table decorations, sprays, button-holes, &c., were very tastefully arranged. In the class open to ladies Mrs. Kesterton, Nightingale Lane, was first for a very tastefully-decorated épergne; Mrs. Dalton second. For sprays E. K. Kesterton, Esq., first, Miss Mabel Galton second, Mr. Luff third, and for button-holes Miss Mildred Galton, Mr. Luff, and Mr. Nunn, in the order in which their names are placed. The principal prizewinners in the classes for vegetables were Messrs. Cushion, Nunn, Ball, Bunby, Jeffery, Parsons, and Purl.

The judges were Messrs. J. W. Moorman, Childs, and Brett.

W. CLARK.

Law.

WHAT IS A GARDEN?

IN the Chancery Division, November 3, before Mr. Justice Pearson, the case of Heach v. Prichard, raised the interesting question, What is a garden? The case turned upon the construction of the will of Ann Layton, dated in November, 1853. The testatrix gave to her eldest daughter, Mary Ann Layton, her freehold cottage, called Teynham Lodge, at Colwall, in the county of Hereford, for the term of her life, and after her death she desired that the above-named cottage, with the garden, should be sold and the profits equally divided between her daughters and sons, whom she named. The question was whether a small orchard belonging to the testatrix, and held by her as appurtenant to the cottage, was intended to be passed under the above bequest. The cottage and garden stood upon 1r. 35p. of ground, and the orchard contained 1r. 32p. The orchard was close to the house, but separated by a hedge from the garden, and a gate communicated between it and the garden; and the well which supplied the house with water was situate in the orchard. After the death of the testatrix, her eldest daughter, Mary Ann Layton, took possession of the cottage and garden, and also the orchard, and continued in occupation thereof until her death, in 1879.

Mr. Stallard appeared for the plaintiffs; Mr. Freeman for the defendants, who were each of them entitled under the will.

Mr. Justice Pearson was of opinion that the orchard was to all intents and purposes part of the garden, though one was used as a flower garden and the other as a fruit garden. In this case, if the orchard did not pass under the bequest the testatrix must be held to have died intestate as to that portion of her property. His Lordship considered that the testatrix did not intend to die intestate, but she meant to include the orchard as part of the "cottage and garden," and a decree must be made to that effect.

TRADE CATALOGUES.

JAMES DICKSON AND SONS, NEWTON NURSERIES, CHESTER.—*Forest and Fruit Trees, Evergreens, &c.*

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Literature.

Introduction to Latin Prose Composition, with Hints on Latin Writing and Periodic Style. Crown 8vo., 3s. 6d. By R. M. MILLINGTON, M.A. In our notice of this work we omitted to state that it is published by Messrs. Longmans, Paternoster Row, London.

Amateur Work; Illustrated. (Warl and Lock.)—This work has been noticed approvingly from time to time as the monthly parts reached us. Now that it is completed, forming a handsome quarto volume, very liberally and effectively illustrated, we repeat our recommendation of it as a valuable addition to any family library. The subjects range so far and wide that it would be difficult to say what kind of work is omitted from its consideration. And yet it conforms strictly, however liberally, with the title, for amateurs who love work range far and wide in search of it, and at the moment of writing these words we are calling to remembrance a delightful concert, in which were employed no less than five violins made by the amateurs who played them. For the amateur carpenter, wood carver, gardener, photographer, worker in ivory, metals, fret cutting, modelling, &c., &c., there are in this volume stores of great price to keep the mind in health and the hands busy.

Obituary.

On the 15th inst., at Belle Vue House, Bagshot, Mrs. ELIZA WATERER, aged 34.

On the 14th inst., Mr. JAMES CLARKE, one of the oldest members of the East and West Suffolk Horticultural Society.

Recently, at Ryde, Isle of Wight, Mr. EDWARD MEEHAN, for more than half a century gardener at St. Clare's. He leaves a worthy successor in the person of his son, Mr. Thomas Meehan, the talented author of the "Native Flowers and Ferns of the United States."

On the 20th inst., at her residence, West Hill, Putney Heath, ANNA, widow of CHARLES LEE, Esq., in the 76th year of her age.

Markets.

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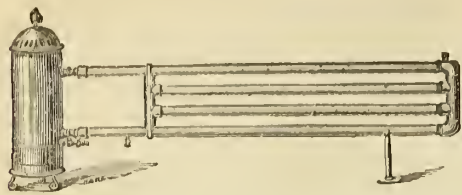
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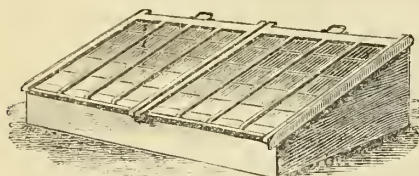
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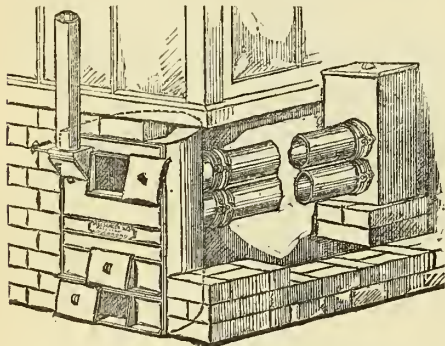
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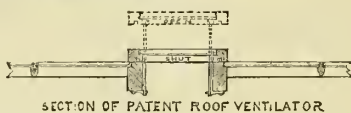
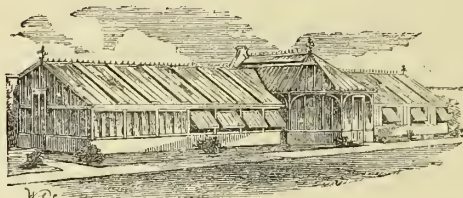


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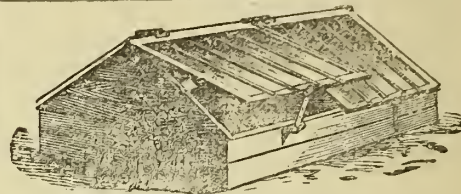


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D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avrg. of 40 yrs. Chiswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
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								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG		1882
3	S	1st Sunday in Advent.	7 48	9 19	3 52	0 4	0 26	7 24	7 50	4 25	4 49	41°3	Correa pulchella, G.	337
4	M	Pretender at Derby, 1742.	7 49	9 35	3 51	1 8	0 45	8 29	8 53	5 15	5 45	41°3	Eup' orbia jacquiniflora, S.	338
5	Tu	Loss of the Nile, 1551.	7 51	9 10	3 51	2 13	1 7	9 32	10 5	6 18	6 67	41°2	Gesneria Barlowi, S.	339
6	W	St. Nicholas.	7 52	8 45	3 51	3 18	1 50	10 37	11 7	7 30	8 2	41°2	Oenothera cinnabarica, S.	340
7	Th	Marshal Ney shot, 1815.	7 53	8 19	3 50	4 23	1 58	11 35	Middn.	8 32	0 0	41°1	Primula Swanley Red, G.	341
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The Gardeners' Magazine.

SATURDAY, DECEMBER 2, 1882.

THE GARDEN ORACLE AND FLORICULTURAL YEAR BOOK FOR 1883 is Now Ready, and may be obtained of all Booksellers, price 1s., or direct from the "Gardeners' Magazine" Office, 4, Ave Maria Lane, London, E.C.

THE GARDEN ORACLE FOR 1883 contains complete Business Calendars, Garden Calendars, and all the astronomical, fiscal, and statistical information proper to an almanac; and in addition references to figures and descriptions of New Plants, copious Catalogues of New Flowers and Fruits, a Directory for Purchasers of Garden Requirements, comprising Selections of the best varieties of Seeds, Flowers, &c., and a general review of the inventions and achievements in horticulture during the past year.

THE DOUBLE CHRISTMAS NUMBER OF THE "GARDENERS' MAGAZINE" will be published December 16, price 6d. Orders should now be given to your Newsagent, or to the "Gardeners' Magazine" Office, 4, Ave Maria Lane, E.C.

Auction Sales for the Ensuing Week.

MONDAY, DECEMBER 4, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden W.C.; Bulbs from Holland.
WEDNESDAY, DECEMBER 6, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Plants and Bulbs from Holland.
THURSDAY, DECEMBER 7, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.
SATURDAY, DECEMBER 9, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Plants and Bulbs from Holland.
TUESDAY, DECEMBER 5, AND FOLLOWING DAYS, AT 12 NOON.—Messrs. Protheroe and Morris, at Osborn's Nursery, Sunbury; Nursery Stock.

THE HORTICULTURAL WORK that is carried on at South Kensington is in a great degree dependent on the two committees of the R.H.S., and the special societies that represent certain favourite flowers that command a considerable following. The two committees have charge, in one case of fruits and vegetables; in the other case of flowers and plants. The special societies represent roses, auriculas, carnations, pelargoniums, &c. A society was in process of formation for the restoration of the pink to the position it deserves but has fallen from; but the promoters were fearful of hazarding a new venture while the general state of affairs at South Kensington appears to be altogether unfavourable to new enterprises, if not to horticulture in general, in all its aims and aspects. Taking the case as it stands, we must regard the committees and the special societies as the principal promoters of horticultural progress, apart from those agencies that derive their impulse from commercial considerations.

The Council of the R.H.S. has other work to do: its energies are consumed in litigation and its consequences; in negotiations now with her Majesty's Commissioners, and again with a grand committee of a Fisheries exhibition, and at all times with the administration of the funds and the general management on behalf of the Fellows. That the Council have claims on the Fellows for confidence and support appears to be generally conceded; and so far as we know, the Fellows are satisfied that the difficulties of their position as a corporate body have been judiciously dealt with by their representatives in the Council. That the state of things is far from satisfactory few will venture to deny; but the case is one of inheritance, and the sins of the fathers are visited upon the children unto the third or fourth generation.

At such a time a certain kind of loyalty is required of all who profess to be actuated by horticultural sympathies. It is with much regret—we may say, indeed, with much pain—that we note the lack of needful loyalty in certain quarters. The special societies have been specially attacked, misrepresented, accused, and defamed. We will not say that they have suffered much by the ill-natured and entirely mistaken criticism to which they have been subjected, but it will be admitted that unjust criticism does tend to the disadvantage rather than otherwise of the subject of it. At this moment we have nothing to do with proposals for "affiliation" and the like, because such proposals have never been formulated: they go about like stray feathers that the breeze tosses this way and that way, and nobody cares, perhaps, what becomes of them. It may be well, at a suitable time, to consider if the R.H.S., as the so-called "parent" society, can, with advantage to horticulture, supersede the special societies with organizations of its own. But the time has not come; it rather appears, indeed, that the existence of the R.H.S. itself is likely to become a primary question, and the special societies may very well wait until their secondary position can be properly recognized. But while they are covertly assailed we may with propriety ask, What would be the nature of the general look-out at South

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Kensington if they were forthwith abolished? If they were only excluded from the sacred precincts of the centre of light and leading there would be a serious diminution of horticultural light up there; and the true friends of the cause may therefore be invited to continue their support of these societies without heeding the vague talk that is current about some hypothetical "affiliation."

Whatever may be the degree of mischief resulting from the assaults against the special societies, it is likely to be augmented by a new crusade that has been opened against the Floral Committee. Our readers will remember that the little chionodoxa was once upon a time made a stalking-horse for the confusion of the Floral Committee, but the endeavour failed. In face of a certain actual or implied promise of pressure the committee stood firm for giving or refusing a certificate according to the free vote of a majority. Then followed proposals for breaking up the committee into sections, which would probably become factions; but the chionodoxa had, after all, to stand upon its merits, whatever they might be, and has not been certificated to this day. The new complaint against the Floral Committee is that it gives certificates to florists' flowers which often differ from each other by very small degrees, and which the critics appear to regard as never worthy of certificates at all. But a Floral Committee would have to be curiously constructed to ensure on its part a systematic repudiation of florists' flowers. With the insinuations that are made, as though certain members, assumed to be incompetent, might be named, if many more florists' flowers were certificated, we will not concern ourselves, as we should like to keep to a respectable platform for the discussion of the larger question, whether the Floral Committee should suffer extinction with the special societies, or, with those societies, undergo some mysterious transformation, the exact nature of which has not been as yet suggested.

As remarked above in respect of the societies, there is a "previous question." And that question must take precedence of all the rest. This, in fact, is not the time for any minor reforms, even if their desirableness be admitted without dissension. The year is nearly run out, and, so far as we know, none of the appointments of the R.H.S. for 1883 are as yet decided. Instead of being affiliated, the special societies appear to be in danger of extinction or paralysis, or some minor disaster, for their affairs are very much tied up with the arrangements that prevail at South Kensington, and, although so far as their own affairs are concerned they are prospering, and have clear views as to their proceedings, they are for the present brought to a dead stop, because they are completely in the dark as to the programme of the Council. If they were set free they might carry on their work in their own way, but they are fettered partly by courtesy, partly by formality, and partly by the *esprit de corps* that keeps them attached to the R.H.S. for the enlargement of its borders and the enlivening of its work.

The time may be near at hand for many and great changes, but it seems to us at the present moment that a spirit of conservative loyalty is needed, both to sustain the Council and to prevent the appearance of discord in the ranks of active horticulturists. For changes, whether voluntary or otherwise, we have at present no intelligible signal. But when the time for changes arrives it may be deemed convenient to absorb or affiliate, or do something else with the special societies. And it may be deemed convenient also to divide the present Floral Committee into two or more parts—say, one for flowers and another for plants; in which case the Fruit Committee will certainly have to be in like manner divided, so as to pass the fruits in one direction and the vegetables in another. We pass over all possible changes that may appear to be needed in the Scientific Committee, because so few persons take any interest in its proceedings, which consist for the most part in the splitting of hairs and the superficial study of vegetable malformations. This is not the time to discuss secondary questions, but when the time arrives, and definite proposals are made, the Fellows will be influenced by common sense much more than by criticisms that appear to lack the seasoning salt of generous feeling.

WHERE ARE THE GOOD POTATOES? This question has been asked and answered, and may be asked and answered again without being exhausted of its interest. It appears that the average shop article is a poor thing, and too often the cook who has to prepare it for the table is also a poor thing; and the poor potato and the poor cook

produce between them an unsavoury, perhaps unsightly, dish. The subject is worthy of serious consideration, and it may be proper to begin by questioning the implied postulate that the potatoes of commerce have of late years declined in relative quality. Observation in the markets and the shops has suggested to us that potatoes, regarded in the aggregate, are worse, and they are also better, than they were; and it may not be easy to strike a fair balance and say whether in the end the public gain or lose by the changes of the past few years.

The whole business of producing potatoes for the markets has within the past ten years undergone considerable changes, greatly to the advantage of producers, if not always to the advantage of consumers. Those changes have been brought about by the joint efforts of man and nature. The frequent failure of the crop, through unfavourable weather in the growing season, has quickened the energies of cultivators in raising or discovering sorts capable of resisting the disease. Some half-dozen sorts have, in consequence, acquired special importance, and of these three may be said to take the lead in the favour of commercial cultivators. They are the well-known Champion, Skerry Blue, and Magnum Bonum. In all this there is nothing new. But the fact tells directly on the question, Is the average market supply better or worse than it was ten, seven, or say five, years ago?

It must be observed that, as we cannot have two sorts of potatoes on one and the same spot of ground, increased cultivation of a certain few sorts must tend to throw out of cultivation some other sorts. This is precisely what has happened. The markets used to be supplied with Regents, Flukes, Fortyfolds, Lapstones, and Dawes' Matchless, all of them ranking high in table quality, but all of them liable in an especial degree to fail of a crop as the consequence of unfavourable weather. Who shall blame the cultivator who puts down a hundred acres of Champions instead of the like breadth of Regents or Flukes, when his main motive is to be as near certainty as possible in securing a return for his outlay and labour? In his own interest and in the public interest his proceeding is equally justifiable. As regards his own interest, he selects the kind of investment that appears the safest, and we commend him for his prudence. As regards the public interest, there is a prospect of, say, a thousand tons of potatoes, whereas by putting down some of the more susceptible sorts the prospect would be of a few hundred tons only, or perhaps of absolutely nothing. But, when all is said and done, the result is to put in the market a thousand tons of inferior potatoes. The Regent to the Champion is as Hyperion to a satyr, and the good folks who now eat Champions, and at the same time remember the Regents and Lapstones, may well raise the cry, Where are the good potatoes?

The deterioration we have been compelled to discourse on in respect of grape vines, peach trees, and other sensitive forms of exotic vegetation, is as marked in the case of the potato as in any. There is no plant in our gardens of general value and importance that equals it in susceptibility to any extreme meteoric conditions. It is the sport of the weather from the day it is planted to the day it is taken up, and there is something akin to the wonderful in the fact that we do derive from it immense annual aggregates of wholesome food. But in a run of bad years the more susceptible kinds are inevitably killed out, or, at all events, are reduced in bulk and relative importance, and the cultivators lean to sorts that are most likely to weather the storm, no matter what may be their standard of quality. Thus, in a certain part of the market supply a second-rate article predominates where a first-rate article was cheap and abundant heretofore. But there is after all a bright side to this view of the case, for the healthy and productive Magnum Bonum has now obtained a firm hold of the market, and is pushing the Champion out of it by reason of its threefold superiority: it is a better cropper, it is a better disease resister, and it is very much better on the table. This variety must rank below such as the Lapstone in quality, but it is so good as it is now offered in the markets that we are disposed to regard it as, in its own proper sphere of utility, the greatest boon bestowed upon the public during this present nineteenth century. Where it is in constant use no one asks, Where are the good potatoes? because no one asks for a thing he already possesses. The better price the Magnum brings, coupled with its superior vigour of constitution and repellent power when the disease prevails, will within a few years establish it as the most certain and profitable variety we possess, and the Champion must make way for it, as the Regent had to make way for the Champion. We shall expect to see some few of Mr. Fenn's varieties running it a close race, and the closer the better for both growers and consumers, for we may now reasonably anticipate that the process of selection will discover varieties combining even in a higher degree than Magnum the advantages of high cropping with high table quality, and a peculiar ability to resist the attacks of the destructive fungus. But while we are waiting and searching we have some trustworthy

sorts from which to select at discretion, and we seem to have made a very considerable advance, without the aid of necromancy, or even of the microscopists, towards the discovery of a preventive of potato disease. We may once more repeat the words we have often uttered, that the only preventive of permanent value would be found in scientific cultivation, for our warfare is not with a fungus, but with unfavourable conditions that affect the whole plant, and by reducing its vitality expose it to the assaults of parasites. The raising and selecting of varieties constitute an important part of scientific cultivation, and the practical men who make no pretensions to be scientific are better calculated to advance the cause than the *savants* who put their trust in microscopes, and hard words, and laughable propositions.

A NATURAL HISTORY MUSEUM is in process of organization in connexion with Owens College, Manchester.

"THE HORTICULTURAL DIRECTORY" (171, Fleet Street) comes in good time to be useful. It is the twenty-fourth year of publication, and it has grown to 240 pages.

"PAXTON'S FLOWER GARDEN."—The new number (28) just published contains coloured portraits of *Vanda tricolor*, finely done, and *Aponogeton distachyon*. The black and white figures comprise *Bletia patula*, *Rosa Fortuniana*, and *Acacia viscidula*.

POTATO MANURE.—Mr. John Perry has again made a fine show of potatoes at the Cattle Show at Bingley Hall, and he reports that his crop is heavy and of the finest quality throughout. The special manure he employs is that proposed by the eminent chemist M. Georges Ville, consisting of 352 lbs. of superphosphate, 264 lbs. sulphate of lime, and 264 lbs. nitrate of potash per acre.

A PERFECTLY WHITE MIGNONETTE has been forwarded to us from Messrs. Jefferies and Sons, of the Nurseries, Cirencester. In what degree it differs from Parsons's and other white varieties we cannot say, not having any at hand for comparison. But as we now see the novelty it is pleasing for its purity of colour and the compact character of its head of flowers.

RUSSIAN FROST.—Letters from Russia report that an unusually severe frost has suddenly made itself felt in every part of the country, stopping summarily all navigation, and making for the time all intercommunication difficult and precarious. At Nishni-Novgorod nearly 100 steamers and 1,000 barges and other vessels, all laden with grain, are locked in the ice, and no one expects a release till spring.

THE DESTRUCTION BY FIRE OF CLEVEDON COURT, SOMERSET, entails the loss of a noble remainder of the time of Edward II., and of a show place that held a very honourable position amongst the architectural adornments of the county. These old structures appear to be always in danger through the proximity of old woodwork to the chimneys and firegrates, an evil admitting of remedy if dealt with in time.

A BUSY WEEK is in prospect for London, and country cousins are flocking in at a great rate. The opening of the New Law Courts by the Queen on Monday, and the Cattle Show at the Agricultural Hall, from Monday to Friday, will very well finish up the work of the year in the sight-seeing way. That the Parliamentary Session is nearly at an end is evident, and the prorogation is all that will be wanted to make a clear board for Christmas.

THE CHRYSANTHEMUM appears to be rising in fashionable estimation. At the marriage of Mr. H. Manners, son of Lord John Manners, M.P., with Miss Violet Lindsay, which took place at St. George's, Hanover-square, the other day, the bridesmaids carried each a huge bouquet of red and yellow chrysanthemums. As things Indian are just now in high favour, perhaps the votive associations of the "gûl Davidee" may have had a share in suggesting the idea as well as the artistic appreciation of colour effects, which is growing a characteristic of educated English people.

OPENING OF A SILO.—In the *Times* of Thursday, Mr. Thomas Christy gives an account of the opening of a silo on Mr. Henry Hoare's Pagenhurst Farm, Staplehurst, on November 21. He says: The inside measurement was 24 ft. by 10 ft., and 10 ft. deep, and built of stone faced with cement, in a barn. I furnished the particulars for this silo in March, and at the end of May three acres of trifolium (a "very good crop") were mown and cut up small with the chaff cutter, and well trodden into the silo. It stood above the edge about 12 in., and was weighted with three planks, and on these a heavy weight of stone. Mr. Austin, the bailiff, informed me that he estimated the weight of green trifolium was 50 tons, and that it would produce eight tons of hay, if dried. The mass had shrunk to almost one-half its original depth. Upon removing the stone and three of the planks we came to a one-inch covering of straw, which had partially rotted, then with a hay knife Mr. Austin cut into a corner of the silo. About 3 in. of the ensilage was found to be mouldy, but under this it was in perfect order and green; the flowers were nearly as red and fresh as when put into the silo. In a short time the smell and colour changed as the mass became exposed to the air. The object of ensilage is to maintain the sap as nearly as possible in its original state, without having undergone either the transformation into grain and straw, or the fermentation of haying. It is proved by all the dairy farmers in the United States that the butter made from the milk of the cows fed on ensilage has the rich yellow colour and flavour that is never found in winter when cows cannot get into the pastures, and are fed upon hay, roots, and grain.

NEW CHRYSANTHEMUMS.

Now that the hurry and excitement of the exhibitions are over it may, perhaps, be well to discuss the merits of the most important of recent introductions, and determine, so far as it is possible to do, the gains of the past two or three seasons. To confine the discussion to the varieties which were presented to public notice for the first time this season would be to withhold useful information from cultivators, as in most cases it is not until the second or third year that the flowers are seen in proper character. It is certainly a rare matter to see them in first-class condition the first year after they are sent out, as the cultivators are not as a rule able to obtain plants from the nurseries until April and May, and owing to the rate at which novelties have to be multiplied the examples are not strong enough to make a sufficiently vigorous growth to produce fully-developed flowers in the November following. The greatest number of novelties are as usual in the Japanese tasselled section, and we have a goodly number of promising varieties of the current season, and a rather large proportion of the varieties of the last and the preceding seasons have fully established their claims to be considered first-class. There are one or two excellent incurved flowers, a good sprinkling of pompones, and a reflexed flower of the greatest excellence has been brought prominently into notice. Collectively, the gains are such that cultivators have not much of which they can complain, however much they may wish that raisers would devote some attention to the augmentation of the number of first-class incurved flowers.

First to claim attention are the incurved, for exhibition flowers have made their appearance at such wide intervals since the Versailles nursery was dismantled, and the cultivation of chrysanthemums abandoned at the Brunswick nursery, that when a first-class variety is introduced we cannot afford to do otherwise than give it a hearty welcome. There is not, perhaps, any occasion to institute comparisons between the incurved and the tasselled flowers, but if I were asked to give an opinion as to the most important chrysanthemum of the current year, I should unhesitatingly pronounce in favour of Lord Wolsley; and I would go farther, and say that it is the very finest of all the incurved flowers introduced during the past decade. Readers of the GARDENERS' MAGAZINE have been already informed that Lord Wolsley is a fixed sport from Prince Alfred, so well-known for its large size, splendid form, and great constancy, and when it is said that in all but the colour it is an exact replica of that famous variety a sufficient indication will have been given of its importance to the growers who have no special difficulties to contend with, and its extreme value to amateurs, who from the position of their garden are not able to produce good blooms of such varieties as James Salter. The colour is a rich shade of bronzy red with orange tips, and may be likened to that of Nil Desperandum, but it is quite distinct and decidedly more effective. Last year it sported with Mr. C. Orchard, gardener at Coombe Ligh, and Mr. Woodgate, Warren House, two successful cultivators in the neighbourhood of Kingston; and as the sports were exactly alike, it was arranged, with that feeling which should always exist between cultivators, that the two sports should be sent out under the same name to avoid confusion. The variety excited no little attention both at the meeting of the Floral Committee on November 14, and at the magnificent chrysanthemum show at Kingston on the following Thursday; and Mr. Cannell, who is not slow to recognize the merits of sterling novelties, has secured the stock. The other incurved flower of recent introduction that well merits attention is *Mabel Ward*, which was sent out last spring. The flowers are of a bright yellow colour, and are very pleasing in appearance, but like those of the parent are hardly large enough for exhibition purposes in a cut state, although when properly developed they will not discredit a stand of twenty-four. We much want a really good incurved yellow flower, for on the one hand Golden Empress and Golden Queen are too pale, and on the other Mrs. Dixon and Golden Beverley are hardly large enough. Jardin des Plants is of good size and rich in colour, but it is not good in form.

In referring to the Japanese tasselled flowers, it must first be said that it will not be possible to do more than mention a few of those of special importance. First to claim notice are the new varieties exhibited for the first time this season by Messrs. T. Jackson and Sons, of Kingston. *F. A. Davis* belongs to the same class of flowers as Abd-el-Kader; the blooms are large and full, the petals long and narrow, and the colour a very rich crimson with blackish maroon shading; it is very promising and will probably be strongly represented at the exhibitions next year. *Mons. Desbraz* is distinct, attractive, and first-class; the flowers are large with long narrow petals, very double, and of a rich bronzy orange colour. *Madame Brun*, like the two preceding, had a certificate conferred upon it by the Floral Committee, but what its merits are to entitle it to the distinction I have failed to discover. The flowers are of medium size, have straight petals of moderate width, and are of a rosy lilac colour. If freely flowering it may prove useful for the conservatory, but it is not of much value for exhibition. *Safrano*, exhibited by the same firm, is the very best of the whole series, and will, I am quite sure, attain to a higher degree of popularity than either. The flowers are large, without being of gigantic proportions, very full, the petals long and narrow, and the colour a very delicate blush, deepening to canary-yellow in the centre, a combination of colours truly exquisite.

The novelties introduced during the past two years by Messrs. J. Veitch and Sons form a very important group, and several of them have already made considerable headway. Bend Or and Thunberg are two fine yellow varieties, the latter being the most valuable of the two, and the one most likely to make its mark at the exhibitions. Thunberg is somewhat in the way of Peter the Great, but fuller, and of much finer form and richer in colour. It has been exhibited well in

several stands this season, but the finest flower was that shown at Wimbledon by Mr. Beckett, of Sandown, Esher; but that was not equal to the splendid blooms I saw in the Chelsea nurseries twelve months since. Some of the flowers have had this season a slight trace of green, but in no instance sufficient to be a defect, and in those well grown there was not the slightest trace. Kiempfer will prove a worthy companion to Thunberg; the flowers are very large and full and of a reddish orange colour. It is in the same way as Criterion, which it quite surpasses both in size and effectiveness; *Rex Rubrorum*, certificated in 1881, is of a deep crimson colour, and well suited for conservatory decoration; *Earl of Beaconsfield* has broad curled petals, crimson on the upper surface with yellow reverse, and reminds one of Hero of Magdala; *Mary Major* is a blush-white flower, and of noble appearance when in proper condition. At Chelsea last year the flowers were of large size, the petals curling in much the same manner as in James Salter, and forming globular blooms; but this year the petals of all the flowers I have seen have been straight, slightly reflexing outwards, and the appearance has been somewhat disappointing; but this might have been due to a want of strength in the plants; and as stock can now be obtained as early as the cultivator wishes we may expect to see flowers in true character next year; *Comte de Germiny* is a noble and distinct flower of the Bisnarek type, and its broad much-curled petals give it a striking appearance in a stand. It has been well shown this season in several places, and its value is fully recognized by cultivators; *Delicatum* and *Duchess of Connaught* are two light flowers of a pleasing character, and if not of quite so much importance as the foregoing are too good to be overlooked; *Lucifer*, one of this year's varieties, will be found of immense value for decorative purposes, and possibly for specimen culture. The flowers are of medium size and of a brilliant orange-red, and a well-bloomed plant has a very effective appearance. The flowers on the plant shown at Kensington had been developed for some time and had lost their brilliant colour—were in fact so dull, as compared with the appearance presented a fortnight previously, that it was almost a pity to show it; *Comet* is a promising crimson flower of full size.

Amongst the varieties which Messrs. Dixon and Co., of Hackney, have been mainly instrumental in introducing to cultivation during the past two years are several that will eventually occupy a front rank. *Chinaman* is a grand purple flower, rich and distinct in colour, and large and telling in appearance; *J. Delaux*, brownish crimson, large, and of good form; *Mlle. Louise Sabatie*, delicate rose shaded white, distinct and pleasing; *Mr. J. Starling*, rose-lilac, the petals long and twisted, very fine in its line of colour; *Flambeau*, brilliant crimson, flowers large and full; *Laurence*, delicate rose, marked with white and spotted rose, distinct and good; *Striata perfecta*, a very beautiful flower, the petals white striped with rose; *Belle Gabrielle*, rose, tipped white, large and pleasing; *Agrements de la Nature*, a charming flower of medium size, and of a very rich and distinct shade of yellow; *George Gordon*, sent out in the spring of the current year, has hardly come up to expectation this season, owing no doubt to the inability of the cultivators to obtain plants early enough. The large-flowered varieties, whether tasselled or incurved, must have a long season of growth to ensure good flowers, the assertions of some writers to the contrary notwithstanding. Both last year and this season I saw fine blooms in Messrs. Dixon's nursery of this variety, the largest, perhaps, measuring six inches in diameter, and in the magnificent collection in Finsbury Park it was the brightest of all the crimson flowers. The flowers are similar in shape, when in proper condition, to Elaine, but owing to its earliness it will perhaps be more valuable for the decoration of the conservatory in October than for exhibition purposes in November. Several other of Messrs. Dixon's varieties I have heard spoken of very highly, but as I have not seen them I am unable to more than suggest that they should not be neglected. At Putney I met with a very fine variety under the name of *Mrs. Mahood*, which received the prize for the best seedling in the exhibition last year, and was awarded a first-class certificate this. The flowers are extra large, very double, and of a beautiful shade of creamy blush.

There are two or three varieties, as yet not so very extensively cultivated, which are so good that they cannot be too widely known. Foremost amongst them is *Boule d'Or*, a rich yellow flower, of which a splendidly-developed example was staged at Kingston by Mr. King. It has the character of Yellow Dragon, one of the most distinct flowers we have, but it is much larger and fills up well in the centre and is altogether better. It is without question the finest of the golden yellow flowers for the exhibition stage. Another flower, of which it would be difficult to speak too highly, is *Madame C. Audiguier*, of which seven grand blooms were staged at Kingston by Mr. Molyneux. The flowers are large with broad stout petals curling over and forming almost perfect spheres, and of a bright rosy mauve. When in the condition in which they were presented at Kingston the blooms have great power in a stand. *Dr. Macary* is a splendid light variety, the petals broad, the flowers large, and the colour delicate rose. *Madame Emile Dufour* is a pleasing flower of a pale lilac colour with creamy centre. *Balmoreau* is a good addition to the rosy purple varieties, and *Mons. Planchenau* is a striking flower with broad curled petals, and of a delicate mauve-pink colour.

The list of pompones has been somewhat augmented during the past two or three years, the most important perhaps being those introduced by Messrs. J. Veitch and Sons. One of the finest of recent introductions is perhaps *Eclipse*, a rather large flower of a bright cinnamon-red tipped with gold, which will make a telling specimen and be of great value in a cut state. It is not unlike Eleanore, which was shown in grand style at Putney, but it is perfectly distinct, and should be one of the first to be secured by cultivators, whether for exhibition or decoration. *Ringleader* is a charming flower of a rosy lilac colour,

and well merits attention. *Brunelle* is an excellent brownish yellow flower of comparatively large size; *Anastasia*, rosy pink; *Inimitable*, amber-yellow, and *Virginia*, white, are all of good quality and effective, and are specially valuable for their comparative earliness. The Continental varieties, *Apothéose*, purplish rose, *Arbre de Noël*, orange-red, and *La Mascotte*, deep crimson, are desirable additions to their class.

The value of *King of the Crimson*s has been already pointed out, and I now refer to it for the purpose of advising cultivators for exhibition not to accept the dictum of those who place it in the Japanese section. It is strictly a reflexed flower, and for my own part I should have no more hesitation in disqualifying a stand of Japanese flowers containing a bloom of *King of the Crimson*s than I should one in which *Empress of India* had a place. GEORGE GORDON.

Notes of Observation.

BOUVARDIAS.

AMONGST a host of attractive subjects well deserving of special mention that were met with in the magnificent exhibition recently held in Tunbridge Wells, were several examples of *Bouvardia rosea oculata*, an excellent and little-known variety. These were exhibited by Mr. John Charlton, the well-known nurseryman of this town, and were about fifteen inches in height, twelve inches in diameter, and were so thickly studded with flowers that but little else could be seen. That cultural skill of a high order had been brought to bear upon them there can be no doubt, but it was evident the variety is remarkably free flowering, for almost every point was furnished with a truss of bloom. The flowers, it may be observed, are about the size of those of *B. jasminoides*, and the tube is rosy red and the limb a delicate blush. They have a pleasing appearance on the plant, and are most valuable in a cut state for button hole and hand bouquets and for dressing épergnes. Another *bouvardia* which deserves to be widely known and extensively cultivated is *Priory Beauty*, which was distributed by Messrs. J. Veitch and Sons in the course of last spring, for in its shade of colour it has no equal. This variety is a sport from *Elegans*, which it resembles in every respect but in the colour of its flowers, which are a pleasing shade of flesh-pink; *B. elegans* is one of the best of those with red flowers; *B. jasminiflora* is unsurpassed amongst the white varieties, for it blooms freely, and the flowers are very fragrant; *B. vreelandi* is even more free than the last mentioned, and the flowers are well suited for bouquets, but they are destitute of perfume, which is a serious defect; *B. dazzler*, a comparatively new variety, bids fair to take the lead amongst the scarlet forms, for the flowers are of good size, produced in large trusses, and of the most brilliant scarlet. To have *bouvardias* in perfection, a stock must be raised annually, and March is perhaps the best month in the whole year in which to strike the cuttings. Young plants have the most thrifty and pleasing appearance, and with a fair amount of skill bushy examples in six-inch pots large enough to produce a heavy crop of flowers may be had in October from cuttings struck in the March previous, as the stock in Messrs. Veitch's nurseries at Chelsea amply testifies. G.

DINNER-TABLE PLANTS.

It is, to my mind, a capital practice to invite plants suitable for the dinner to chrysanthemum shows, for the collections, when arranged along the centre of the stages on which the cut blooms are placed, form a pleasing relief, and afford visitors an opportunity of becoming acquainted with the characters of the plants best adapted for placing upon the table. At nearly all the exhibitions this season table plants have been exceedingly well represented, and the collections have shown that cultivators know pretty well what to select and how to prepare the respective subjects. At two or three of the exhibitions that I had an opportunity of visiting I noticed with regret that the judges had selected for the first and second places collections containing examples much too large. They had evidently judged the plants for their effectiveness in the position they occupied rather than for their adaptability for the dinner table. It is very easy to make a mistake in the matter of size in judging them in the buildings in which chrysanthemum shows are usually held, because of the large size of the building so dwarfing the plants that those of the most suitable size for the table have an insignificant appearance. Judges of experience guard themselves against this, whilst those who only officiate once or twice in the course of the year overlook the fact that a plant eighteen inches or so in height has a very different appearance in an ordinary dining room to that presented in a Corn Exchange or Town Hall large enough to hold eight or ten hundred persons. I have seen in winning collections such subjects as *Maranta zebrina* and *Dracæna Cooperi*, which are much too heavy and altogether unsuitable for the purpose in question. As indicating the class of plants best suited for the dining room I would mention the following, which were met with in first-prize collections at exhibitions where the judges made due allowance for the size of the buildings and the surroundings generally: *Aralia Veitchi gracilima*, one of the most elegant of table plants and quite superseding *A. Veitchi*, which is only suitable for placing upon the table when from six to nine inches in height; *A. leptophylla*, which also has bronzy digitate leaves with long narrow leaflets, but is longer in all its parts; when from twelve to fifteen inches in height it has a very elegant appearance. *Croton argustifolius* is the most popular *croton* with cultivators, and it is not surprising that it should be so, for it is one of the most elegant of all the kinds when in a small state, and it takes on a good colour at an early stage; plants with a clear stem of six or eight inches above the rim of the pot are the most effective. *C. Weismanni* ranks next to *C. angustifolius*, and when well grown is elegant and effective. Some of the newer kinds, such as *C. Lady Zetland* and *C. Eclipse*, will probably make good table plants, but they have not as yet been shown for that purpose, and in this note I shall confine myself to subjects that have been exhibited during the current season. Palms, which are invaluable, have been well represented, and of the numerous kinds exhibited the best are unquestionably *Cocos Weddelliana* and *Geonoma gracilis*, which are two of the finest table plants in existence. It would be difficult to say which of the two is the most beautiful, but I rather prefer the second of the two, particularly when very small plants are required. In the general character there is not a wide difference between them. *Dracenas* appear to be great favourites, and a considerable diversity of opinion prevails as to which are the best, as in one collection we see kinds with narrow leaves, and in the other forms with the broadest of leaves. It may, however, be said that the narrow-leaved forms are alone suitable, and *D. superba* may be mentioned as the best of those with coloured leafage, and *D. gracilis* as the finest of those with green foliage, and they are sufficient for all ordinary purposes.

D. Goldicana has formed part of several collections, but it is quite unsuitable, and whenever shown has been a source of weakness. *Pandanus Veitchi* is of a distinct style of colouring to all the other classes, and when nicely grown in a five-inch pot can be employed with much advantage. *Cyperus alternifolius*, if not first-class, is distinct and elegant, and is desirable where table plants are constantly in request. The typical green-leaved form is much preferable to that with variegated foliage, as it has a more pleasing appearance in contrast with the cloth, glass, and plate. *Reidia glaucescens* is not "a plant for the million," as exemplified by the fact that it was only exhibited two or three times this season, but it is exceedingly beautiful, and can be employed when from six to fifteen inches high. Examples quite large enough of all the foregoing can be grown in five-inch pots, and as far as practicable they should be kept to that size, for when in six-inch pots, which are usually allowed by societies, they require ornamental receptacles of inconvenient dimensions. Many of them may be successfully grown in three-inch pots, provided the precaution is taken to plunge them in cocoanut-fibre refuse, and supply occasionally during the growing season with weak liquid manure.

A HEAD GARDENER.

GOLDEN QUEEN GRAPE.

Up to the present time this grape has not attained to a high degree of popularity amongst cultivators, and it would be interesting to know the exact cause of its not making much headway, as very hazy notions appear to prevail upon the point. I am afraid I cannot throw much light upon the matter, but with your permission I should like to record an observation made a few days since. As your readers have been already informed, we had at Tunbridge Wells an exhibition of chrysanthemums, miscellaneous plants, and fruits. The latter, which, as usual, produced an excellent display, included two dishes of the Golden Queen grape. In both the bunches were large and the berries of good size; but in the colour there was so great a difference that one could hardly believe that the samples represented the same variety. In the one case the berries were of a dull brownish green and not particularly tempting, whilst in the other they were of a rich golden amber, and resembled in colour a first-class sample of the Muscat of Alexandria when fully ripe. The greenish bunches, I was informed, had been cut from a vine on its own roots, and the amber-coloured bunches from one that had been worked on the Muscat of Alexandria, and the great superiority of the latter was mainly attributed to the influence of the stock. It would be interesting to know whether the Muscat of Alexandria is really able to exercise so beneficial an influence upon the Golden Queen as to ensure the full development of the colour, and if so, whether the same degree of heat is required for ripening the crop as is necessary in the case of Muscats. Many readers of the Magazine must be able to afford some information upon this point, which assuredly is not wanting in importance, now that grape growing is carried on so extensively on all sides, and if some of those who are able to speak from practical experience would state what they know in reference to the matter they would doubtless oblige other readers beside.

A YOUNG GARDENER.

VIOLETS IN WINTER.

Cultivators do not appear to be fully alive to the value of the assistance sweet violets derive during the winter from a mild hotbed, and a reminder at the present moment will probably be of some service. In mild winters like the last the advantages of bottom heat in the culture of the more tender kinds of violets such as the Neapolitan and Marie Louise was not fully apparent, and were we to invariably have such weather it would not be necessary to say much in advocacy of bottom heat. But we never know what weather we shall have, and it will not do to speculate on a mild winter after recent experiences, and the prudent cultivator so shapes his course as to be prepared for the severest weather. A strong bottom heat such as is required by melons and cucumbers is not of course necessary, but to ensure a plentiful crop of violets throughout the winter it is necessary to maintain the plants in a progressive state, and during periods of severe weather this can only be done by stimulating the roots with a little warmth underneath. For the formation of the bed there is nothing to equal newly-gathered leaves, and in preparing the frames for the violets we fill them to within fifteen inches of the glass with the leaves, treading them as firmly as possible to prevent their sinking to any great extent. We then cover with eight or nine inches of soil, and in this bed plant the violet crowns the usual distance apart. The frame required for the plants to be flowered in pots we fill to within about nine inches of the glass and then plunge the pots in it. The heat given off by the leaves is steady and long-lasting, and if the precaution is taken to cover the glass with mats or litter during periods of frost there will be no break in the supply of flowers however sharp the weather may be. I may add that our frames allow of the beds of leaves being made four feet deep, and where the plants are in beds a less depth than this is not of much service, as the heat becomes exhausted at an early period of the winter, and the plants are left without assistance. When they are in pots the depth of the bed is not of so much consequence, as it can be readily renewed at any time. G. S.

FUCHSIAS FOR WINTER FLOWERING.

At the present moment we have in the conservatory under my charge several fuchsias coming freely into bloom, and presenting such an attractive appearance that I am induced to pen a note in reference to them. Of late years the winter-flowering fuchsias have not been grown so extensively as they were about twenty-five years since, and they are not perhaps so much wanted, as we now have such an abundance of chrysanthemums, salvias, bouvardias, cyclamens, and primulas. But they are too good to be discarded altogether, and I should be sorry to lose them, as would be my employers, who highly appreciate their beauty. The kinds to which I refer are *Dominiana*, *Serratifolia*, *Multiflora*, *Splendens*, and *Rubra*, all of which produce large richly-coloured flowers, and are very attractive. To obtain strong plants by the end of the autumn is a very easy matter, and the first two can be grown in the open border from the end of May to the beginning of September with no more attention than is necessary for keeping them free from weeds. The other two can be grown in an airy frame or on a bed of ashes outside, as may be most convenient, from the beginning of June to the early part of August, when they should be taken indoors and placed in a structure where they will enjoy rather more warmth than that afforded by an ordinary greenhouse or they are taken to a house we devote to salvias, bouvardias, double primulas, and cyclamens that are required for flowering early in the winter, and in this they make rapid progress, and soon become well furnished with their beautiful flowers. A few cuttings are struck annually to maintain a succession of young plants, and for propagating purposes we select the tops of thrifty shoots in March, by which time they have lost much of their beauty, and have to make way for other subjects. We, however, keep most of the plants three or four years, as we obtain more bloom from them than from yearlings. W. K.

COLD PITS AS AIDS IN PLANT CULTURE.

By J. C. CLARKE.

It is proper to begin by saying that in the following remarks I do not intend to imply that the majority of gardeners are ignorant of the value of pits and frames in the cultivation of plants. On the contrary, I know many good gardeners who make a profitable use of such structures. But there are the young and inexperienced, and the amateur gardeners, who form a rather long list of readers of these pages, by whom the use of such commonplace structures are not valued as their merits deserve. In saying this, I am only prompted by a sincere desire to aid them in the work of the garden; and I may assure them that I have not come to the conclusion suddenly that pits and frames are such valuable adjuncts to horticultural work. Thirty years of practice have taught me the value of these conveniences. There is indeed much more to be done with pits and frames than has been generally recognized.

In the month of September last I paid a visit to the garden of A. Edward, Esq., at Oaklands, Dawlish. This garden was not long since renowned for its valuable collection of orchids, but they are not now cultivated in large numbers; so the attention of Mr. Bedford, the gardener, is now more centred in the production of miscellaneous flowering plants. In the production of these he has made more than an ordinary use of pits and frames. He has employed them in the cultivation of such plants as bouvardias, poinsettias, cyclamens, and double primulas, and the healthy robust condition of the plants spoke plainly how well the treatment suited them. Of course a man of Mr. Bedford's ability as an orchid grower would stand in good stead when his energies were directed into another channel, and the results of his labours show that when pits and frames are skilfully managed they are not only a boon to the gardener, but the conditions they afford under proper management are eminently conducive to a healthy and luxuriant growth in the plants that are placed in them. It must of course not be forgotten that suitable plants must be selected for the purpose.

I was particularly struck with the leafy well-matured growth of a large number of plants of bouvardias which had been grown in frames all the summer, and were just then being taken into an intermediate temperature. Plants in such robust condition would in due time produce plenty of flowers of the very first quality. The cyclamens were on a par with the bouvardias: they were leafy and full of health, and even at that early date examination showed that they were bristling with the first crop of flowers. The double primulas that were also growing in frames were the pictures of health. The stout sturdy leaf-stalks plainly told that they had not been coddled in any way, and I could hardly understand how such grand plants had been produced under such circumstances. But there they were; there was no disputing the fact that they were to all intents and purposes bearing strong evidence that they had been managed by a skilful hand, under conditions that some cultivators would condemn as altogether unsuitable.

The cinerarias were enjoying the cool shade of a north aspect under some temporary lights, and I am sure I never saw plants so full of health at the same time of year. Mr. Bedford told me he hoped to get them when in flower four feet through, and from the progress they had made I am satisfied there would be no difficulty in his doing so. There was no coddling of the plants in this case; the soil in which they were growing was a rich fibrous loam, with a good share of rotten animal manure. The lights were merely put over them to protect them from heavy rain, but there was nothing to impede the free circulation of air about every part of the plants. That the treatment suited them was apparent from the large leathery leaves and their freedom from insects—not a spot or blemish visible in any part of the plants.

On inquiring how long the plants would be kept in their present position, the reply was as long as it was safe to do so. On the first approach of frost they would be taken to a cold pit or frame and there complete their growth, unless very severe weather set in, and then they would require to be placed out of the reach of frost.

The plants cultivated in pits and frames at Oaklands have been dwelt on longer than I intended, and yet I feel I have not been occupying space needlessly. I have, indeed, in my own practice proved the advantages of pits and frames as aids to successful plant culture, or I most certainly should have acquired some new and striking impressions from what I saw under Mr. Bedford's management.

To come to the principal object of this article, which is to endeavour to show how valuable pits and frames are for a great variety of purposes, I may begin by saying it is hardly possible to describe the uses to which a brick pit with well-glazed lights may be put. In the winter months it will afford sufficient protection for many half-hardy subjects, and in the spring months it can be utilized for propagating and growing on a good many kinds of bedding plants, provided a sufficient quantity of fermenting materials can be secured to fill up the space to a depth of three or four feet. In the summer, by skilful management, a brick pit may be converted into a stove for plants that are not too delicate. All that is necessary is to utilize the sun heat by shutting up early, and by damping the walls, and syringing the plants, and by careful attention to the ventilation. In plain language, a brick pit in the hands of a skilful man is invaluable, and an absolute necessity in all gardens of any pretensions. To name one more use for brick pits, how very valuable they are for the reception of many greenhouse plants during the summer, especially small or medium-sized plants of epacris, ericas, azaleas, and similar subjects. All these plants do much better in brick pits during the hot summer months than in ordinary houses. Plants that suffer from the attacks of red spider if grown in a greenhouse during the summer will not be half so liable to

this pest if placed in a properly-constructed pit. The reason of this is not difficult to understand. The air of a pit, if properly ventilated, is more frequently changed, and all the surroundings about the plants are altogether cooler, and therefore they are placed under more natural conditions. The artificial conditions under which plants are usually grown render them susceptible to attacks from many enemies.

The most striking example that I can mention of the superiority of a brick pit over an ordinary greenhouse is in the cultivation of the herbaceous calceolarias and cinerarias. It does not matter how much care is devoted to them when grown in a house; they cannot under any circumstances be grown so successfully as in a pit or well-protected frame. If the frost is just kept from them that is all they require. The explanation of this, I think, is plain enough. The cool bottom for the plants to stand upon which a pit affords, and the advantage of bringing the plants up close to the light, are of the greatest importance. Indeed, we have only to give them sufficient room to secure vigorous plants. Healthy growth is proof against all insects, and a clean robust plant rarely fails to produce a satisfactory head of flowers.

In our own management of these plants we make it a point to grow the cinerarias in pits until their flower spikes have grown up six or eight inches high. The calceolarias we do not remove out of the pits so long as we can exclude frost by extra external coverings. In such mild winters as that of 1881-2 they do not taste a bit of fire heat, and are only taken into the house when the flower spikes begin to rise. To make these remarks quite plain, I had better say here they refer to cold pits and frames only, and not to those that are heated in any way. Not but what heated pits might be made available, but when such is the case artificial heat should only be used during hard frost. As much as possible external coverings should be used, as offering more suitable conditions than the artificial warmth, whether from flues or pipes.

To name a few other plants that are better grown in pits and frames than in houses, we have Balsams, Cockscombs, Celosia pyramidalis, Globe Amaranths, Linum tryginum, Gesnerias, and Poinsettias.

But it must be understood that these remarks are only general; and in the case of tender plants pits and frames are only available during the summer months. For instance, gesnerias and poinsettias can only be grown in these structures for four months during the summer. But when judiciously treated in them they are much less trouble, and will make much dwarfier and more robust plants than when grown in houses where they are surrounded with a dry heated air and are a long way from the glass.

It would be impossible in the space of an ordinary article to particularize the treatment that each plant named requires. There must necessarily be something left for the cultivator to decide according to his own judgment and the requirements of each family of plants. But this much I may say in conclusion, that where pits and frames have not been brought into active service in the garden they should not be neglected any longer, as I am quite sure that if properly managed they will in a short time come to be regarded as indispensable conveniences for successful plant growing.

FLOWER FORCING FOR THE CONSERVATORY.

By W. BRADBURY.

ALTHOUGH the conservatory may be made fairly attractive throughout the winter and spring with plants that can be grown in the greenhouse and intermediate structure, there can be no question that to have a thoroughly good and continuous display of flowers during these two seasons, and to meet a demand for cut flowers for indoor decorations, the aid of the forcing pit is essential. The plants that may be had from the cool plant houses include camellias, cyclamens, primulas, tree carnations, cinerarias, salvias, zonal pelargoniums, winter-flowering fuchsias, heaths, and epacris; but they are not sufficient of themselves, and should when practicable be supplemented by azaleas, hardy and greenhouse, rhododendrons, lilacs, deutzias, hyacinths, tulips, and a few herbaceous plants from the forcing pit. More especially are the azaleas and rhododendrons necessary, not only for their distinct character, but for the rich and attractive colours they afford. Knowing what a valuable adjunct the forcing pit is to the conservatory, I have thought that brief directions for its management, and a few hints on the selection of plants most suitable for forcing, will be both interesting and useful at the present season.

It is well known to men of experience that flowers, like vegetables, may be forced with a fair measure of success, and it is equally well known that the work can be carried on more satisfactorily and economically in a substantial and efficiently-heated structure. The most suitable pit or house for a private garden in which the forcing of flowers is carried on to a moderate extent is a lean-to with a sharp pitch, and from ten to twelve feet in width. In this two beds can be arranged, one along the front and the other at the back, with a walk between them, and suitable accommodation can be provided for both dwarf and tall subjects. For example, the hyacinths, tulips, and astilbes can be placed in the front bed, and the shrubs of various descriptions in that at the back. The centre walk should be from thirty to thirty-six inches in width, the greater width being preferable, and the door should be in a line with the walk, to facilitate the passing in and out of the house of the hand and wheel barrow. I am induced to refer to the position of the doors from the fact that it is a general rule to place those of lean-tos at the back, and have a walk along the ends, where there are front and back beds, with the result that the barrows cannot be taken inside, and the back bed is reduced

in length by about six feet, which is an important portion in houses under thirty feet. Our two forcing houses, which are twelve feet in width, have walks a yard wide, and we can in removing the plants to the conservatory place them upon the hand-barrow inside the house, fix a piece of canvas to shelter them from the cold air or wind, and take them direct to the conservatory. But when the doors are at the back the barrow has to be loaded outside, and however quick and careful the men are the plants are injuriously exposed, and there is necessarily a considerable escape of heat from the house, in consequence of the length of time the door has to remain open. A lofty house is not desirable, but it must be high enough to allow sufficient head room for a tall man to pass along the central walk without stooping; or, to speak more exactly, there should be a clear headway of six feet six inches along the middle of the path.

An efficient heating apparatus is of prime importance, and it ought to have power enough to maintain a temperature of 70 degrees in severe weather without hard stoking. Sufficient power will be obtained with six rows of four-inch pipes; and it is a good arrangement to place a flow and return next the front wall, and similar quantities of piping along the side of the walk and against the back wall, as an equal distribution of heat is thus secured. Bottom heat may be provided by fermenting materials or hot-water pipes, as the cultivator may determine. But as a general rule it is preferable to combine the two, and in arranging the heating apparatus two rows of three-inch pipes should be placed under each bed, and low enough down to allow of forming a bed of leaves or other fermenting materials about thirty inches in thickness, the latter of course to be placed on a platform that is so constructed as to allow the heat to readily pass through. Slabs of slate or stone are the best, but when wood is employed spaces of two or three inches should be left between the planks, and be covered over with strips of slate or galvanized iron, as may happen to be available. Without some such provision as this but little of the heat will rise to the plunge bed when wood is employed in the formation of the platform.

When fermenting materials have to be depended upon for affording bottom heat, leaves or tan should be selected in preference to stable manure, as the heat from them is steadier and more lasting. A mixture of leaves and manure can be employed, and occasionally beds originally formed with leaves may, towards the end of winter, have a moderate proportion of well-sweetened manure added to them, for the purpose of reviving and sustaining the heat. These remarks apply with equal force to beds formed in a structure built in accordance with the directions given and in ordinary pits. When the beds are provided with pipes cocoanut-fibre refuse is a capital material for the formation of a bed in which to plunge the pots, but tan and leaves are superior to them, as they afford warmth that is beneficial in its effects upon the plants plunged in them. Whether beds with pipes underneath are formed with leaves, tan, sand, or refuse, it is essential to turn them occasionally and well mix the materials, for the lower part of the bed usually becomes in a comparatively short space of time so dry that the heat cannot pass through it. But it is a very easy matter to lift the plants out of the bed and turn it over. If the material has become very dry it should be lightly sprinkled, and it is always a good plan to pour a moderate quantity of water over the platform as it is made clear by the turning over of the bed. The greater proportion of flowering plants when in the forcing pit require a bottom heat ranging from 70 deg. to 75 deg., and when the heat does not exceed the maximum stated the pots may be plunged to their full depth. Should the heat rise beyond 75 deg., the pots ought not to be plunged to more than one-half their depth, and, as a further precaution against injury from an excess of heat, the plunging material should be packed loosely about them. The top heat, which must be carefully regulated, as great fluctuations are most injurious, should be maintained between 65 deg. and 70 deg., excepting in very severe weather, when the temperature may be allowed to fall a few degrees below the minimum stated without injury, if not with advantage. The maintenance of a proper degree of atmospheric humidity is of not less importance to the welfare of the plants than the regulation of top and bottom heat, and the matter must have due attention. Without entering into details more fully than the scope of this communication will permit, it is not easy to state exactly the degree of humidity most beneficial to the ordinary occupants of the forcing pit, and perhaps a few general observations will serve all practical purposes. In bright and frosty weather, when the air is clear and the fire necessarily kept burning freely, water should be poured on the paths and side walks two or three times a day, and the shrubs be syringed morning and evening. During dull yet dry weather it will suffice to use the syringe once a day and to pour water on the path twice, and in damp foggy weather the use of the syringe must be discontinued or employed but little, and the sprinkling of the pipes takes the place of pouring water on the floor. Very little ventilation will be necessary, but enough air must be admitted to maintain a sweet atmosphere, and it need hardly be said that advantage should, as far as possible, be taken of admitting air during periods of bright sunny weather.

In turning to the selection of the various subjects for forcing into early bloom it will perhaps be well to say that only those which can be readily obtained will be mentioned. Of the bulbs, the hyacinths are perhaps the most useful, but they should not be exclusively grown. A few of these bloom ten days or a fortnight in advance of the others, and ought, as a matter of course, to be selected for very early forcing. These are *Emilius* and *General Lauriston*, single blues; *Homerus*, *Emilius*, and *L'Ami de Cœur*, single reds; *La Tour d'Auvergne*, double white, and *Waterloo*, double red. After the middle of January it is not of much importance to select those enumerated, as any of the varieties will then come along at a rapid rate. The several varieties of *Duc Van*

Thol are the best of the tulips for forcing, as they very quickly flower after they are placed in heat. The *Paper White* and *Roman* are the two best of the narcissi for flowering at midwinter, and are most valuable for bouquets and for decorative purposes generally. With reference to the *Lily of the Valley*, it may be stated that crowns are preferable to clumps for very early work, and that crowns of German growth are better than those obtained from Holland. The crowns can be potted and taken direct to the forcing pit, as they do not make any new roots until after they have flowered. The herbaceous plants that can be specially recommended are *Astilbe japonica*, *Dielytra spectabilis*, *Solomon's Seal*, and *Spiraea palmata*, the first and second being the most generally useful of the four. For early forcing imported clumps of the astilbe should be selected, as, owing to the plants cultivated in Holland completing their growth earlier in the season than those grown in England, they respond more readily to the influence of artificial heat. The shrubs that can be specially recommended for forcing are *Rhododendrons*, *Hardy Azaleas*, including the varieties of *Azalea mollis*, *Deutzia gracilis*, *Lilacs*, *Double-flowered Peaches*, and *Plums* and *Roses*. In selecting azaleas and rhododendrons for forcing, preference must, experienced cultivators need not be informed, be given to plants that are furnished with prominent flower buds.

FORESTRY IN GREAT BRITAIN.

(Concluded from page 638.)

THE mountain vegetation commences at about 400 feet above the level of the sea; beyond this we find ourselves in the domains of the Scotch fir, the larch, and the birch.

In selecting the Scotch fir as the tree to be cultivated before all others in these regions, the promoters of forest plantation, during the latter half of the past century, showed no mean proof of their thorough appreciation of the natural requirements of the soil and climate of the Highlands, for not only have they ensured the success of their operations, but they have traced out the best line of action for their successors.

Equally fortunate were they in their endeavour to introduce the larch into Scotland; transported from the ice-bound summits of the Alps to a country where the climate is tempered by the softening influence of the Gulf Stream, this tree does not appear to have suffered to any material extent by so sudden a change of latitude.

When, in 1737, the Duke of Athole brought home, amongst his baggage, as a kind of remembrance of his travels in the Tyrol, the seeds which were sown in his park, and from which sprung the first larches in Scotland, he rendered a most valuable service to his country.

From a forest point of view, the results obtained by the cultivation of these two species (Scotch fir and larch) are truly marvellous. Any one who has seen the beautiful larch forests planted in 1815 on the banks of Loch Ortie and the vast stretches of Scotch fir covering the flanks of the Bruarwood Mountain, cannot fail to admit that the question of the replanting of the Scotch Highlands is practically answered.

The absence of the beech from all the forests of any standing is easily accounted for by the fact that it is only quite recently that the timber of this tree has become of any value for industrial purposes. For many cultural reasons, however, the beech is a tree of the highest importance, and we should strongly recommend its introduction into all future plantations, and it is, moreover, as much indigenous as the Scotch fir and birch. In many cases even it might with great advantage be substituted for this latter, or, better still, mixed with it.

Considering, too, the wonderful success that has attended the introduction of the larch, we think that a similar attempt might be made to acclimatize the *Pinus montana* in the peat mosses.

We were also struck by the monotonous regularity in the height and age of the trees, unmistakable signs of their artificial origin, and want of methodical management. The forest, here left to its own devices, continues growing just as the hand of man has planted it; the undergrowth is constantly grazed down by the sheep and cattle, and nature, in spite of the immense resources at her disposal, is quite powerless to modify the work of the planter or repair the errors committed by woodcutters.

When, under such circumstances, the time arrives for the trees to be cut down, or should they be uprooted by a hurricane, the forest disappears in its entirety, owing to the total want of young growth which is necessary as a link between the old forest and the new one which ought to be created. Such, at least, appears to us to be the case in all the forests that we visited in the valley of the Tay and its tributaries, and further north, near the foot of the Cairngorm.

It is an established fact, beyond all contradiction, that on any soil, whatever its geological origin, a complete covering of forest vegetation will kill the heather as soon as the trees reach the age of between thirty and forty years. Suppose, then, that 120 years be the term fixed for the existence of the trees in any portion of the forest, and that the trees of 100 years and over are reserved, there would still be one-half of the forest always open to the sheep, and the other closed. But, at the same time, it is certain that this open half, owing to its superior quality, will furnish pasturage for at least twice as many head of cattle or sheep as the same quantity of moorland.

Although, under ordinary conditions, the regeneration of a forest will be sufficiently assured by the exercise of a discreet control over the grazing, something more than this must be done if it is desired to turn the land to the best possible account. It is, therefore, a matter of regret that nothing has been done to place forest management in Scotland on a sound economic basis.

The productive powers of the soil and of the climate have been made use of by able and intelligent planters, who have thereby enabled nature herself to accumulate a considerable store of timber; but all this wealth is exposed to the carelessness of some and to the ignorance of others, until the hand of a forester manages it properly, and places it on the only sound economic principle of all agricultural and forest property—a constant annual revenue, and a constant improvement in production.

No doubt people are often frightened by the long names and big words they find in treatises on scientific forest management, but they may very well neglect the text if only they will adopt some of the principles which they contain. Let the owner of a forest, after having made a careful and detailed inspection of it, divide it off into blocks or compartments,

so arranged that they should be uniform as regards conditions of soil and of planting, and then proceed to count and measure all the trees of three feet girth and upwards, classing them in categories according to their diameter. He should then open a debit and credit account for each compartment, placing on the debit side the actual volume of the standing crop, and on the credit side the volume of timber removed at each successive felling. The register should always be consulted before undertaking any forest operation, and when the annual fellings fall due it will show which compartment can best support the withdrawal of timber, and which require to be left untouched. Moreover, the balance-sheet will render an exact account, favourable or otherwise, of the condition of the forest.

Ten years of such systematic treatment would form in itself the basis of a regular forest working plan, and the doctor's proscription would no longer frighten the patient with his long words.

Windsor Park is indeed one of the most magnificent fields for the study of forest botany that even the wildest imagination could conjure up. Here may be seen, growing singly or collectively in clumps, specimens of all the finest trees, native or exotic, which exist in Great Britain; and, since care has been taken to keep an exact record of the age and origin of each plantation, the forester would be enabled to follow out in detail studies of the highest interest and importance regarding the growth of the principal forest species. It would be more difficult to do the same with regard to their longevity; for one is led to think, in looking at some of them, that, in this hallowed ground, trees never die of old age. One sees in these relics of the past that religious respect for things so characteristic of Englishmen, when even the most violent revolutions could pass over the country and yet leave these monuments and these trees intact.

New Forest.—For many centuries the New Forest has been a prey to commoners, who use up its resources without either method or control. One may see there the steady onward progress which is made by the heather; and although it is not perhaps so quick under the feet of the almost wild ponies and cattle as under those of the sheep, yet it is none the less sure.

The sole remedy for this state of things was to restrict the commoners to certain defined localities, and that could only be done by sacrificing a portion of the forest to save the rest. This is, in fact, what was done about twenty years ago; but the sacrifice has indeed been a heavy one, for the reservation of some 14,000 acres has cost the abandonment of 49,000 more. The part which has been freed, however, is sufficiently extensive to constitute some day a respectable forest, whilst the part given up is hurrying to its destruction in a manner deplorable to behold, and, before very long, there will be nothing left but a worthless barren heath.

Without contesting the marvellous beauty of some parts of the New Forest, so dear to artists and lovers of nature, we are bound to say that before long it will not be here that a professor of sylviculture, desirous of teaching his science, will choose to pitch his tent.

Forest of Dean.—The present Forest of Dean occupies the site of the old forest of the same name, which formerly covered the whole of the plateau between the estuary of the Severn and the valley of the Wye ("Dean," "dên," signifies "forest" in the old Celtic language). The old forest has disappeared within the last few centuries, owing perhaps to the demand for charcoal and mine-props for the local industries; if, however, we were not afraid of being accused of being prejudiced, we might say that unrestricted pasturage may have had something to do with the disappearance. It is on these rules that the new Forest of Dean has been created; in less than a century, more than 16,000 acres of the original 22,000 have been replanted. The older plantations are generally of pure oak; the beeches, chestnuts, and birches form but a small percentage of the trees. Scotch fir, spruce fir, and larch are generally only found in the plantations made during the last thirty years, or in bad peaty portions. The state of vegetation is generally good, varying, however, with the quality of the soil, but indicating in every point the artificial nature of the forest.

We may take this opportunity of remarking that a plantation of "broad-leaved" trees (oak, beech, &c.) takes a much longer time to establish itself than one of the "needle-leaved" trees (conifers, Scotch fir, larch, &c.). In Scotland we saw the most magnificent plantations of larch and fir, whilst in the Forest of Dean the plantations of oak were always more or less dwarfed in appearance. The cause of this is that oaks furnish the soil with much less vegetable manure than the coniferous trees; and again, in an oak plantation there is a marked absence of undershrubs and spontaneous ground vegetation, which, by their organic remains, tend to increase and improve the surface soil. It is rare also that a plantation of oaks, on a soil which has been long unoccupied by forest vegetation and is but moderate in quality, succeeds well during the first generation; it is only at the second generation that the trees acquire their normal development.

At present, while the trees are yet in their youth, the only cultural operation that can be undertaken are the periodical "thinnings," and these are here conducted with great skill. There is, no doubt, however, a future in store for the Forest of Dean, thanks to the workmanlike manner in which it is managed, and to the laws regulating the pasturage, which date back to the time of Charles I.

In answer to the question whether the immediate foundation of a Forest School in Great Britain is possible, M. Boppe went on to make the following recommendations: After making every allowance for the great fertility of the soil in Great Britain, we feel certain that in many districts more than one of the forests which were cleared some time back would now be jealously preserved by the same proprietors who formerly cut them down to satisfy their pressing wants.

It must also be borne in mind that the British Empire is not confined to Great Britain and Ireland, and that, by reason of her immense possessions, England is, perhaps of all nations in the world, the one most richly endowed with valuable forests. It is by hundreds of millions of acres that we may reckon the forests of Canada, India, and Australia, New Zealand, and Cape Colony, not to speak of those in the West Indies and Borneo.* All these natural sources of wealth are worked by British enterprise and British capital, and, consequent on the present wonderful development of commerce throughout the globe, it is a matter of importance to every civilized nation that this vast accumulation of forest riches should not fall into the hands of ignorant persons, or be squandered away, regardless of the future.

For these reasons the establishment of a Forest School in England becomes a matter of primary importance.

The science of forestry is, however, a science of observation, based upon

* The total extent of the forests in the British possessions is 340,000,000 acres of timbered land.

facts which must be studied both from a practical and theoretical point of view. It is therefore absolutely necessary that a Forest School should have attached to it a forest which has for some time past been under scientific management, serving, so to speak, as a natural laboratory for experiments, and without which the best theoretical teaching in the world would be of no avail.

It is necessary also to take measures for preparing the public mind to regard the science of sylviculture as an additional means of developing the national resources, and to take steps for the gradual creation of accessory forests.

This accessory forest must necessarily be incomplete at first, but would be perfected in time; but the essential point is that it should be placed under the absolute control of the officers of the school. This can only be done by choosing a State forest. If it should be considered desirable also, in order to render the teaching more complete, the State ought to purchase or lease in Scotland a forest suitable for the purpose.

We would also suggest the founding Professorships of "Forest Economy" at two of the great public seats of technical instruction. One of these might be instituted at Cooper's Hill for England, the other at Edinburgh for Scotland.

The professors should be selected from among the young men who have received a thorough forest education on the Continent, and have had eight or ten years' practical experience in India. They should publish from time to time a series of articles in the leading agricultural and forest journals, in order to influence the landowners in favour of a systematic management of their woodlands, and to prove to them that uncontrolled pasturage is the certain destruction of forests, and that, in the long run, the timber furnished by forest land is of greater value than pasturage or game.

In conclusion, we beg to submit the following recommendations:—

- 1st. That a National Forest School be founded in Great Britain.
- 2nd. That Professorships of Sylviculture be instituted at Cooper's Hill and at Edinburgh.

Such are the conclusions at which we, in conjunction with our travelling companions, Messrs. Reuss and Bartet, have arrived, and we feel that an apology is due for their length. This is really due to the excessive courtesy of our hosts, who, jealous of the success of Jules Verne's hero, who made the tour of the world in eighty days, were determined to make us traverse, in less than three weeks, more than 300,000 acres of forest land situated in the most opposite parts of Great Britain, from Caye Duncanshy to St. Catherine's Point.

FLOWERS AND INSECTS.

PLANTS bid for the services of insects. They display showy colours to attract them from a distance, and when individual flowers are small we often find them massed together, so as to produce a greater effect by their grouping, as in forget-me-not. Some flowers, as the calceolaria and the pea tripe, present convenient landing stages for the insect to alight upon before plunging into the interior of the flower for the honey of which it is in search. But though insects are invited, and the invitation is pretty general, it is not every flower that cares to be visited by every insect. Insects below a certain size would be unable to do the work required by some flowers, or, again, they might travel in directions in which, however delightful such travelling might be to the insect, it would be productive of no useful results for the flower. Such flowers are often furnished with a palisade of stiff hairs, which present an impassable *chevaux de frise* to the undesirable insects which have to be kept out, and at the same time limit the choice of direction for those of a larger size. In the showy nasturtiums of cottage gardens these defences are well marked. In some plants these hairs are turned back like sharks' teeth, so that it is easy to get in, but not easy to get out without a deal of running about, which ensures some of the pollen coming in contact with the body of the insect. Bright streaks converging down the petals towards the interior of the flowers are often noticed—in mallows, for instance—and the minds of botanists were long exercised in conjecturing what was the use and object of these lines. For we may lay it down as an axiom that there is nothing in nature without its definite use and object. Sir J. Lubbock has conjectured that those brilliant lines of colour standing out in marked contrast to their fainter backgrounds were designed to guide insects in their search for honey. By following these attractive streaks they would certainly find their way to the honey in such a manner as to disturb and carry off pollen, or else bring their already pollen-dusted body in contact with a pistil. Among the insects whose visits are unwelcome to plants ants hold a foremost place. They are very fond of honey, and will go a long way to get it, but having smooth bodies they cannot carry off pollen, and their visits are by no means encouraged. As a defence against them many plants, as the Nottingham catchfly, have glands which secrete a fluid which flows over the whole or part of the stem, and makes it too slippery or too unpleasantly sticky to be climbed. The way in which defences are arranged for plants is very remarkable. The bristly defensive spikes of the Carline thistle are well known, and prevent the nectaries of its flowers becoming an easy prey. It is noteworthy that the usual direction in which plant bristles or spikes point is downwards, so as to present their acute tips to the adventurous but unwelcome insects climbing up from the ground. When the stems of plants are smooth or merely softly hairy, the calyces or outer floral envelopes are often armed with reflexed teeth or spines, as in the knapweeds, which must present a very disagreeable, if not a quite impassable, barrier to the ants which may toil up so far. Some plants seem to be paired off with certain insects. The necessity of a special insect for the fertilization of flowers is well illustrated by the fate in this country of one of the liliaceæ, an American plant known by its Indian name of the *yucca*. It grows well and it flowers freely, but it never produces any seed. It is unable to seed owing to the absence of a little moth, which alone performs for it the service of carrying about its pollen from plant to plant. In Madagascar an orchid was found with a nectary, or honey tube, a foot in length, and Dr. Darwin conjectured from this that a moth would be found with a proboscis long enough to reach down it. At that time no such moth was known to exist. Since then, however, a moth has been found with a proboscis of about that length.—*Month.*

WHO WOULD BE WITHOUT LAMPLOUGH'S PYRETIC SALINE? It forms a most invigorating effervescent beverage by the simple addition of water, and if taken according to the directions is the best preventive and curative of many diseases. It does not contain magnesia or any earthy matter calculated to produce gall-stones or gouty deposits. Prepared solely by H. LAMPLOUGH, 113, Holborn, London.—[ADVT.]

THE NORTH CHINA BARBERRY.

THE North China Barberry, met with by Lord Macartney's embassy, and introduced into this country in the year 1800, has but recently obtained suitable recognition as an ornamental plant, and by reason of its perfect hardiness well adapted for association with the most useful flowering shrubs in the English garden. It has been reported on as honourably placed in *B.M.*, 6,573, to which we are indebted for our figure, which, it will be seen, brings this species into close relationship with the common barberry, *Berberis vulgaris*, from which it differs chiefly in being more light and elegant, more profuse in flowering, and making a greater show of its small oblong scarlet berries. In describing this plant, which is the *Berberis sinensis* of De Candolle and Loudon's



BERBERIS SINENSIS.

THE COLCHIAN IVY.

A CORRESPONDENT, who has not favoured us with his name, has forwarded leaves and flowers of the Colchian Ivy, *Hedera Roemeriana* of gardens, *H. coriacea* of the Ivy Monograph. We have engraved the subject as likely to interest many of our readers, and to serve also as a reply to the person to whom we are indebted for it. The very rare event of the flowering of this fine ivy gives a certain degree of importance to the present figure, which, though faithful, conveys no adequate idea of the exceeding beauty of the inflorescence of this plant, supported as it is by a truly magnificent leafage.

"Arbor: tum" (i. 304), Sir Joseph Hooker remarks that it "is the most graceful of all the numerous species of Barberry cultivated at Kew, the branchlets from the base to the crown of the plants weeping and being loaded with blossoms in the spring. The flowers are, however, the smallest of the genus known to me, and the berries are smaller than those of *B. vulgaris*. I have examined native specimens collected in North China by Bunge, Père David, and Mr. John Ross, which display an amount of variation only too common in all species of the genus; some of the specimens having erect branches and pendulous racemes, and others shortly pedicellate flowers; but all agree in the very small flowers and the general shape of the foliage."

This barberry forms an elegant bush four to six feet high, and is likely to compete severely for public favour with the beautiful *Berberis* Darwin.

CEPHALOTUS FOLLICULARIS.

AMONGST the different plants that form appendages more or less resembling that well-known homely utensil a pitcher, there are none more interesting than this New Holland species. Although, in common with the *nepenthes* and *sarracenias*, it bears the popular name of Pitcher Plant, it is structurally very different to either of these, inasmuch as the pitchers, instead of being an extension of the leaf blades as in *nepenthes*, or the leaf wholly hollowed, as in *sarracenias*, are produced on stalks springing from the stem of the plant, totally independent of the leaves. There is one thing common to all these pitcher plants, namely, that they are all insectivorous, that is, they secrete a sweet liquid which allures insects to enter their pitchers, once inside which they are doomed to destruction through inability to

escape, on account of the teeth-like appendages with which the orifices are furnished. It is not here necessary to enter into the vexed question of what part in the economy of nature these vegetable insect traps play, whether they are formed for the destruction of the insects, or that the plants being carnivorous the insects act as food for them. Individually, I may say that I am strongly impressed with the latter view, a conclusion I have come to through lengthened experiments with these and other plants which attract, kill, and retain the bodies of the insects.

It is well to say at the outset that not every one who attempts the cultivation of *cephalotus* succeeds, and moreover there are some who can induce the plant to grow, and even increase freely for a time, after which it dwindles away. This I attribute to a mistake, by which it, in common with not a few other things—many orchids, to wit—are destroyed, namely, subjecting them to too much heat, which for a

after which they were kept continuously in a greenhouse, where hard-wooded New Holland plants were grown, with the bell glass still over them, but never shut down close. Under these latter conditions the pitchers grow to a large size, almost two inches long, and, with the lids, assume a blackish red colour, almost like that of old Spanish mahogany. There are two things to be specially kept in view by those who ever think of keeping *cephalotus* in a healthy state: it is a swamp plant, and never must be allowed to get dry at the roots, so as to cause it to flag or shrivel in the least, for if this occurs it rarely recovers. Another matter is, there must be continual watchfulness to see that it is clear from aphides, which have a great liking for it, and which, establishing themselves on the inner side of the foliage, lay concealed until they have sucked all the juices from the leaves, causing them to shrivel and die, and doing all but irreparable injury. In the case of this plant there is no excuse for



THE COLCHIAN IVY.

time induces over-vigorous growth, the outcome being exhaustion, ultimately ending in their prematurely dying out. Neither is this to be wondered at. The plant is a native of New Holland, and although indigenous to the warmer districts of that part of the world, it is not adapted by nature to bear with impunity the close, confined, sweltering atmosphere of a house wherein are grown the hottest Indian orchids, or other plants from the same region, especially when in addition it is not unusually kept closely shut down under a propagating glass, though under such conditions of heat, if stood close up to the light, as when placed on a shelf within a few inches of the roof, it not unfrequently thrives well for a considerable time. The best plants I have ever had or seen were grown in their early stages until they had attained something like their full size in a somewhat cool intermediate orchid house, with a bell glass over them, but not shut down closely;

these parasites ever being allowed to injure it, as in two minutes the bell glass, by the aid of an ordinary tobacco pipe, may be charged with smoke, repeating the dose until the aphides are destroyed.

The plants when strong produce offshoots freely, which, when they have formed several leaves, may be severed from the main stem and placed in small pots, kept moist, shaded, and closely covered with a propagating glass in an intermediate temperature they will soon root. Propagation may be effected at any season, but, as with most other things, spring or summer is the best. A mixture of half sphagnum chopped fine and half fibrous peat, with a little sand and a few small potsherds added, is the most suitable material in which to grow it. The plants should be grown in small pots, always kept plunged in others considerably larger containing a good body of sphagnum, compressed quite solid so as to retain moisture, keeping the whole always

damp. If the drainage, both in the little pots in which the plants are grown and the larger ones these are plunged in is perfect, there is nothing to be feared from over-watering, as the moisture can get away. As they become strong, in addition to the small suckers produced on the main stem, they form several crowns, which can either be divided or, what is better calculated to produce a handsome specimen, allowed to remain, in which case they will make a complete circle of their exquisitely-formed pitchers individually larger than when the plants are subdivided. In repotting care must be taken not to mutilate the roots. During the winter, as a matter of course, less moisture is needed, but even then the material in which the roots are placed should never be allowed to get dry. With attention as above indicated to their requirements, and not kept too hot, they will go on for years in a healthy condition, annually giving an increase from the suckers they produce.

R. Q.

THE BEST FRUITS FOR A SMALL GARDEN.

By the aid of your paper, for many years I have enjoyed my garden and made it immensely helpful to my domestic comfort. We follow all your advices and directions as nearly as we can in the cropping and general management, and also in the affairs of the poultry yard and apiary. If I were given to literary communications, I could often, I think, assist others who, like myself, have to pay for their experiments, and are not always sure as to the ground they tread on, unless they happen to have definite guidance from you adapted exactly to their circumstances. It has often been my wish to do something in return for the benefits you have conferred on me, but it always appears to me, as probably to many others who are like-minded, that your able and experienced writers will do the very thing we purpose, and with greater promptness and business ability. But I have at last determined to try my 'prentice hand, and my object will be to assist amateurs who require fruit and have but a small space in which to cultivate it. The reason of my selecting this subject is that I am now forming a new and model fruit garden, partly after the plan of the garden described in your publication of June 5, 1875, but modified to suit my own convenience, and planted with a selection of fruits that I consider the very best for the purpose. Your plan is a proper parallelogram, but mine cannot be, because the shape of the ground will not allow of it. But my advantages are many, and having broken up several pieces of grass land that have answered admirably for both fruit and vegetables in the course of the past twenty years, I do not doubt but my new piece will justify the labour I shall bestow upon it.

The situation of the garden is somewhat exposed to the east, and it is too near London to enjoy pure air. Nevertheless, much agreeable experience has taught me that proximity to a populous region does not greatly prejudice the horticulturist, provided he has a somewhat open situation and will cut his coat according to his cloth. My new garden has been fenced in and planted with a hedge of quick, and we are laying out the ground in quarters so as to combine with fruit growing a few vegetables that require permanent situations. Some old asparagus, seakale, and rhubarb beds will in due time be broken up and put under rotation culture; but we shall first establish beds to continue the supply by devoting a suitable proportion of the new garden to the purpose. These beds I have marked out in lengths running through the piece nearly due north and south, with broad spaces between for fruit trees, the plantations of trees being thus separated by vegetable quarters that will facilitate the circulation of air and render the garden more interesting and manageable. My man declares that we shall never want so many plots as I have staked out for such things as asparagus, seakale, and rhubarb, but I tell him that we can begin with one or two beds of each, and grow early potatoes and other crops that require fresh ground on the other pieces, until we see our way to some other uses for them. At all events, we shall want new strawberry grounds soon, so as to put the present strawberry plot into rotation cropping, and one or two of the long open strips of fresh soil full of turf will, I am quite sure, pay well when put down in strawberries.

The trees will consist of standards and dwarfs, in the proportion of about one of the first to ten of the second. I shall not plant a single variety that I have not already proved to be suitable to the district and to my tastes and fancies. To destroy trees is a painful business, and I have patiently permitted many in the old garden to remain, although they produce such poor crops or are fruitful only at such long intervals that I should profit by converting them into peasticks and firewood. It is a grand thing to begin well, and my plans are laid for a really profitable garden, and that, after all is said and done, is the most enjoyable of all gardens. We have long since given up systematic pruning, but we use the knife to keep things in order and regulate unruly growths. As for pruning to promote fruitfulness, I agree with the new school of non-pruners, that it is sheer folly. I have, however, practised occasional careful lifting and replanting of trees that appeared too vigorous to become fruitful, and found it answer admirably. In doing this we prune in slightly to make the tree more manageable, removing only the willow rods and other small sprays, and we take care to mutilate the roots the least possible, for I am persuaded that, however carefully a tree may be lifted, a considerable portion of the far-searching roots must be sacrificed in cutting round the trench, and this is as great a punishment as the tree can bear. I have seen the roots barbarously chopped and hacked as though a tree should live without them, but I have never seen any good result from severe root pruning, and the mere act of removal, in my opinion, effects root pruning enough, and is the best course to pursue.

THE APPLES that I have determined to plant for plentiful supplies are: *Stirling Castle*, K., early. *Alfriston*, K., late. *Beauty of Kent*,

K., late; as a standard this variety makes a fine show, and has long been one of my favourites. *Keswick Codlin*, K., early. *Dutch Mig-nonne*, K.D., late; answers with me admirably as a standard. *Fearn's Pippin*, K.D.; a very useful late fruit; forms a beautiful standard. *Golden Pippin*, D.; this gem of the apple tribe makes a perfect standard, of a half-weeping character, and bears abundantly. By *Golden Pippin* I do not mean Franklin's, or Hughes's, or Small's, &c., &c., for I have tried all these, and found none so good as the real old original *Golden Pippin*, of which, some thirty years ago, I obtained trees of Messrs. Fraser, in the Lea Bridge Road, that have become the most picturesque and fruitful apple trees I have ever seen. I have had to discover a mode of selling my fruit of this variety, for the quantity became a trouble to us. *King of the Pippins*, D., mid-winter; a fruit more notable for beauty than flavour, but it cooks well and keeps until February; it is one we cannot do without. *Cox's Orange*, D., mid-winter; a capital bearer in bush form, and if room for a dozen free bushes can be found they will probably prove as profitable as any dozen trees in the garden. Since I have become familiar with this excellent apple I have put the Ribston out of my list, for it is uncertain and subject to canker. *Lord Suffield*, K., early; a grand conical fruit; the tree bears well and is always healthy. *Boston Russet*, D., late; a delicious fruit, and one that rarely fails of a crop. *Dumelow's Seedling*, also known as *Wellington*, K., late; a very serviceable apple.

I have discarded as unprofitable near London, Ribston, Blenheim Alexander, Astrachan, Calville, Newtown, French Crab, Gilliflower, Lemon Pippin, Nonpareil, Quarrenden, Sturmer, and Waltham Abbey, which are particularly fine varieties in favourable situations. A mere collection is no part of my plan, for it is fruit I am aiming at, and those I have selected for planting I feel confident will answer my purpose.

PEARS require to be considered from the personal point of view. We must have apples, for they are as necessary as bread. But pears are matters of taste—some eat them and some do not. I have often repented my early lavishness in planting pears, for the returns have been by no means satisfactory, and when we have good crops we are much troubled what to do with the fruit, much of which is wasted. I have selected some nice dwarf trees of the following: *Jargonelle*, which ripens in August and September. *Louise Bonne of Jersey*, a handsome pear, ripening in October. *Knight's Monarch*, which I find very hardy, and quite delicious at the turn of the year. *Passe Colmar*, also very hardy, and one of my best wall pears; it ripens just in advance of Christmas. *Josephine de Malines*, one of the very best, and makes a nice pyramid; January to March. *Autumn Bergamot*, a pear that appears to please all palates, although it is peculiar in flavour; it ripens in September and October, and does not last long. *Beurré de Capiaumont*, a capital autumn pear, and productive as a standard. *Bishop's Thumb*, a fine pear for a standard; the fruit is grand in October and November. *Althorpe Crassane*, a fine late autumn pear, and makes a fine tree on grass; this and *Swan's Egg* I have in grand form in a grass paddock, and they afford much gratification. *Seckle*, a very useful pear, delicious in flavour, and the tree prolific; unfortunately it ripens early, when there are so many other good pears. *Easter Beurré* requires a wall near London to do it justice, and the two best pears for an east or west wall are in my opinion *Easter Beurré* and *Passe Colmar*; but I have had many good crops from pyramids of *Easter Beurré*, and as the fruit does not ripen until February, and by management may be prolonged to April, this variety is of special value. *Winter Nelis*, a fine winter pear, and a capital bearer as a pyramid.

From my own select list I have thrown out many fine pears, such as *Marie Louise*, *Chamontel*, *Gansel's*, *Beurré Diel*, *Beurré Rance*, *Bon Chrétien*, *British Queen*, *Duchesse d'Angoulême*, *Glou Moreeau*, *Thompson's*, and *Windsor*. These all appear to me to be unsuitable for a small suburban garden; at all events, they have not satisfied me to the extent of those I have recommended.

PLUMS are nearly as important as apples and certainly are much more important than pears. But as we cannot keep the fruit for any length of time we do not need many varieties. As regards a few of these, however, it may be well to plant largely—say, a dozen or so bushes of a sort—but of course with due regard to the requirements of the household. Some years ago I planted a row of *Rivers's Early Prolific* to form a boundary fence between a large bowling green and a private cart road, and they soon became so enormously productive that we were much perplexed about the disposal of the fruit. But we hit upon a plan that answered perfectly. We arranged with friends to take them in quantities, not less than a bushel being delivered to any one person, and the price to be determined by your market report for the week in which they were delivered. And this thing grew into what we called the "plum party," that is to say, at the end of July or the first week in August, when these plums had to be gathered, our friends assembled, and we had a jollification, and the theory was that they came to buy plums. But the list is wanted, and I begin with the aforesaid *Rivers's Early Prolific*. It is a medium-sized purple plum, suitable only for culinary purposes. It makes a vigorous diffuse bush and requires no pruning. *Victoria* should be ranked second in merit. It is a handsome red plum, of great value in the kitchen and allowable in the dessert, although no fastidious fruit eater will care for it. This makes a grand standard, and may be regarded as a proper thing to adorn a spacious old-fashioned lawn. In this age of froth and tinsel, a plum tree on the lawn is so dreadfully heterodox that I fear you will exclude me from the committee of taste you occasionally discourse upon. *Belgian Purple* is good enough for the dessert, but is properly a culinary plum. *Gisborne's* is the plum for quantity, and it makes a fine standard. But if you do not require a large supply of plums do not plant it, because it is of poor quality. *Golden Gage* and

Green Gage both do well with me, and I consider them first rate for a garden near London. The *Old Orleans* also does well near London; it is a most productive and useful plum. *Jefferson's* will suit the fastidious. I have it as a wall tree and as a free bush, and it answers well both ways. It is a first-class dessert fruit, ripening in September. If I could dare to add another, it would be *Mitchelson's*, a wonderful bearer; but I suspect I have named too many already. The consolation is that if we cannot eat them fresh we can preserve them. It is a fact of some importance, however, that some of the most austere and unwelcome of plums as table fruit make the very best of plum jam, their austerity becoming piquancy when sobered by sugar and cooking.

From my list I have excluded *Belle de Septembre*, *Coe's Golden Drop*, *Guthries Gage*, *Damson*, *Early Favourite*, *Goliath*, *Magnum Bonum*, *Impératrice*, *Mirabelle*, *Pond's*, *Kirke's*, *Washington*, and *Winesour*, all of them famous plums that have not answered my expectations.

CHERRIES do not thrive with me, and from observations made in various localities I am satisfied one must be ten miles from London at least to make a profitable cherry garden. However, my opinions are of not much consequence. I can state as a fact that I can grow five sorts of cherries to my satisfaction, and they are, *Belle Agathe*, which makes a handsome standard and bears well. *Black Eagle*, a very rich cherry, and early; makes a prolific and handsome standard. *Kentish*, a well-known early cherry of no quality, but very useful, and half a dozen bushes will pay well anywhere. *May Duke* as a bush on the Mahaleb stock is first-rate; I net my trees, and let the fruit hang as long as it will. *Morello* is simply the cherry for a suburban garden. It never fails, no matter whether it is in the form of a bush, an espalier, or a clothing for a north wall; and if you never prune it is no consequence, only that you must sometimes put it into order a little. For tarts, for preserves, for br— but let that pass: the world is wicked enough without having its stimulants delicately flavoured.

From my own list of cherries I can only throw out the *Bigarreaus*, the *Black Tartarian*, the *Purple Guigne*, *Florence*, and *Werder's*, as I have not at any time speculated largely in cherries.

PEACHES AND NECTARINES.—On my east and west walls—I have no south walls—the best of the peaches are, *Noblesse* and *Royal George*. If I were to plant any more, which is not likely, I think I should speculate in *Barrington*, *Chancellor*, and *Violette Hâtive*. The nectarines that suit me best are, *Pitmaston Orange*, *Violette Hâtive*, and *Elurge*.

For my new garden, I have arranged for the margin of one walk cordon apples, all to be *White Calville*, from which I expect a crop about once in four years. The other walks will be margined with currants and gooseberries, which in private gardens should always be near the walks, because the fruits are so often wanted fresh and fresh.

J. H. BENSON.

The House, Garden, and Poultry Yard.

AUTUMN.

THERE is a fearful spirit busy now:
Already have the elements unfurl'd
Their banners: the great sea wave is upcurled:
The cloud comes: the fierce winds begin to blow
About, and blindly on their errands go,
And quickly will the pale red leaves be hurled
From their dry boughs, and all the forest world,
Stripped of its pride, be like a desert show.
I love that moaning music which I hear
In the bleak gusts of Autumn, for the soul
Seems gathering tidings from another sphere;
And in sublime mysterious sympathy,
Man's bounding spirit ebbs and swells more high,
Accordant to the billow's loftier roll.

BRYAN WALLER PROCTOR.

THE HOUSE.

DURING periods of warm winter weather, such as are sometimes experienced at this season of the year, there is great danger of cage birds being kept too close and warm, whereas perhaps plenty of fresh air and very few wraps would be as good for them as for bipeds that are without feathers. It is of great importance at this time of year to promote, so far as may be safe, the hardiness of all domestic pets. It should be borne in mind by those who have them that they are not far separated from ourselves in their requirements and habits. The very same causes that promote phthisis in humanity will promote it in cage birds; bad air, close stoves, unseasonable warmth, are the causes often of the afflictions that cause birds to fail as human beings do. All the favourite cage birds are without exception nearly hardy, and should have plenty of fresh air during the prevalence of mild weather. A temperature of from 50 deg. to 60 deg. is sufficient for them, and therefore to keep them in rooms where there are fires is really injurious and tends to consumption. And having mentioned covering up at night, we feel bound to say that we do not approve of the practice at any time. The practice of covering them up is injurious, for it certainly robs them of air and is calculated to soften the constitution. As regards air, it may seem to many that the breathing of a bird is a matter of comparatively small consequence. But the people who cherish such notions must submit to be told that the temperature of a bird is higher than the temperature of a man, and this is a question of breathing *pur et simple*. But there should be no exposure at any time of any bird to what we call a "draught." About nine-tenths of all the parrots and cockatoos that throw off their feathers do it because exposed to draughts. Why this should happen we are scarcely prepared to say. It is enough to deal with the fact and the lesson it teaches. Give your big birds enough substantial food, and let them have light and air without draughts, and you will have them always healthy and cheerful and companionable. They are so hardy that when they go wrong the event is a real disgrace to their owners. And a very large proportion of the smaller cage birds are equally amenable to simple management.

THE GARDEN.

BEDDING PLANTS must not be forgotten at the present moment; they should in fact be examined rather frequently, and all dead and decaying leaves be removed. Short of actual frost the more air the better, and if air is wanted by any of the plants apply it on a fine morning, so that the superfluous moisture may become dry again before a change of weather.

CARNATIONS and PICOTEES must have abundant ventilation and very careful watering. If any appearance of fly, which is easily detected on the top grass of the plant, fumigate twice.

CINERARIAS for exhibition to have a shift now into the blooming pots, or they will bloom prematurely through becoming pot-bound. Give them the fullest possible amount of light, and keep them a good distance apart.

CUCUMBERS to be started now for the first batch to plant out next month. Sow in pots singly, and grow them on liberally. A bed of manure is the best place for the seed-pots, and the soil in the pots half-rotted turf, well chopped up with half sweet leaf-mould.

GREENHOUSE to be kept as dry as possible, and scrupulously clean. Plants in a soft state to be watered with great caution, but none to be allowed to flag for want of water. On fine bright mornings use a little fire heat, so as to allow of a free ventilation for a few hours.

HYACINTHS, TULIPS and other bulbs remaining out of the ground may still be planted, and they will bloom very soon after those planted a month or six weeks ago. Plant large bulbs six inches deep; small ones three to four inches deep.

MUSHROOM HOUSE to be kept as near 60 deg. as possible, and to have plenty of atmospheric moisture. A steady temperature will greatly prolong the bearing of the beds, but if they are nearly at the end of their productiveness make up fresh beds at once for succession. At this time of year it will be necessary to make a new bed every month to ensure a constant supply.

PELARGONIUMS must have a little fire heat if the house is damp, and the temperature should be kept nearly to an average of 45 deg. Nice work now when the weather stops outdoor movements to train them into form for blooming, and stir the surface of the soil in the pots, and make the pots as clean as if they had just come from the kiln.

RANUNCULUS and ANEMONE of common kinds for showy masses may be planted now, but choice and valuable kinds must be kept in the drawers till the beginning of February, and in the meantime make the beds ready by deep trenching and laying up the earth in ridges.

RHUBARB, SEAKALE, and ASPARAGUS to be kept going in the forcing pit by introducing successional batches, according to requirements.

STOVE PLANTS in free growth must have fair supplies of water; not so many times a day, or so many times a week, but as they want it. Plants that have filled their pots with roots, and are now making new growth or pushing for bloom, will need more than those that have plenty of pot room, and are not thoroughly established. Those in the warmest end of the stove will enjoy a moderate amount of vapour produced by sprinkling the floor and pipes. All that are at rest to be kept as dry and cool as possible consistent with safety.

THE POULTRY YARD

THE preparation of the various descriptions of poultry for killing during the Christmas season will now be engaging the attention of the managers of the yards. Turkeys are of the first importance, and to bring them into first-class condition for killing at Christmas, without resorting to the very objectionable practice of cramming them, a liberal, but not excessive system of feeding should be commenced at once. Birds carrying plenty of flesh without an excess of fat are best both for home use and market supplies, and these can only be obtained by making a beginning at a comparatively early period. The first point will be to place them in quarters where they will be rather confined as to space, but without restriction as to light and air. The second step will be to supply them with food of a thoroughly nourishing character. They should have whole maize and mashed potatoes, and barley meal or oatmeal, mixed together in equal proportions, and made of a suitable consistency with skim milk. Of this they must have as much as they will eat, but the supplies must not be so abundant that a waste occurs. Geese may be brought into proper condition for the table in much less time than the turkeys, and birds that have been fed properly from the first will simply require extra food for two or three weeks immediately preceding their being killed. The fattening process consists simply in giving them oats mixed with water and oatmeal, or barley meal mixed with milk or water, the mixture to be rather thick. In preparing geese for the table it must not be forgotten that an excess of fat is most objectionable.

FRUIT PROTECTION IN CALIFORNIA.—The recognized importance of the fruit crops in California and the ravages wrought by various insects, particularly by that familiar pest, the Codlin Moth, which was first introduced in 1874, but has since increased to an alarming extent—breeding three or four times in the year, and making fell havoc among the quinces, pears, and apples—have led to the most stringent measures on the part of the State Legislature. A State Board of Commissioners has been appointed, consisting of one representative from each of the great fruit-growing districts, which has been invested with almost unlimited powers by an Act passed last year. Any wilful violation of the quarantine regulations laid down by the Board is to be treated as a misdemeanour, punishable with a fine varying from 25 to 100 dollars. As a precaution against the Codlin Moth, every Californian apple-grower is legally bound to scale his trees every spring, to burn the scrapings, and wash the trees with an insecticide of prescribed composition. All articles supposed to contribute to the introduction of noxious insects are liable to be destroyed, and all boxes in which fruit has been packed are required to be at once dipped in boiling water containing one pound of commercial potash in 25 gallons of water, for the space of not less than two minutes. Before the fifteenth day of May in each year every apple or pear tree is to be provided with bands of cloth or paper, which are to be examined every seven days all through the season, and any grubs or pupæ found to be destroyed. Various other preventive and remedial measures are enjoined. The chairman of the Board is to visit the various fruit-growing districts periodically, and report thereon. A State appropriation of 10,000 dollars (£2,000) has been made for the year's working expenses of the Board.

Exhibitions and Meetings.

OXFORDSHIRE CHRYSANTHEMUM AND FRUIT SHOW, NOVEMBER 23.

ON the above date the Oxfordshire Chrysanthemum Society held its twentieth annual exhibition in the Corn Exchange, Oxford, and, although the weather was dull and at times showery, the attendance was very large during the afternoon and evening. The Corn Exchange (the only room available for the purpose) is one hundred feet long by forty feet wide, an area altogether inadequate to stage the vast array of products usually entered in competition at this show. In describing the arrangements, we may mention that the semi-circular bank of plants at the east end of the building produced a display seldom seen in November. This arrangement was entirely due to a run of circumstances which at one period appeared to militate against the success of the undertaking, but which, however, proved more of an advantage than otherwise. The circumstances were these:—When the Chrysanthemum Committee commenced to arrange the room on Tuesday, they found that the large orchestra belonging to the Oxford Choral Society (which had been used by Messrs. Moody and Sankey at their evangelistic meetings the previous eight days) still remained, and as it was impossible to get it taken down without considerable labour and loss of time, it was resolved to utilize a portion of the orchestra, and by an outlay for timber, covered with green baize, a fine effect was subsequently made with about forty convex-trained plants, some of which were five or six feet through, and fifteen superbly-finished standards. On the ground floor a double line of specimen plants occupied the north and south sides of the building, the centre of the room being occupied by three tables filled with specimen pyramids, flanked on either side with cut blooms, fruit, and épergnes, the double and single primulas forming a foreground to the semi-circular bank of plants.

PLANTS. In the classes for plants about one hundred and twenty named specimens were staged; these, without exception, were well finished, healthy, and densely flowered. In the class for six Mr. John Fortescue, 9, Observatory Street, Oxford, was placed first for half a dozen grand examples, six feet across, of Arigena, Julia Lagravere, Mrs. G. Rundle, Venus, Mrs. Forsyth, and Prince of Wales. Mr. G. Launchbury, 6, Union Street, St. Ebbe's, Oxford, a good second with Guernsey Nugget, Arigena, Dr. Sharpe, Mrs. Geo. Rundle, George Glenny, and Mrs. Dixon. Mr. J. Green, 12, Adelaide Street, Oxford, third with Blonde Beauty, Arigena, Chevalier Domage, Mrs. George Rundle, George Glenny, and Mrs. Dixon. For four Mr. James Dearlove, 6, Cherwell Street, Oxford, presented some finely-flowered specimens of Fingal, Mrs. Dixon, George Glenny, and Mrs. George Rundle; these were very neat, but the foliage was mildewed owing to exhibitor's greenhouse having been deluged in the October flood; Mr. T. A. Chambers, Howard Street, Ilfley, second, and Mr. J. J. Ward, Beech Cottage, St. Giles's, Oxford, third. For three plants Mr. Jonathan Beesley, 8, New Street, St. Ebbe's, Oxford, took the card for well-formed specimens of Guernsey Nugget, Mrs. G. Rundle, and Mrs. Dixon; the second place was assigned to Mr. Michael Jeffries, 75, Walton Street, Oxford, who staged Chevalier Domage, Mrs. Dixon, and Mrs. George Rundle; Mr. S. Harbud third with Mrs. Dixon, Julie Lagravere, and Mrs. George Rundle. Class IV. was also devoted to four plants, open to all, and here again Mr. Fortescue led with well-formed specimens of Golden Christine, Gloria Mundi, Mr. Howe, and Mr. Brunlees; Mr. T. A. Chambers second, and Mr. Dearlove third. Large-flowered and pomponé pyramids were fairly good. In both classes for pairs of plants Mr. J. Green and Mr. J. Fortescue were first and second; in the pomponé class Mr. J. Beesley was third. Standards were very fine, and were furnished with clean straight stems carrying well-finished umbrella-shaped heads densely set with bloom, Messrs. Green and Fortescue being the most successful exhibitors in this class. Grafted standards were very interesting, but were hardly equal to some specimens we have seen at the Oxford shows, Messrs. Green and Jeffries taking the cards. Japanese were limited to one class for four specimens each; here Mr. Josiah Cantwell, 1, Kingston-road, Oxford, held his own with examples well bloomed; the second place was filled by Mr. M. Jeffries; Mr. J. Green third. We may remark that the Japanese have appeared to bloom earlier this season than sometimes has been the case, the varieties staged being Elaine, Tokio, James Salter, Jane Salter, and Fair Maid of Guernsey. Pomponés were never better staged here; for four Mr. J. Green had fine convex-shaped plants of the golden, lilac, and white forms of Cedo Nulli and Rose d'Amour; Mr. J. Fortescue second with Antonius, Rose d'Amour, Mrs. Bateman, and St. Michael; Mr. C. Launchbury third with a magnificent St. Michael, Mdle. Marthe, and immense untrained specimens of Mrs. Bateman, grand in size and colour of bloom, and Mrs. Wheeler with blooms though profuse, smallish and wanting in tone. For three specimens a number of good groups were staged; Mr. J. Cantwell was placed first with Stella, Mrs. Bateman, and Rosinante, the latter variety a soft rosy lilac, but not fully developed, and we believe the judgment in this particular was altogether erroneous, as the second prize lot, by Mr. S. Coster, 12, Adelaide Street, Oxford, were equal in foliage and training, with perfectly-developed heads of bloom; the varieties were Rose Trevenna, White Cedo Nulli, and Rose d'Amour; Mr. Jonathan Beesley third with St. Michael, La Vigne, and Mdle. Marthe.

SINGLE SPECIMEN PLANTS were numerous, and included—Japanese, Mr. J. Fortescue first with a beautiful fresh Tokio, about six feet across; Mr. J. Green second with Elaine. Large-flowering, Mr. J. Fortescue first with an immense Mrs. Forsyth; Mr. C. Launchbury second with Mrs. G. Rundle, and Mr. Dearlove third with Mrs. G. Rundle. Pomponé, Mr. Fortescue first with a grand Rose d'Amour. Pomponé anemone, Mr. Fortescue first with White Cedo Nulli; Mr. M. Jeffries second with Mr. Astie, and Mr. Green third with Lilac Cedo Nulli, very finely developed in each case. Pyramid, Mr. Fortescue first with Arigena; Mr. J. Beesley second with Dr. Sharpe, a poorish plant, but carrying a large number of perfectly-developed exhibition blooms. Standard, Mr. Fortescue first with Arigena; Mr. M. Jeffries second with Peter the Great, and Mr. Green third with Chevalier Domage. From the last-named exhibitor came a group of one hundred plants staged for effect; these filled an angle ten feet by four feet, and although composed of somewhat leggy specimens were prettily arranged. Groups of twelve large-flowering plants, carrying three blooms each, brought out three lots; but while the blooms demonstrated high culture, the bare stems of the plants detracted from the general character of the exhibits; Rev. R. H. Charsley, St. John's Lodge, Oxford, was placed first, Mr. Fortescue second, and Mr. Beesley third.

PRIMULAS.—Both single and double were staged in plenty. For four double Mr. George Jacob, Barton, Headington, was placed first for some dwarf-grown

plants, the deep crimson varieties being exceedingly attractive; the second card going to Mr. Fortescue; Mr. Mayo, St. Mary's Nursery, Oxford, third. For six single Mr. Fortescue and P. Southby, Esq., Bampton, took the cards for sturdy collections; while in the class for four specimens the prizes went to Mr. George Jacob, Mr. J. Cantwell, and Mr. M. Jeffries.

CUT BLOOMS.—This department, always the centre of attraction at winter shows, was well filled, and while we confess to have seen equally large and well-finished flowers, we must admit that purity of form and colour has never been surpassed at the previous exhibitions of this society. In the class for twenty-four blooms Rev. R. H. Charsley was placed first with a grand lot, the best flowers being Jardin des Plantes, Bronze Jardin des Plantes, Prince Alfred, Guernsey Nugget, Mr. Howe, Cherub, Lady Slade, White Globe, Fingal, Mr. Bunn, Princess of Teck, Lord Ranelagh, Mrs. Forsyth, Venus, Barbara, Mrs. Heales, Mrs. Sharpe, Virgin Queen, Mrs. George Rundle, Prince Albert, Griselle, Lady Talford, Lady Hardinge, and Mr. Gladstone; P. Southby, Esq. (gardener, Mr. G. Neal), Bampton, a close second, with a shade smaller but very perfectly-formed examples of Angelina, Barbara, Blonde Beauty, Cherub, Mr. Bunn, White Globe, Princess of Teck, George Peabody, Rev. J. Dix, Lady Slade, Mrs. Dixon, Mr. Howe, Golden Empress of India, Nil Desperandum, Lady Talford, Refulgence, Abbé Passaglia, Mrs. Haliburton, Venus, Bronze Jardin des Plantes, Hero of Stoke Newington, Jardin des Plantes, White Beverley, and Princess of Wales; Mr. J. Dearlove third. For eighteen the last-named exhibitors changed places, P. Southby, Esq., putting up beautiful clean blooms of Mrs. Haliburton, Rev. J. Dix, Cherub, Venus, Mr. Bunn, White Globe, Mrs. Dixon, Nil Desperandum, Bronze Jardin des Plantes, Lady Talford, Barbara, Princess of Teck, General Bainbridge, Isabella Bott, Mr. Howe, Hero of Stoke Newington, Mr. George Rundle, and Jardin des Plantes; Rev. R. H. Charsley second with Fingal, White Globe, Mr. Howe, Guernsey Nugget, Prince Alfred, Cherub, Jardin des Plantes, Dr. Sharpe, Mrs. Heales, Venus, Virgin Queen, Lady Hardinge, Lady Slade, Princess of Teck, Lady Talford, Barbara, and Queen of England; Mr. Dearlove third. For twelve a large number of boxes were staged containing good representative blooms, W. H. Wall, Esq. (gardener Mr. W. Smith), The Grange, Bampton, first; Mr. Dearlove second; Mr. D. Hitchcock, Brashfield Lodge, Bicester, third, and Mr. Fortescue fourth. For nine W. H. Wall, Esq., had a nice level lot, including Empress of India, Dr. Sharpe, Queen of England, Refulgence, Cloth of Gold, Rev. J. Dix, Cherub, Nil Desperandum, and Guernsey Nugget; Mr. J. Beesley second, and Mr. T. A. Chambers third. The sixes included a large number of boxes of fair merit, Mr. D. Hitchcock first, W. H. Wall, Esq., second, and Mr. Thomas Bellman, 9, New Road, Oxford, third. Single blooms were altogether good, the premier card going to Mr. J. Fortescue for an Empress of India six inches across and globular; Rev. R. H. Charsley second with Princess of Teck; W. H. Wall, Esq., third with Guernsey Nugget, and Mr. Thomas Bellman fourth with Queen of England. For twelve blooms, one variety, W. H. Wall, Esq., took the lead with a dozen prime flowers of Guernsey Nugget; Mr. T. Bellman second with the same; Mr. James Dearlove third with Mrs. George Rundle, and Owen Grimbley, Esq., Summertown, Oxford, fourth with Blonde Beauty. For twelve reflexed flowers P. Southby stood high with examples of Chevalier Domage, Dr. Sharpe, Ariadne, Sam Slick, Emperor of China, Felicity, Golden Christine, Gazelle, Gloire d'Or, Mrs. Forsyth, Prince Albert, and Annie Salter; W. H. Wall second, and Mr. D. Hitchcock third. For a dozen large anemones P. Southby, Esq., proved the only exhibitor; his flowers were large and finely developed, and comprised Empress, Fleur de Marie, Georges Sands, George Hook, King of Anemones, M. Chate, Mrs. Pethers, Madame Godereau, Queen Margaret, St. Margaret, Lady Margaret, and Emperor. For four blooms each of Mrs. George Rundle, George Glenny, and Mrs. Dixon, Mr. J. Beesley, Mr. J. Dearlove, and Rev. R. H. Charsley took the cards in the order of their names, and in a class well contested. For twelve Japanese P. Southby, Esq., was to the fore with blooms of marvellous size, the varieties being Comte de Germiny, bright nankeen-yellow striped crimson, large flower, very broad, long, twisted florets; Etoile du Midi, orange-red, centre floret curled; Sarina, white, pink stripe, very pretty; Thunberg, soft primrose-yellow, showy; The Sultan, bright rosy purple floret, shaded lighter on back of petal; Alba striata, Fair Maid of Guernsey, Comtesse de Beauregard; Garnet, vivid scarlet-red, edged gold; Triomphe de Chatelet, salmon tinted rose, gold centre, very attractive; Madame C. Audiguier, rosy lilac shaded mauve, grand flower, and Baronne de Prailly, light lilac-rose, tinted white, the whole of the blooms being of immense size; Rev. R. H. Charsley second, his best blooms being Madame C. Audiguier, Garnet, Elaine, Apollo, orange; Mdle. A. Delaux, milk-white florets, tinted rose, curiously twisted; Bismarck, orange-cinnamon; Fulgore, nankeen-yellow, underside of florets striped purple, and Madame Lemoine, white, yellow tint. For nine varieties W. H. Wall, Esq., Mr. J. Green, and Mr. George Salter, Summertown, Oxford, took the cards. The classes for pompones were well filled, P. Southby, Esq., leading in the class for twelve varieties, three blooms of each; these were staged with stalks and foliage six inches high, and appeared more natural than the blooms shown close to the stands. The varieties were Aurore Boréale, Adèle Prissette, fringed variety, Fanny, Golden Mdle. Marthe, Sunset, Mrs. Bateman, Mrs. Dix, Miss Wheeler, President Dcaisne, St. Thais, and St. Michael. Mr. Green second with Miss Wheeler, Mrs. Bateman, Rose and White Trevenna, Stella, St. Michael, Adèle Prissette, Prince Victor, Rose d'Amour, Lihlas, and Mrs. Dix; Mr. C. Launchbury third. For nine and six varieties, three of each kind, Mr. Dearlove and Mr. Green had the premier awards. Pomponé anemones were rather a limited display; for nine triplets P. Southby, Esq., had the card for Marguerite de Coi, Miss Nightingale, Antonius, Marie Stuart, Pearl, Regulat, Calliope, Mr. Astie, and President Morel; Mr. Green second with the yellow, white, and lilac forms of Cedo Nulli, Mr. Astie, Zobeide, Astrea, Antonius, Dick Turpin, and Regulat.

FRUIT.—This department was a great feature of the exhibition, no less than one hundred and sixty dishes of the best of culinary and dessert kinds of apples and pears being staged in competition. In the class for twelve dishes of apples (dealers) Mr. T. Staymaker, The Market, Oxford, was placed first with large highly-finished fruits of Mère de Ménége, Wellington, Kirk's Pippin, Scarlet Nonpareil, Scarlet Pearmain, Pheasant-Eye, Admiral, Blenheim Orange, Hanwell Souring, Puff Russet, and Ribston Pippin; Mr. H. Smart, 25, Walton Street, and the Market, Oxford, was a good second with Blenheim Orange, Black Jack, Wellington, Norfolk Beaufin, Ribston Pippin, Hanwell Souring, Dusan, Golden Russet, Alfriston, Fuller's Seedling (raised at Ryeote, Bucks), Lord Suffield, and King Pippin; Mr. D. Day, Victoria Nursery, and the Market, Oxford, third for medium-sized fruits of Margil, Ribston Pippin, Wellington, Fearn's Pippin, Sykehouse Russet, Gipsy King, Beauty of Hants, Thompson's Seedling, Ribston, Pearmain, Blenheim Orange, and Wheeler's Pearmain. There were classes for six and three, and for three and one dish, for growers

only; also for three and one dish of pears, and six and three dishes of pears, for dealers. Of pears we can truly say that *Beurré Diel*, *Duchesse d'Angoulême*, *Easter Beurré*, *St. Germain*, *Beurré de Capiaumont*, *Marie Louise*, *Bishop's Thumb*, *Vicar of Winkfield*, *Swan's Egg*, *Beurré Rance*, and other well-known kinds were splendidly staged. There were three sets of desserts staged, which included pine, bananas, grapes, nuts of sorts, Chinese lychees, and fine samples of apples and pears. We ought to mention that several well-executed *épergnes* were exhibited, the first card going to Mr. George Jacob, Barton, Headington; Mr. John Price, Headington, was second, and Mr. S. Coster, Adelaide Street, Oxford, third.

MISCELLANEOUS CONTRIBUTIONS included a fine batch of cyclamens and geraniums from Mr. John Mayo, Oxford; a dozen bouquets of coloured primroses, double cowslips, oxlips, &c., from Mr. W. Candwell, The Ivies, Wantage, and a large number of splendid spikes of pampas grass from Mr. D. Day, all of which added greatly to the general beauty and variety of the exhibition.

The attendance, despite the weather, was encouraging, upwards of 1,100 visitors paying for admission, the exhibition being also visited by about 900 members and ticket-holders.

The judges were—plants and blooms, Messrs. J. T. Castell, Crown Printing Works, Oxford; C. Hill, Rowley Nursery, Oxford, and B. Robinson, Wadham College Gardens, Oxford. For fruit and *épergnes*, Messrs. G. Salter, Summertown; J. Mattock, Bath Nursery, New Headington; and T. W. Jacob, Observatory Gardens, Oxford; the general arrangements falling to the care of William Greenaway, *Secretary and Treasurer*.

WESTERN CHRYSANTHEMUM SOCIETY, NOVEMBER 14 AND 15.

The annual exhibition of this society took place on the above dates at the Guildhall, Plymouth. Those who read last year's report will remember it was held at Devonport, the rule being to hold it at Devonport and Plymouth alternately. The show this year far exceeded that of last both in quantity and quality: and there were one hundred more entries (three hundred in all). Plants were well grown, and considering the quantity of bloom on them the flowers were very fine; their foliage was more luxuriant than usual, owing very likely to the fact of our having had a damp summer. If chrysanthemums are particularly fond of damp they can be generally accommodated in this part of the country. They are no doubt, like ourselves, much troubled with hunger and thirst.

Among the most successful competitors for the society's prizes for plants were Mr. G. H. E. Rundle, Admiral Lowe, and Mr. T. Mills. All the large-flowering varieties were grown on single stems.

Special prizes were offered as follows: By Mr. P. S. MacIver, M.P., for stand of chrysanthemums, first Rev. H. Parlbay, second Mr. Cuereil. By Mr. E. Allen, J.P., for best stand of chrysanthemums edged with ornamental foliage plants, awarded to Mr. G. H. E. Rundle, whose collection was superb.

Cut blooms were numerous represented and of fine quality. The Earl of Devon and Mr. Prideaux Brune were contributors of magnificent collections. The latter gentleman obtained first for twenty-four (eight varieties, three flowers each); the names were *Fair Maid of Guernsey*, *Daimio*, *Christine*, *Nil Desperandum*, *White Venus*, *Annie Salter*, *Mrs. Dixon*, and *Progne*. Mr. P. Brune also received the society's prize for eighteen large-flowered varieties, and the special (given by Mr. J. H. Puleston, M.P.) for twenty-four cut flowers—viz., six each large, Japanese, pompon, and anemone; the names of this collection may be acceptable, being a distinct collection—*Empress of India*, *Jardin de Plantes*, *Dr. Sharpe*, *Golden Empress of India*, *Venus*, *White Venus*, *Soleil Levant*, *Dr. Masters*, *Fair Maid of Guernsey*, *Red Gauntlet*, *Ethel*, *Abd-el-Kader*, *Sunset*, *A. Prisetete*, *Sparkler*, *Mlle. Marthe*, *Solomon*, and *Mustapha*. The Earl of Devon received first for twelve and six cut blooms, large-flowering, and for six Japanese, all these being beautifully finished. The Earl also received the special prize offered by Mr. G. H. E. Rundle for the best twenty-four large-flowering. Mr. Rundle also offered a prize for the best six blooms of his seedling, *Mrs. G. Rundle*, which was awarded to Mr. J. B. Williams, Stoke; the flowers were splendid.

Mr. C. F. Burnard's prize for the best stand of stove and greenhouse plants was awarded to Mr. E. Allen, Ivybridge, for a beautiful collection arranged with great taste. Other things beside those mentioned were exhibited, which added to the interest of the show—zonal pelargoniums well bloomed, also primulas. Some among the latter were very fine. The first nine (single) were shown by Mr. C. Norrington, first six by Mr. Weeks, second nine and six by Mr. Whiteford; these were in splendid condition and well grown.

The president of the society is Mr. C. F. Burnard, the vice-presidents the Rev. W. Whitley, Captain Edye, Messrs. W. Derry, G. H. E. Rundle, C. Norrington, F. B. Westlake, H. E. Webber, Francis Hicks, and E. Allen; Mr. C. Cooper as honorary secretary; Mr. G. C. Bignell and Mr. J. Walling as auditors. The following gentlemen acted as judges: Messrs. Baker, gardener at Membrand; King, gardener to the Earl of St. Germans; Brighton, gardener to the Earl of Mount Edgcumbe; Gale, gardener to Mr. Chichester; Stoneman, gardener to the Earl of Morley; Dumble, gardener to Mr. Soltan Symons; Brimmell, gardener to Mr. Carter, Anthony; Selway, gardener at Flete, and Mr. Polgreen.

W. HENDER AND SONS.

Bedford Nursery, Mannamoad, Plymouth.

LIVERPOOL CHRYSANTHEMUM SHOW, NOVEMBER 24.

The autumn exhibition of the Liverpool Horticultural Association on the above date was fully equal to the November gatherings of previous years, and St. George's Hall presented a remarkably attractive appearance. Prizes were offered for various classes of ornamental plants other than chrysanthemums, in accordance with the practice which obtains at Liverpool, and a considerable number of classes were also provided for fruit, which was exhibited in high condition.

SPECIMEN CHRYSANTHEMUMS were rather unequal in merit, but on the whole were quite up to the average. There was a good competition in the class for six trained specimen large-flowered varieties, and Mr. C. Finnegan and Mr. T. Gowan were first and second respectively. The prizes for four large-flowered were awarded to Mr. S. Whittfield and Mr. C. Finnegan. Pompones were remarkably good, and the collections from Mr. C. Finnegan, Mr. S. Whittfield, Mr. J. Hurst, and Mr. W. Bustard are deserving of the highest praise. Mr. Finnegan was first for six and for four, Mr. Whittfield was second for six, and in the class for four Mr. J. Hurst and Mr. W. Bustard were equal second. Mr. W. Bustard, Mr. J. Hurst, and Mr. J. Warrington were the successful competitors in the class for twelve untrained plants, and in the classes for pyramids and standards the prizes were awarded to Mr. E. Green, Mr. J. Hurst, Mr. Woolwright, and Mr. T. Gowan.

CUT BLOOMS were contributed in large numbers and in capital condition, but as the varieties have been so fully reported on this season it will suffice to indicate the leading exhibitors. For twenty-four incurred Mr. F. Roberts was first, Mr. G. Mease second, and Mr. T. Leadbetter third, each staging excellent flowers. Mr. J. Jellico, Mr. T. Forster, Mr. J. Warrington, and Mr. E. Green staged fine stands in the class for eighteen, and were awarded the prizes in the order of their names. Excellent flowers were staged in the class for twelve incurred by Mr. T. Leadbetter, Mr. G. Mease, and Mr. F. Roberts, who were first, second, and third respectively. In a second class for twelve Mr. J. Brantingham, Mr. G. Burden, Mr. Waterman, and Mr. W. Todd were the successful competitors, the two last-mentioned being equal third. Japanese flowers were presented in admirable condition, and their quaint forms and attractive colouring secured for them a full share of attention. The finest stands of eighteen were those from Mr. G. Mease, Mr. F. Roberts, and Mr. T. Cowan, and the best blooms in the class for twelve were those shown by Mr. Jellico, Mr. J. Brantingham, and Mr. Waterman, who were awarded the prizes in the order of their names. Reflexed flowers were represented by excellent stands of twelve from Mr. Jellico and Mr. Cox, and these exhibitors were also successful in taking the first and second prizes in the class for anemones. The stands of pompones presented an attractive appearance, and the prizes offered for them were awarded to Mr. Cox, Mr. F. Roberts, and Mr. A. Collins.

STOVE AND GREENHOUSE PLANTS in bloom and remarkable for the beauty of their foliage were shown in capital style by several exhibitors. For six stove and greenhouse plants Mr. C. W. Neumann was first with most excellent specimens; Mr. Cox second with a good collection, and Mr. E. Thrupp third. For four the prizetakers were Mr. C. W. Neumann, and Mr. J. Hurst. Ferns were staged in fine condition by Mrs. Horsfell, Mr. J. Gore, and Mr. Cox, and good tree ferns were contributed by Mr. J. Gore, Mr. G. Leadbetter, and Mr. J. Phythian, the prizes in each of the two classes being awarded in the order in which the names are placed. Orchids in threes were capitally shown by Mr. J. Wilson, Mr. Moss, and Mr. J. Edwards, and single specimens were contributed by the exhibitors last mentioned and Mr. Reynolds and Mr. J. Gore. Well-flowered calanthes were contributed by Mr. Moss, Mrs. Horsfell, and Mr. J. Hurst. Palms and cycads, for which two classes were provided in the schedule, contributed much to the general effect, and the examples from Mr. E. Thrupp and Mr. Cross were remarkable for their great excellence. Epiphyllams were mostly well bloomed, and their brightly-coloured flowers presented an attractive appearance. For three specimens Mr. Barber, Mr. Vaughan, and Mr. J. Lewis were the prizetakers in the order of their names, and in the class for a single specimen Mr. Barber and Mr. E. Green were equal first, Mr. J. Vaughan second, and Mr. E. Thrupp third. Primulas were admirably represented by the contributions of Mr. A. Brown, Mr. E. Green, and Mr. J. Phythian, who were first, second, and third, respectively. Poinsettias were fairly good, and Mr. Green and Mr. C. Finnegan were first and second. Mignonette was presented in good condition by Mr. Evans, Mr. J. Hurst, and Mr. J. Lewis, and good collections of plants suitable for the decoration of the dinner table were staged by Mr. G. Park and Mr. J. Agnew.

FRUIT was staged in large quantities and in a condition that left but little to be desired. In competition for the prizes for twelve dishes Mr. Goodacre, Elvaston, was first with a splendid collection, and Mr. Hanagan, who was second, exhibited remarkably well. The exhibitor last mentioned was also successful in securing the premier award in the class for six dishes, and Mr. C. W. Neumann was second, and Mr. W. Evans third. In the two classes for grapes with muscat flavour the most successful competitors were Mr. J. E. Kelly, Mr. R. Roberts, Mr. G. Middleton, Mr. F. Elcock, and Mr. J. Ferguson; and in the two classes for grapes without muscat flavour Mr. Ferguson, Mr. W. Lewis, Mr. J. Wallis, and C. Mr. W. Neumann secured the principal awards. For four bunches, distinct varieties, Mr. W. Lewis, Mr. J. Wallis, and Mr. Finnegan were first, second, and third respectively. Pears were staged in fine condition by Mr. C. W. Neumann, Mr. Evans, Mr. W. Hanagan, Mr. Goodacre, and Mr. J. E. Kelly. Apples were admirably shown by Mr. W. Gardiner, Mr. W. Hanagan, Mr. Goodacre, Mr. Cross, Mr. Parker, Mr. Johnston, and Mr. Evans in the several classes, and the principal prizes were awarded to these exhibitors.

MISCELLANEOUS CLASS.—Contributions were made to this class by Messrs. Ker and Sons, Aigburth, the Liverpool Horticultural Company, and Messrs. H. Cannell and Sons, Swanley. The latter staged stands of *salvias* and zonal pelargoniums, and the other exhibitors collections of plants, the Liverpool Horticultural Company having amongst other good things several splendid specimen *nepenthes*.

NORTHAMPTON CHRYSANTHEMUM SOCIETY, NOVEMBER 22 AND 23.

The exhibition of chrysanthemums, miscellaneous plants, fruits, and vegetables, held in the Corn Exchange, Northampton, on the dates given above, was one of which the Northampton Chrysanthemum Society and the cultivators within the district may well feel proud. Not only did it exceed in extent the best of the shows held during the past eleven years, but the quality was higher throughout, and the beneficial influence exercised by the society abundantly exemplified.

SPECIMEN PLANTS had liberal provisions made for them, and as the result the display produced by the competing collections was eminently satisfactory. In the class for six large-flowered varieties, in which a silver cup was offered, the post of honour was occupied by Mr. F. S. Ingram, gardener to W. Butlin, Esq., Dunston House, with examples bearing the impress of cultural skill of a high order; Mr. Woods, gardener to J. Phipps, Esq., Sunnyside, was a capital second, and Mr. Shepard, Billing Road, a good third. A cup was also offered as the first prize in the amateurs' class for four large-flowered varieties, and this was taken by Mr. W. F. Henman, Great Houghton, and Mr. R. Sear, Cowper Street, and Mr. J. Arnsby followed for second and third places. There was a spirited competition in the gardeners' ordinary class for four large-flowered varieties, and the prizetakers were Mr. J. Green, Mr. Woods, and Mr. Crisp. Mr. J. Green and Mr. Woods were also first and second respectively for six Japanese varieties; and in the class for a single specimen Mr. Ingram, Mr. Woods, and Mr. W. Abrahams secured the awards with capital examples. Reflexed varieties in triples were admirably shown by Mr. Abrahams and Mr. Woods, and pompones by Mr. Woods, who was first for four and a single specimen, by Mr. Shepard and Mr. G. Oram, Dallington, who were second for four and a single specimen respectively, and by Mr. J. W. Abrahams. The amateurs' ordinary classes were mostly well filled, and the plants more or less good. The most successful of the exhibitors of large-flowered varieties were Mr. W. F. Henman, Mr. J. Arnsby, Mr. L. Spencer, Mr. G. H. Percival, Mr. Dunkley, and Mr. T. Mauning; of pompones Mr. J. Arnsby, Mr. L. Spencer,

Mr. Paine, Great Houghton, Mr. T. Miller, and Mr. Manning; of Japanese, the exhibitor last mentioned, Mr. J. Miller, Mr. G. H. Percival, and Mr. W. F. Henman.

CUT FLOWERS were contributed in large numbers and in capital condition, the incurved flowers being, as usual, particularly good. One of the most successful competitors in the division for flowers was Mr. A. Fowkes, Cyril Street, who secured the cup in the open class for twenty-four blooms, and the cup in the amateurs' class for twelve, staging in both blooms of splendid quality. In the first-mentioned of the two classes Mr. Walter, gardener to Roger Eykyn, Esq., Gayton House, was a very close second, and in the amateurs' class Mr. W. Stephens, Great Houghton, and Mr. Martin, Kettering, were second and third respectively. Chief amongst the competitors in the gardeners' ordinary classes for cut blooms were Mr. Walters, Mr. Green, and Mr. Woods. For twelve large-flowered Mr. Walter, Mr. Green, and Mr. Woods were first, second, and third respectively, and in the class for six Japanese these exhibitors were again the prizetakers, Mr. Walters being first, and Mr. Woods and Mr. Green second and third respectively. In competition for the prizes for six blooms, one variety, Mr. J. Green occupied the first place, Mr. Woods the second, and the third prize was awarded to Mr. W. Gardner, gardener to Sir Hereward Wake, Bart. For six blooms, distinct, the prizes were awarded to Mr. Walter, Mr. J. Green, and Mr. W. Gardner. The most successful exhibitors of anemone, reflexed, and pompose flowers were Mr. Green, Mr. H. Archer, and Mr. Abrahams. In the numerous classes provided for the amateur cultivators of Northamptonshire the competition was mostly spirited, and the flowers generally highly satisfactory. To particularize the whole of the classes would require more space than we can well spare, but in justice to the exhibitors it must be said that the finest stands of large flowers were those from Mr. A. Fowkes, Mr. Martin, Mr. G. Dunkley, Mr. Stephens, Mr. W. F. Human, Mr. J. Miller, and Mr. G. E. Dixon; of Japanese those from Mr. J. Martin, Kettering, Mr. W. Paine, and Mr. J. Hickman, Kingshorpe; of anemone and reflexed, those from Mr. T. Manning and Mr. J. Miller; and of pompones those from Mr. J. Arnsby, Mr. Stephens, and Mr. J. Miller.

TABLE DECORATIONS AND HAND BOUQUETS formed a pleasing if not a very extensive feature. In competition for the prizes open to gardeners for table decorations Mr. J. Day, gardener to A. Seymour, Esq., Daventry, was first with an arrangement evincing much taste, and Mr. Fairbrother, gardener to R. Turner, Esq., Cliftonville, and Mr. Abrahams, who were second and third, staged arrangements of a most tasteful character. The prizes offered to amateurs for table decorations were awarded to Mr. T. Maoning, Mr. C. Seaton, and Mr. A. Fowkes, all of whom had tasteful stands. In the amateurs' class for hand bouquets Mr. G. H. Percival, Mr. J. Miller, and Mr. L. Spencer, were the prizetakers, and in the corresponding class for gardeners Mr. G. Oram was first, Mr. E. Cole, gardener to Earl Spencer, Althorpe, second, and Mr. Abrahams third.

MISCELLANEOUS PLANTS were sufficiently numerous to constitute a very pleasing feature. In the class for twelve miscellaneous plants Mr. Ingram was first, with a group comprising five examples of *Imantophyllum miniatum*, *Cattleya labiata*, *Yucca aloifolia*, and *Adiantum trapeziforme*. Mr. Woods had a capital group for second place; Mr. Fairbrother third. In the gardeners' class for twelve primulas the competition was very spirited, and the awards were made in favour of Mr. J. Holland, Mr. F. S. Ingram, and Mr. E. Lewin; and in the gardeners' class for six the prizes were awarded to Mr. Pakes, Mr. J. Holland, and Mr. T. Shepard, all of whom staged well-grown examples. The successful competitors in the amateurs' class for primulas were Mr. J. Hickman and Mr. C. Seaton. Mignonette was represented by the contributions of Mr. J. Green, Mr. Pakes, Mr. Spencer, Mr. F. S. Ingram, and Mr. Manning.

FRUIT was well represented both in quantity and quality. For a collection of four dishes Mr. W. Tipler was first, and Mr. J. Day and Mr. F. S. Ingram equal second. The prizetakers for black grapes were Mr. W. Tipler, Mr. E. Cole, and Mr. J. Hollands. In the gardeners' classes for apples and pears the chief awards were made in favour of Mr. W. Chapman, Fitchford, Mr. Bowler, Mr. J. Day, and Mr. Oram; and in the amateurs' classes for these fruits Mr. Dunkley, Mr. Paine, Mr. Penn, and Mr. Hodson were most successful.

VEGETABLES were not wanting in importance, and the chief awards in the classes open to gardeners were made in favour of Mr. T. Eads, Wootton Hall, Mr. J. Stephens, Mr. J. Day, Mr. G. Oram, Mr. J. Seaton, and Mr. W. S. Smith; and prominent amongst the exhibitors in which the competition was limited to amateurs were Mr. Stephens, Mr. W. F. Henman, Mr. J. Hickman, and Mr. G. Harrison.

MISCELLANEOUS CONTRIBUTIONS included a splendid display of zonal pelargoniums, salvias, and primulas from Messrs. Cannell and Sons, which attracted no small share of attention.

The arrangements were remarkable for their completeness and the smoothness with which they worked, and brought much praise to Mr. E. Draper, the honorary secretary.

LEICESTER CHRYSANTHEMUM SOCIETY.

This society held its third annual exhibition on Saturday, November 18, in the Hazel Street Board Schools, and was a decided success. The promoters of this society are chiefly artisans. The quality of blooms exhibited by them was of a high order of merit. The following classes were well contested:—

Class I, twelve blooms, open to all England; the blooms in this class were of splendid quality. The first prize was awarded to Mr. J. Lansdell, gardener to T. Brooke, Esq., Barkby Hall, Leicester, who exhibited grand blooms of Empress of India and Golden Empress of India measuring over six inches across, also Venus and White Venus measuring four and a half inches across; his other blooms were Princess of Wales, Alfred Salter, Baron Beust, Golden Beverley, Mrs. G. Rundle, Mr. G. Glenny, Mrs. Dixon, and Prince Alfred, all of which were of grand form. The Rev. J. Bird, of Walton Rectory, made a close second with grand blooms of Jardin des Plantes, Queen of England, Prince Alfred, Empress of India, James Salter, Bronze Jardin des Plantes, Mrs. Cunningham, White Venus, Venus, Geo. Glenny, Enamel, and Golden Beverley; the third prize was awarded to Messrs. J. and H. Hickley, nurserymen, Loughborough, with flowers of good quality.

In Class 2, twelve blooms, for amateurs only, Mr. S. Collet was well ahead of other competitors, his blooms being Prince Alfred, Queen of England, Elaine, Jardin des Plantes, Bronze Jardin des Plantes, Mrs. G. Rundle, Golden George Glenny, Mr. G. Glenny, Isabella Bott, Lady Slade, Pink Venus, and Lady Talfourd; Mr. J. Sergeant second, and Mr. W. J. Iliffe a close third.

In Class 3, for six blooms, Mr. S. Collet first with grand blooms of Lady Talfourd, Prince Alfred, Golden George Glenny, Mrs. G. Rundle, Lady Slade,

and Mr. George Glenny; Mr. H. Bell second, and Mr. J. Sergeant third. For three blooms of one variety Mr. S. Collet was again first with magnificent blooms of Prince Alfred; Mr. Sergeant second with Golden George Glenny, and Mr. H. Bell third with Mrs. G. Rundle. For single blooms staged separately Mr. S. Collet was first with Prince Alfred, Mr. W. J. Iliffe second with Empress of India. For three specimen plants Mr. J. Sergeant first, Mr. S. Collet second, and Mr. W. J. Iliffe third.

The judges were Mr. G. R. Faic, of Barkby, Leicester; Mr. Lambert, of Littlethorpe, and Mr. J. Stone, of Leicester, whose awards gave perfect satisfaction.

Replies to Queries.

R. H. S.—We could not reply last week, and the delay does not in any way affect your case. We advise you to wait for the programme.

Exhibitor.—Sow the seed at once, either on turf or in pots. We consider the variety you name not quite up to the mark for exhibition.

H. J. S., Ipswich.—We do not know the address. Probably Messrs. Lockwood, of Stationers' Hall Court, could furnish it.

Names of Fruits.—J. S. M.—The apples are: No. 1, Cellini; 2, Beauty of Kent; 3, Norfolk Bearer; 4, Grange's Pearmain; 5, Greenup's Pippin; 6, Northern Greening.

A. H. M.—It will not be good practice to pot off the cuttings now: let them remain as they are until February and then pot them. Not having used Lawes' manures, we cannot give precise directions. It is the rule to use all prepared manures at the rate of 3 cwt. to 5 cwt. per acre until their properties are understood.

Sphagnum Moss.—Amateur.—Sphagnum moss, so extensively employed in the cultivation of orchids, and frequently referred to in these pages, can be obtained of any of the principal nurserymen in London and the provinces, and of the dealers in horticultural requisites. The addresses of several of the latter will be found in our advertising columns.

Protecting Celery.—Practical Man.—There is no better way of protecting celery during the winter, when protection is considered necessary, than by placing wooden frames, made in the form of the letter A, over the rows, and then covering with litter. The frames are made with two deal boards, each twelve inches in breadth and three-quarters of an inch in thickness, and nailed together at the edges. For the greater convenience in moving them about the length of the frame should not exceed twelve feet. Frames of this description are also useful for protecting endive and lettuce, and cost but little.

Wintering Gloxinias.—Anxious Inquirer.—Leave the corms in the soil in which they were grown and place the pots on their side in a corner of the stove or upright on a shelf where no moisture can reach them. The proper time for starting them will depend upon the date on which you wish to have them in bloom, but as your conveniences for plant growing are limited, and therefore heavily taxed early in the season, we would not advise you take the earliest batch in hand until the middle of March, and the plants that are started then and subsequently will be most useful for the embellishment of the conservatory during the summer.

Zonal Pelargoniums.—J. R.—Your question is rather vague, as the way in which zonal pelargoniums should be managed during the winter depends pretty much upon the purpose for which they are grown. Plants intended for bedding as well as specimens now at rest that are intended for summer decorations must be kept cool and dry. In very damp and in frosty weather they may be allowed to become dust dry, and remain so for a week or ten days without any injury whatever. Those required for flowering during the winter must have the assistance of a temperature ranging from 55 deg. to 60 deg., and be kept moderately moist at the roots and dry overhead. Plants in bloom should be placed in a light position near the glass.

Flower Beds.—W. F.—A few cheap evergreens ranging from two to three feet in height would relieve the flatness of the beds, and have a pleasing appearance throughout the winter. Green and variegated eunymus, box, and aucubas, Chinese and American arbor-vitæ, Thuja aurea, Retinospora ericoides, Vinca elegantissima, English yew, and Berberis aquifolium may be specially recommended, as they are effective, cheap, and move well in the spring, with the exception of the last mentioned, which suffers more or less severely. But its deep bronzy leafage is so effective in contrast with the light green and variegated foliage of the other subjects that a small proportion should be obtained and planted.

Pomponé Chrysanthemums.—W. Smith.—In raising a stock of plants for conservatory decoration, it is not necessary to strike the cuttings until February, and in the meanwhile you must protect the plants from which it is intended to obtain supplies of cuttings from injury. Unless very large numbers are required, one stock plant of each variety will afford an abundant supply of cuttings. The plants as they are removed from the conservatory should be placed in a cold frame, and in a week or two afterwards be cut down. Throughout the winter the frame must be freely ventilated excepting during severe frost, when a covering of some kind will be required. Excepting in severe and in very wet weather the lights should be entirely withdrawn.

Exhibiting Primulas.—Secretary.—By compelling each exhibitor to stage distinct varieties in a class for six primulas you would impose a heavy tax upon exhibitors and materially reduce the number of competitors, to the injury of the exhibition. The best course will be to follow in the steps of those societies which offer prizes for those flowers, and leave each exhibitor a free choice in the selection of colours in making up of his collection. But in the judging of primulas a few points should be given to collections containing the greatest number of varieties when the collections are equally matched in other respects. These remarks apply with equal force to the double varieties.

Slugs in Pot Plants.—Twenty Years.—Prepare a pailful of clear lime-water by dissolving in it a handful of fresh lime. It must be perfectly clear and poured off into another vessel, so as to be freed from its own sediment. Into this drop the plants and let them remain in it about half an hour. Then take them out and put them in a warm place, and take care they have no more water until they really want it. This proceeding will not harm the plants, but will make an end of the little slugs that infest them. A bath of very weak salt and water would answer quite as well, but if a little too strong would injure the plants. The advantage of using lime is that you cannot make it too strong, for the water will only dissolve a certain smallish quantity.

Japanese Chrysanthemums.—W. G. R.—Some of the Japanese varieties make excellent specimens, as shown by the numerous splendid examples exhibited at Tunbridge Wells and Putney, but they are not more effective in an exhibition group than the incurved varieties. They must, in fact, be exceptionally well grown to equal them. Grown in bush form the tasselled varieties are invaluable for the decoration of the conservatory, and good bushes can be produced by stopping twice or three times in the early part of the growing season. One of the chief points in the production of specimens of these as of the other sections is to allow them as long a period as possible for their growth, and whether you require them for the conservatory or the exhibition stage you should commence the work of propagation at once.

Chicory and Witloof for Salads.—G. M.—Lift the roots at once, and those not required immediately lay in by the heels and cover with leaves or litter as soon as severe frost is anticipated, to prevent the soil being so frozen about them that supplies cannot be drawn as required. The roots can be forced in a cucumber house or early vinery or in a mushroom house, or, indeed in any structure in which the temperature is sufficient to start them into growth. When a mushroom house is available it will suffice to stand the roots in one corner with a little soil about them, just sufficient, in fact, to prevent their touching each other. On the other hand, those to be forced in a cucumber house or other structure from which the light is not excluded must be put in boxes twenty-four or thirty inches in depth, the roots to be packed upright in the bottom with very little soil, and the box be closely covered. Batches of about three dozen roots started at intervals of a fortnight or so will yield an abundant supply.

Books.—M. B.—The best book for you is the "Amateur's Greenhouse," published by Groombridge, price 6s. Lindley's "Vegetable Kingdom" is published by Bradbury and Co. An early edition is probably as good as a late one, for it remains very much as the author left it. Lindley did his work so well that there is not much room for improvement in any of it. Brown's "Forester," with all its faults, is a book of high authority, and one that you may consult with advantage in respect of the subjects you are interested in. The other books you might hear of on application to Mr. Wesley, of 28, Essex Street, Strand, who is as likely as any one to find them for you. "Parlez-vous, Le Cidre," with coloured plates, published by L. Deshayes, 23, Rue St. Nicholas, Rouen. To obtain a breeches Bible is not at all difficult, and the money value is not great, except in the case of occasional perfect copies of the more rare editions. The breeches or Geneva version was printed as late as 1640, and there is a cheap copy now on sale at Mr. Palmer's, 100, Southampton Row, Holborn.

Perpetual-flowering or Tree Carnations.—Young Gardener.—The unsatisfactory condition of your perpetual-flowering or tree carnations may probably be traced to their having been allowed to remain out of doors too long. We have seen several collections this autumn that were suffering from the exposure to which they had been subjected, and so far as we can gather from your letter the plants are in much the same condition as those which have come under our notice. Tree carnations should, as a rule, be taken indoors early in September, for although there is not much danger of any great injury resulting from frost there is a risk of injury to the roots from an excess of moisture. When first taken indoors a freely-ventilated greenhouse or pit affords them the most suitable quarters, but as the weather becomes cold they should be placed in a structure in which a temperature of about 55 deg. is maintained, or be assisted with a little artificial heat in the structure occupied. They do very well with bouvardias and double primulas.

Orchard House.—W. M.—As the cost of the structure is not of primary importance, we would advise you to build a house of moderate dimensions, as it will be found less expensive in proportion to its size, and more satisfactory than one of small size. A very suitable structure for a moderate-sized garden is one fifty feet in length, eighteen feet in width, and twelve feet in height; side lights are not absolutely necessary, but they give the house a better appearance, increase the light, and afford a ready means of admitting the air at the sides. A heating apparatus will be required notwithstanding the fact that you do not intend forcing the trees, as fire heat will be required for keeping the frost out of the house in the spring, and maintaining a temperature suitable for the trees during the periods of cold weather so frequently experienced in the early part of the summer. The trees may be grown in bush form, but the best results are obtained by training them to a wire trellis fixed ten or twelve inches from the glass. If you plant the house with peaches and nectarines, a course we would strongly recommend, and are careful to select a due proportion of early, mid-season, and late sorts, you will be able to obtain supplies extending over a period of ten or twelve weeks.

Hardy Azaleas.—B. H.—The varieties of Azalea mollis are so valuable for forcing that we anticipate their being extensively cultivated expressly for that purpose, and we would advise you to carry out your intentions of giving them a trial during the winter. It is not necessary to have named varieties, for in the quality, size, and colouring of the flowers there is not a wide difference between those sold under name and as mixed seedlings, and unless it is desired to have any particular colours the latter, which cost much less money, will answer every purpose. The prevailing colours of the varieties of Azalea mollis are orange, deep and primrose yellow, scarlet, rose, and pink, and in ordinary seedlings they will be represented. Plants intended for forcing must be well set with flower buds, and those of a size suitable for six-inch pots should have from six to seven prominent buds. Ghent azaleas also force well and are very effective in the conservatory, whilst their flowers are useful in a cut state for dressing épergnes. Seedlings, which can be obtained at many nurseries at a very cheap rate, are well suited for forcing, but owing to the comparatively low price of the named varieties there is not much difference in the cost. Both sections respond readily to the influence of artificial heat, and a temperature of about 60 deg. is quite sufficient to ensure their flowering at an early period, but they may be subjected to a temperature of ten or fifteen deg. higher if it is desired to have them in bloom as soon as possible. When lifted from the beds, or received from the nursery, put them in pots of a suitable size, and during the time they are in the forcing pit they will derive much assistance from frequent syringing overhead. As they come from the conservatory place in a pit, and when the new growth is completed and has become moderately firm, gradually harden off, and then plant in a reserve bed to give them time to recruit their strength.

"SAPO CARBONIS DETERGENS" is a Physicians' name for a valuable remedy prescribed for the past quarter century for every variety of skin disease. The public buy it under the title of WRIGHT'S COAL TAR SOAP, and test its genuineness by the foregoing Latin brand being on each tablet and wrapper.—[Advt.]

Literature.

The Bow of Strength. (Cassell.)—This is the "Quiver Annual for 1882," and bears upon its front a very telling figure symbolical of the uses of a quiver. A beautiful sixpennyworth of elegant and wholesome light reading, with abundance of good pictures to light the way along. The "Bow of Strength" is well adapted as a cheap gift book for the season, more especially where young people hunger for good literary entertainment.

Old Jonathan. (Collingridge.)—The yearly volume of our old friend is as fresh and various as any that have gone before, and the coloured print of child and dog is exquisitely finished. It cannot be said there is any dearth of pure literature of the most cheerful and attractive kind, while such a budget of beauty as this annual volume may be secured for an outlay of eighteenpence.

Obituary.

On the 24th ult., at his residence, in Highbury, Mr. ANDREW PRITCHARD, F.R.S.E., one of the oldest members of the Royal Institution, and author of "A History of Infusoria."

Markets.

COVENT GARDEN.			HAY MARKET.		
FRUIT.			WHITECHAPEL.		
Apples.....	per 100	2s. 0d. to 4s. 0d.	Prime Clover.....	per load	100s. to 120s.
Cob Nuts.....	per lb.	0s. 6d. to 0s. 8d.	Inferior do.....	"	60s. to 85s.
Grapes.....	per lb.	1s. 0d. to 3s. 6d.	Prime Meadow Hay ..	"	90s. to 100s.
Lemons.....	per 100	5s. 0d. to 6s. 0d.	Inferior do.....	"	50s. to 85s.
Pears.....	per 100	1s. 0d. to 2s. 6d.	Straw.....	"	30s. to 42s.
Pine-apples, Eng. ..	per lb.	2s. 0d. to 3s. 0d.			
VEGETABLES.			CORN.—MARK LANE.		
Artichokes, Globe, per dz.	3s. 0d. to 6s. 0d.		Wheat, Red.....	per qr.	35s. to 41s.
Beet.....	per doz.	1s. 0d. to 2s. 0d.	Wheat, White.....	"	37s. to 41s.
Brussels Sprouts, per 1/2 sv.	2s. 0d. to 2s. 6d.		Flour, London nom. top price,		
Cabbages.....	per doz.	0s. 9d. to 1s. 6d.	per sack of 25lbs.		—s. to 43s.
Carrots.....	per bunch	0s. 4d. to 0s. 6d.	Flour, town-made whites ..	"	36s. to 37s.
Cauliflowers, Eng., per dz.	2s. 0d. to 4s. 0d.		Flour, households.....	"	33s. to 35s.
Celery.....	per bun.	1s. 0d. to 2s. 0d.	Flour, country households,		
Coleworts.....	per doz. bun.	2s. 0d. to 3s. 6d.	best makes.....	"	24s. to 37s.
Cucumbers.....	each	0s. 8d. to 1s. 0d.	Flour, Norfolk and other second	"	30s. to 33s.
Endive.....	per doz.	1s. 0d. to 2s. 0d.	Barley, Grinding.....	per qr.	21s. to 30s.
Garlic.....	per lb.	0s. 10d. to 1s. 0d.	Barley, Malt.....	"	32s. to 50s.
Herbs.....	per bunch	0s. 2d. to 0s. 4d.	Malt, English, new.....	"	38s. to 48s.
Horseradish.....	per bun.	3s. 0d. to 4s. 0d.	Malt, English, old.....	"	28s. to 33s.
Leeks.....	per doz.	0s. 3d. to 0s. 4d.	Malt, Scotch.....	"	38s. to 43s.
Lettuces.....	per doz.	1s. 0d. to 2s. 6d.	Malt, brown.....	"	22s. to 32s.
Mushrooms.....	per basket	1s. 0d. to 2s. 0d.	Oats, English.....	"	22s. to 36s.
Onions.....	per bushel	3s. 0d. to 4s. 0d.	Oats, Irish.....	"	22s. to 25s.
Onions, Spring, per bunch	0s. 4d. to 0s. 6d.		Oats, Scotch.....	"	22s. to 30s.
Parsley.....	per lb.	0s. 4d. to 0s. 6d.	Rye.....	"	27s. to 37s.
Radishes.....	per lb.	0s. 1d. to 0s. 3d.	Tares.....	"	40s. to 48s.
Sa sahy.....	per bun.	1s. 0d. to 1s. 6d.	Beans, English, Mazagan ..	"	36s. to 40s.
Seakale.....	per pun.	1s. 6d. to 2s. 6d.	Beans, Tick.....	"	39s. to 41s.
Small Salading ..	per bun.	0s. 3d. to 0s. 4d.	Beans, Winter.....	"	37s. to 40s.
Spinach.....	per bushel	2s. 0d. to 2s. 6d.	Peas, Grey.....	"	30s. to 38s.
Tomatoes.....	per lb.	0s. 9d. to 1s. 0d.	Peas, White.....	"	42s. to 44s.
Turnips.....	per bunch	0s. 4d. to 0s. 6d.	Peas, Maple.....	"	40s. to 44s.
FLOWERS.			METROPOLITAN MEAT MARKET.		
Azuleas, per doz. blooms	0s. 2d. to 0s. 4d.		Beef, inferior.....	per lbs.	3s. 0d. to 3s. 8d.
Azuleas.....	per doz. sprays	1s. 0d. to 2s. 0d.	Beef, middling ..	"	3s. 10d. to 4s. 4d.
Bouvardias.....	per bunch	0s. 9d. to 1s. 6d.	Beef, prime large ..	"	4s. 6d. to 5s. 0d.
Callas.....	per doz.	6s. 0d. to 8s. 0d.	Beef, prime small ..	"	5s. 0d. to 5s. 4d.
Camellias.....	per doz.	2s. 0d. to 4s. 0d.	Mutton, inferior.....	"	3s. 4d. to 4s. 0d.
Chrysanthemums, per doz.			Mutton, middling ..	"	4s. 4d. to 5s. 4d.
blooms.....	1s. 0d. to 2s. 6d.		Mutton, prime ..	"	5s. 8d. to 6s. 8d.
Chrysanthemums, per doz.			Pork, large.....	"	3s. 4d. to 3s. 8d.
bunches.....	4s. 0d. to 5s. 0d.		Pork, small.....	"	4s. 0d. to 4s. 4d.
Eucharis.....	per doz.	3s. 6d. to 7s. 6d.	Veal.....	"	5s. 0d. to 5s. 8d.
Gardenias, per doz. blooms	3s. 6d. to 6s. 6d.				
Heliotropeums, .. sprays	0s. 6d. to 1s. 6d.				
Hyacinths, Roman, per					
doz. spikes.....	2s. 0d. to 3s. 0d.				
Lapagerias, per doz. blms.	2s. 6d. to 5s. 0d.				
Lilac.....	per bun.	7s. 6d. to 9s. 0d.			
Marguerites, per doz. bun.	4s. 0d. to 6s. 0d.				
Mignonette.....	2s. 0d. to 6s. 6d.				
Pelargoniums, Zonal, per					
doz. trusses.....	0s. 4d. to 0s. 8d.				
Primulas, double, per bun.	1s. 0d. to 2s. 0d.				
Roses.....	per doz.	1s. 6d. to 4s. 6d.			
Roses, Tea.....	1s. 6d. to 3s. 6d.				
Stephanotis, per doz. sprays	6s. 0d. to 8s. 0d.				
Tropeolum.....	1s. 3d. to 3s. 6d.				
Violets.....	per doz. bun.	1s. 0d. to 1s. 6d.			

POTATO MARKETS.			GAME AND POULTRY.		
BOROUGH AND SPITALFIELDS.			COAL MARKET.		
Magnum Bonums.....	per ton	110s. to 120s.	East Wylam.....	per ton	17s. 6d.
Regents.....	"	9s. to 100s.	Walsend, Hutton.....	"	18s. 6d.
Champions.....	"	80s. to 90s.	" Hutton Lyons ..	"	16s. 6d.
German Bels.....	per 1/2 sv.	5s. to 5s. 3d.	" Hawthorn.....	"	16s. 9d.
The arrivals of potatoes during the week consisted of 20,660 bags from Hamburg, 160 Rouen, 1,602 Bremen, 965 Boulogne, 4,157 Harlingen, 2 Steintin, 290 sacks from Rouen, 50 from Nazeira, and 3 baskets from Amsterdam, and 5 bags from Ostend.			" Lambton.....	"	18s. 0d.
			" Wear.....	"	16s. 6d.
			" South Hutton ..	"	18s. 6d.
			" Thornley.....	"	17s. 9d.
			" Tees.....	"	18s. 6d.
MONEY MARKET.					
Consols.....	102½ to 102				
Reduced 3 per cent.....	102½ to 102				

GISHURSTINE HAS ACQUIRED A FAIR FAME as the best dressing for gardeners' boots, and for the preparation of any kind of leather that should in service be waterproof. It is a matter of such importance to health no less than comfort that the feet be at all times kept warm and dry, that we once more commend Gishurstine to the favourable consideration of all who live an outdoor life at this season of the year.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. In contact with the glands at the moment they are excited by the act of sucking, the glycerine in the agreeable confection becomes actively healing. Sold only in boxes, 7½d., in 1s. 1½d., labeled "JAMES EPPS & Co., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice. Yours faithfully, GORDON HOLMES, M.D., Senior Physician to the Metropolitan Throat and Ear Infirmary."—[Advt.]

LILIES FOR GENERAL CULTURE.

DURING the last eight or ten years I have dabbled a little in growing lilies out of doors, but, owing to the soil of my garden being rather heavy, and the little time at my disposal preventing my giving any of the kinds special attention, my success has not been uniform. I am, in fact, in much the same position as the majority of amateurs, and have to give my plants as good a start as I can and then leave them pretty much to themselves. In consequence, I have failed in the culture of the many choice Californian lilies that have been recently introduced, and I have not been so successful with *Lilium auratum* as I could have wished. The kinds that have done best with me are the varieties of *Lilium davuricum* and *L. elegans*, which are wonderfully attractive and are at their best during the early part of the summer; the varieties of *L. speciosum*, which bloom in August and September, and the varieties of *L. tigrinum*, which flower at quite the end of the summer. These can all be depended upon to grow strongly and flower freely in any position in which it is possible to cultivate lilies with a fair measure of success. Perhaps my experience in the matter may be more useful to many amateurs than that of those who devote special attention to those flowers, and by providing stations and composts according to the requirements of the several kinds succeed in growing all they take in hand more or less successfully. In the first place I would strongly recommend the amateur to grow the varieties of the species mentioned and to have from six to twelve bulbs of each, for practically one bulb of a kind is lost in a garden of even moderate dimensions. In the second I would urge the importance of planting before the year is out. Lilies commence to make new roots soon after the stems have died down, and consequently when the planting is deferred until the spring the growth is more or less weak during the following summer. The early part of October is the best time for planting the varieties of *L. davuricum* and *L. elegans*, and early in November is suitable for planting the forms of *L. speciosum* and *L. tigrinum*, but I have found that they all do well when planted as late as the end of December. There is of course much risk in leaving the work until so late in the year, as heavy rains or severe frosts may prevent the planting being done before the following spring. In planting the several kinds they should be arranged

in groups, each consisting of three or four bulbs, so that when in bloom they will produce a striking effect. When scattered singly over the garden they do not add much to its attractions until they have remained a sufficient length of time for several bulbs to be formed in each station.

AMATEUR CULTIVATOR.

TRADE CATALOGUES.

M. AND F. SHARPE, WISBEACH.—*Special Trade List of Seed Potatoes.*

JOHN FRASER, LEA BRIDGE ROAD, LEYTON.—*General Descriptive Catalogue* 1882-3.

DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Catalogue of Forest and Ornamental Trees.*

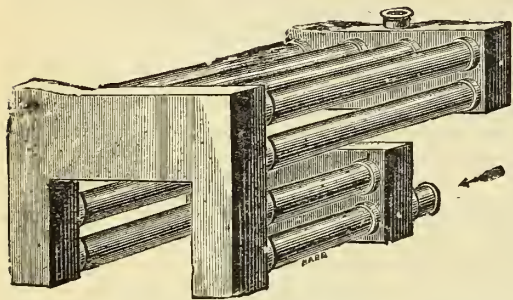
FISHER, SON, AND SIBRAY, HANDSWORTH, SHEFFIELD.—*Catalogue of Fruit, Forest, and Ornamental Trees.—Catalogue of Select Roses.*

N. DAVIS, 66, WARNER ROAD, CAMBERWELL.—*Catalogue of New and Old Chrysanthemums.*

PEAT-MOULD AS A SURGICAL DRESSING.—Two years ago a labourer, who had sustained some days previously a compound fracture of both bones of the fore-arm, presented himself to a German physician, Dr. Neuberg. A comrade at the time of the accident had surrounded the limb with a thick paste of peat-mould. Dr. Neuberg, on examining the wound, found that it was healing beautifully and without suppuration. The limb was then better set, redressed, and the man made a good recovery. Dr. Neuberg was thus led to investigate the properties of this peat-mould, which had evidently so much to do with his patient's recovery. He found it to be a recognized remedy in peaty districts. It takes up about nine times its own weight of water, thus forming a soft mass, enabling it to be placed in bags in any required position on the body, a fact which, combined with its powerful antiseptic properties and its cheapness, renders it likely to prove a most valuable dressing for wounds.

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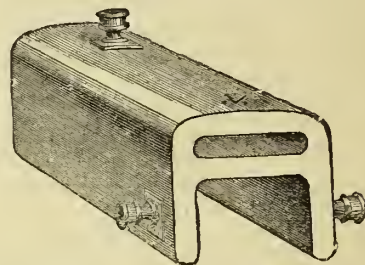
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TWENTIETH YEAR OF PUBLICATION.

THE CITY DIARY AND ALMANACK

FOR 1883.

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REMITTANCES PAYABLE TO E. W. ALLEN, PUBLISHER "GARDENERS' MAGAZINE," 4, AVE MARIA LANE, LONDON, E.C.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M. temp. of air, 40° to 50° F. Chlswick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Souths before Noon.	Sets.	Rises, Morn.	Sets, After.	London Bridge.		Liverpool Dock.				
								Morn.	After.	Morn.	After.			
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG		
10	S	2nd Sunday in Advent. • New Moon.	7 57	6 58	3 49	7 32	4 0	1 24	1 47	10 53	11 12	40°9	Cyclamen persicum, G.	Various.
11	M	Grouse Shooting ends. (Sh. 33m. after.	7 58	6 30	3 49	8 25	4 58	2 5	2 23	11 39	11 48	40°8	Epiphyllum truncatum, S.	Rose.
12	Tu	Lord Hood born. 1724.	7 59	6 2	3 49	9 10	6 4	2 42	3 2	—	0 7	40°7	E. truncatum aurantiacum, S.	Orange.
13	W	Lucy, Virgin and Martyr.	8 0	5 34	3 49	9 49	7 16	3 20	3 40	0 27	0 45	40°7	E. truncatum cruentum, S.	Purple.
14	Th	Prince Consort died, 1861.	8 0	5 5	3 49	10 22	8 32	4 2	4 25	1 5	1 27	40°8	Eucharis amazonica, S.	White.
15	F	Izaak Walton died, 1683.	8 1	4 36	3 49	10 50	9 53	4 45	5 8	1 50	2 10	40°5	Poinsettia pulcherrima, S.	Scarlet.
16	S	Cambridge Michaelmas Term end.	8 2	4 7	3 49	11 15	11 7	5 30	5 53	2 33	2 55	40°4	Tydeas Vesuvius, S.	Scarlet.

The Gardeners' Magazine.

SATURDAY, DECEMBER. 9, 1882.

THE GARDEN ORACLE AND FLORICULTURAL YEAR BOOK FOR 1883 is Now Ready, and may be obtained of all Booksellers, price 1s., or direct from the "Gardeners' Magazine" Office, 4, Ave Maria Lane, London, E.C.

THE GARDEN ORACLE FOR 1883 contains complete Business Calendars, Garden Calendars, and all the astronomical, fiscal, and statistical information proper to an almanac; and in addition references to figures and descriptions of New Plants, copious Catalogues of New Flowers and Fruits, a Directory for Purchasers of Garden Requirements, comprising Selections of the best varieties of Seeds, Flowers, &c., and a general review of the inventions and achievements in horticulture during the past year.

THE DOUBLE CHRISTMAS NUMBER OF THE "GARDENERS' MAGAZINE" will be published next Saturday December 16, price 6d. Orders should now be given to your Newsagent, or to the "Gardeners' Magazine" Office, 4, Ave Maria Lane, E.C.

Exhibitions and Meetings for the Ensuing Week.

TUESDAY, DECEMBER 12.—ROYAL HORTICULTURAL SOCIETY.—Meeting of Floral and Fruit Committees, 11 a.m.; Scientific Committee, 1 p.m.; General Meeting 3 p.m.

Auction Sales for the Ensuing Week.

MONDAY, DECEMBER 11, AT 11.30 A.M.—Messrs. Protheroe and Morris, at the Mart, Tokenhouse Yard, E.C.; Lilies, &c.

MONDAY, DECEMBER 11, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Liliun auratum.

TUESDAY, DECEMBER 12, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

WEDNESDAY, DECEMBER 13, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THURSDAY, DECEMBER 14, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, DECEMBER 16, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THE DISPOSAL OF SEWAGE is one of the grand old difficulties that the people of this generation dare not expect to hear the last of. It is, however, less of a difficulty than it was in the day of doubt, when the Metropolitan Board proposed to fertilize the Maplin Sands by means of irrigation with London sewage. The great drains were made for that purpose at a cost of some four millions of money, and then, instead of fertilizing the Maplin Sands, the sewage of the metropolis was "disposed" of by discharging it into the Thames at Barking and Crossness, a proceeding that has resulted in something that approaches very nearly to the ruin of the river Thames. The difficulty, we repeat, has not increased in magnitude; it has diminished. Science has supplied a partial solution, and beyond all doubt science is capable of abolishing the difficulty entirely, and will do so as local boards and governing councils acquire the spirit and intelligence needful to take full advantage of all possibilities. The subject does not often press for attention now, because the leading principles that govern all sensible sewage schemes are pretty well understood. There is, indeed, abundant room for new discoveries and inventions, but there is not the less a very pressing necessity for sanitary authorities to act up to what is generally known and agreed to on the matter. A report* on the drainage of Hendon opens up the question of sewage disposal in an instructive manner, and we propose to glean from this report a few particulars of practical value. Mr. Hancock, the author of this report, was instructed to obtain information with a view to the advice of the Hendon Board as to the system that should be adopted in dealing with the sewage of their district. He wrote for information in some instances, and in others he visited the works. The results are very carefully stated: in a very few pages we have a body of useful and authentic information, and we can scarcely find a superfluous word anywhere.

The systems inquired into comprise the Precipitation System, the Irrigation System, and the Rochdale Pail System. If it be asked for information in the concrete as to which of these is the best, the answer must be that it "all depends." The system that is best for one place may not be the best for another, and thus at starting we are advertised of the necessity of a local study in every case where a system of some sort may be required. A small agricultural town is in a very different position as regards its requirements to a great commercial or manufacturing city. Birmingham, for example, has had to contend with enormous difficulties, but if the factories and workshops were removed from the town the sewage difficulties would probably go with them.

The Precipitation System is variously carried out, but the results appear not to differ in any great degree. It seems that when a

* "Report on Different Systems of Sewage Disposal." By Mr. C. F. Hancock. Presented to the Hendon Local Board, November 25, 1882.

small volume of sewage has to be dealt with this system answers admirably in producing a sufficiently pure effluent water, while the works themselves are inoffensive and of very simple construction. The lime process requires the aid of precipitating tanks to effect the first removal of solid matters, and the clarified sewage is then purified by filtration through land. This is one of the peculiar difficulties to be encountered, and one that has very seriously affected the populous town of Birmingham, where impediments innumerable have had to be overcome in securing land for the purpose. However, it proves in the end that a very small tract suffices, and with this aid Birmingham is in a promising way, but complete success has not as yet been attained. At Bradford the lime process appears to answer without the aid of a filtering bed, but filters of coke-breeze are employed, and the tanks are constructed on the intermittent system. At Luton Higgs's lime process is supplemented by the addition of alum and clay, and the effluent is finally purified by passing through land set apart for the purpose. At Burton-on-Trent the lime process has been in operation sixteen years, and there is a river at hand to receive the effluent. But this case is far from a success, for the town clerk reports that "the river has at times been most foul, and though we have had no litigation we are compelled by the landowners to remedy the present state of things."

The Fritz-Hillé process combines chemical treatment with filtration through land. This is in operation at Tottenham, Edmonton, Aldershot, and Birkdale, and in each case appears to give satisfaction. The A B C process in use at Aylesbury is a very decided success, but we have no example of a similar success in any large place. For a small town Aylesbury can furnish an admirable model, making an end of all difficulties.

The Rivers Purification Company adopt a process of precipitation in which the sewage is treated with copperas, alumina, and lime. In the town of Hertford the process answers without the aid of land for filtering, but in Coventry filtration through land is practised. Goodall's process is of a similar kind, but with a variation of the chemicals employed. At Newcastle-under-Lyme this was tried, but not proving satisfactory thirty acres of land were purchased and put under sewage irrigation, the crop grown being osiers. Hanson's process consists in treating sewage with black ash waste and lime. It appears to have found favour at Leeds and Golcar, producing a pure effluent at a low rate of cost. Bird's process consists in precipitating by the combined action of muriatic acid, sulphuric acid, and clay, the separation being promoted by the use of straw filters with up-action. The works at Stroud appear to accomplish all that is required of them. The Gotto and Beesley process combines precipitation and filtration, and like the A B C process requires but a limited area of land. This appears to be advantageous to New Brentford, where it is in operation, as the place has "little or no agricultural land near it available for irrigation."

The Irrigation System is in operation in no fewer than eighty-seven towns, and appears to find favour wherever a sufficient area of land can be provided for it. Bedford, Merthyr Tydfil, Croydon, Leamington, and Hitchin are mentioned in Mr. Hancock's report as examples of the success of this system. But failures have occurred owing to exaggerated estimates of the capabilities of the soil to purify sewage, and also through the adoption of a slow system, which permitted the sewage to ferment ere it reached the place provided for its diffusion. Thus successes and failures have to be recorded in connexion with all the more prominent schemes, and we are brought back to the primary consideration of local circumstances, for these must govern the plan as a whole, and modify more or less its several features. The sewage of a dull agricultural town differs greatly in character from that of a busy centre of manufactures. A town in a valley or hollow is very differently circumstanced to one on a hill, and relative proximity to a river is another matter of the very first importance.

In casting up accounts for Hendon, Mr. Hancock recommends the system of the Rivers Purification Company. He says it has not only been found efficient, but there is a special advantage "in the fact that this company in disposing of the sewage takes all the responsibility in consideration of an annual payment or subsidy, and indemnifies the local authority against all proceedings." The works will cost but a comparatively small sum, and should a change of system be at any future time desired, very much of the same plant might no doubt be available for any precipitating process in

which a tract of land is not required for a filtering bed. The high value of land at Hendon seems to narrow the choice of the Board, but we trust they will see their way to effect at a reasonable cost the drainage of their district.

There are some few generalities indicated by these particulars that are of great importance. That precipitation answers admirably for small places is evident; but it is not evident that large places can take advantage of it. The time may come when a place like London may adopt a tank system on a comparatively contracted area, but the time appears to be remote at present. For what reason we are not prepared to say; but it does appear that when the population is represented by more than four figures, the difficulties of precipitation advance in a sort of geometrical ratio. Perhaps the demand at one particular spot for certain cheap materials outruns the means of supply at the price. If this is the main difficulty we may hope to see it got rid of; but there is a difficulty in the way of the continual extension of the systems that are founded on precipitation.

A second point of importance is that precipitation processes burden the hands of the operators with sludge or some preparation thereof that nobody cares to purchase, or that if it finds a market has to be sold at cost price or less. This difficulty we consider of comparatively small account. Unfortunately the earlier adventurers in this field promised the groaning ratepayers a considerable profit on the sale of fertilizers that were to be tremendously powerful, but have in all cases proved to be very little better than ordinary pond mud. We have learned to our cost that the phosphates and alkalies that are freely dissolved in sewage cannot be recovered by any process; some portion may be snatched from the mass, but the remainder has to be got rid of by oxidation, or must be allowed to go with the clear effluent into the neighbouring stream.

For all places, large and small, irrigation affords a thoroughly efficient system of relief, and is unassailable when judiciously carried out. But the carrying out must be governed by local circumstances; and if land cannot be obtained, or if the cheap force of gravitation is not available, we may have to abandon irrigation and take to precipitation or limited filtration, or the two combined, as at Coventry and other places.

The question of expense, like the mode of action, will assume various phases in various places. In many instances irrigation farms make a fair return for the outlay incurred in making and managing; but it may be assumed as a proper postulate that if a town is to be effectually drained the inhabitants must pay for the advantage. To make pretence of carrying out the work on any self-supporting or commercially profitable plan is to indulge in trifling that may lead to mischief, and that certainly will bring no credit to any one. But that delusion, happily, is not often heard of now.

The reader who is interested in these important matters may very properly ask why there should be this difference between great and small places in respect of the efficiency of the precipitating process? Now we will not pretend to answer that question, but will endeavour to contribute towards a proper answer, and leave the summing-up to other hands. In the first place, we feel bound to say that the difference must be in man and not in nature. If certain chemicals are capable of compelling precipitation of the organic matters in the sewage of a town of 8,000 persons, it needs but to increase the quantities proportionately to accomplish a similar end with the sewage of a town of eighty thousand or eighty million. If twice two are four, then four times two are eight, and there is an of the matter theoretically. But it is another matter when we deal with the case practically. But why should that be? It may be that to purify the London sewage, for example, we should want so much charcoal, blood, and alum that the money to pay for it and the means of carriage would prove insurmountable obstacles to success. Now we will venture on a bold proceeding by saying that we do not believe in such an explanation. If London can be fed with daily bread, as it undoubtedly is, it can be supplied with the materials necessary for the defecation and complete purification of its sewage; and, moreover, it can afford to pay all proper charges. The point where—according to our view of the case—the great towns come to grief is in collecting their sewage into immense unmanageable masses—masses too vast for the mind or the hand of man to grapple with them. But let us suppose the mighty rivers of sewage to be divided and sub-divided into manageable quantities, and how is the case altered? Let there be appointed at spots far distant from each other works adapted for the chemical treatment, and how different would be the case to that of treating vast rivers of fermenting sewage at places like Barking and Crossness! A man may not carry an elephant as he lives or dies, but if the man may cut him up he may carry the entire carcase a little at a time. The fact remains, however, that irrigation is the best solution of the difficulty for great places, and to carry out that plan needs higher talent than, generally speaking, has been employed upon it.

MR. DAVID THOMSON'S HORTICULTURAL PERIODICAL, *The Gardener*, closes its career with the present issue for December.

THE ARTIFICIAL DRYING OF CROPS was the subject of a paper by Mr. William A. Gibbs, read at a meeting of the Society of Arts on Wednesday.

THE WINTER EXHIBITION at the Grosvenor Gallery comprises a collection of the best pictures of Mr. Alma Tadema. This affords a golden opportunity for renewing acquaintance with the works of one of the brightest ornaments of the modern school of classic art.

THE CHRYSANTHEMUMS in the show-house in the Middle Temple Gardens have been placed in winter quarters, and the exhibition is therefore at an end. The visitors are reported to have averaged 2,000 daily.

THE PLOUGH TRADE MARKS CASE, reported in our issue for May 13, has been finally disposed of in the Court of Appeal in favour of Messrs. Ransomes, Head, and Jefferies. The decision establishes the validity of trade marks on the necessary parts of machines as well as upon the machines in their completed state.

THE TRANSIT OF VENUS on Wednesday was performed in the dark, so far as London and Greenwich were concerned in the matter. At the Royal Observatory great preparations had been made for observation, but the sun was not seen the whole of the day. At Norwich, Bath, Ludlow, Oxford, Penzance, Plymouth, Cork, Fort William, and Wemyss Bay, the transit was seen more or less. At the two places last named the best observations were made.

A SNOWSTORM of sufficient magnitude to make its way into the papers occurred on Wednesday. It was general, but most severe in the north. In London there was but the ghost of a snowfall, but the day was sufficiently miserable and unusually dark, considering that there was not a trace of fog in the lower atmosphere. On Thursday there was a considerable and continuous fall of snow in London, and the City was in a wretched plight.

THE CHRISTMAS NUMBER OF THE "ILLUSTRATED SPORTING AND DRAMATIC NEWS" is one of the gayest and fullest of its class. The great coloured picture, entitled "Christmas Geese," is lively enough in design and colour, and there are fifteen full-page engravings, all good, a few of them strikingly so. As an accompaniment of a Christmas hamper anywhere this publication will be most welcome, and it is sure of a warm welcome in a country house.

RAILWAY RATES.—Speaking at an agricultural meeting at Gloucester on Saturday, Sir M. Hicks-Beach said English agriculturists could expect little benefit from the report of the Select Committee on Railway Rates, and he recommended that chambers of agriculture should take up the question of undue preference to foreign as against home-grown produce, and should submit proposals to Parliament with the view to prevent foreign produce being brought to this country and distributed at less cost than home produce could be distributed.

AT THE OPENING OF THE LAW COURTS ON MONDAY it was lamented by many that the judges had abandoned the good old custom of carrying bouquets on occasions of ceremony. It was not the less noticeable that there was a lamentable want of colour in the costumes of all present, save such as were robed officially. Swallow-tail coats and white neckties are deficient of picturesqueness, although they are strictly proper. It is deplorable that æstheticism has done nothing for male costume, and has somewhat spoiled the outward attractions of the dress-wearing sex.

CALIFORNIAN VINEYARDS.—Late accounts from California notice the great increase in the size of the vineyards there. A plantation of 200 acres used to be considered a large vineyard; now vineyards of 500 and 600 acres are not uncommon, and one of 1,500 acres was recently planted near Los Angeles. It is expected that in three years or so California will possess vineyards of 5,000 or 6,000 acres in extent. The total number of acres at present devoted to vine culture is estimated at about 100,000, all of which will be in bearing in about four years' time, and producing about 40 or 50 million gallons of wine annually.

"THE FLORIST AND POMOLOGIST" for December contains a beautiful figure of a new camellia named Don Pedro, which Mr. William Bull has lately secured. This variety has short roundish leaves that render it distinct when not in flower. The flowers are very double, snowy white, variously tinged at the base of the petals with rosy carmine. In colouring it is unique. Mr. Moore reports that when visiting this Don Pedro he met with another fine new camellia named *José Marquez Loureiro*, a grand double white, with a finer leafage than the old favourite that up to this time has not been beaten. The fruit figured is Carters' grand *Black Champion Currant*.

THE PHYLLOXERA.—At a meeting of the Paris Academy on Monday M. Dumas stated that at the very beginning of its work the Academic Commission for the destruction of the phylloxera proposed to arrange for the immediate destruction by fire of each plant proved to be infested. Objections were made to this scheme, grounded on the state of French legislation on rural property, and the Academic Commission desisted. M. Dumas states that he has in hand an official report from Switzerland establishing the soundness of the views taken by the Academy on this important question. The cantons of Geneva, Vaud, and Lucerne having resorted to the destroying process, all the vines, of which the value exceeds 40,000,000*fr.*, had been saved at the expense of a few thousand pounds. A special tax had been imposed on the proprietors of vines for compensation to the owners of the destroyed plants.—*Nature*.

JEFFERIES' WHITE MIGNONETTE is the subject of a note from Mr. Orpet, of Farther Barton. He says, "You failed to see in what degree it differed from Parson's and other white varieties. I have grown Parson's mignonette, but have never found it to be white. Messrs. Jefferies' white I consider quite distinct from any other variety." We did not say we "failed to see," &c. We said we had not Parson's or any other white varieties at hand to compare with Jefferies'. In such cases proper comparisons are of the utmost importance.

THE "LOCUST CAMPAIGN" IN CYPRUS.—The reward offered by the Government of Cyprus of one piastre per oke, or about a halfpenny per pound for locust eggs—subsequently raised, however, to three times that sum as the eggs became scarcer—resulted in the collection of the enormous amount of 1,329½ tons of eggs in the seven months preceding the middle of February last. Besides this step, screens and locust traps were extensively employed, and altogether £32,000, or more than one-fifth of the total revenue of the island, was expended in the official "locust campaign" during the financial year. The Cyprus locust is a species confined to the island, and hopes are entertained of being able finally to extirpate this destructive pest.

FOG POISONS.—Dr. Russell, of the Chemical Laboratory at St. Bartholomew's Hospital, a member of the committee which has for some time been carrying on extensive experiments regarding the composition of London fogs, at the request of the Meteorological Council of the Royal Society, states that he has already obtained very important results showing the great increase in the amount of carbonic acid in the air of the City during fogs. In some cases the increase amounted to upwards of two and a half times the quantity ordinarily present. The result is considered important, not only as demonstrating the presence of abnormal amounts of this gas during fogs, but also as indicating by its accumulation the probability that the proportion of other atmospheric impurities may be increased to a like extent.

THE EARTHWORM IN NEW ZEALAND.—A correspondent of the *N. Zealand Journal of Science* furnishes some interesting observations on the work done by earthworms in New Zealand. In October, 1875, a trench was dug in a raised beach, in Manukau Harbour. The section thus exposed consisted of 4½ in. of black mould, produced by the decay of vegetation during a period of about 30 years, overlying 1 in. of burnt clay, small stones, &c., passing down into a brownish-green arenaceous clay. Some of the ground, which had been left undisturbed, was trenched during the past summer, when there was found 1½ in. of turf at top, then the layer of black mould increased 1¼ in. in thickness, making 5½ in.; and lastly, the stones, ash, &c., undisturbed. Again, an angular block of black trachyte, weighing 25 lbs., was placed in a certain position in May, 1875, and this summer was found to have sunk 1 in. after making allowance for growth of vegetation round it. Mr. Urquhart, the correspondent in question, has been making observations on the action of earthworms in New Zealand for over sixteen years. Hensen, as quoted by Darwin, it will be remembered, calculates the average number of worms in an acre of garden soil at 53,767, and in the same area of corn field at about half that number; but Mr. Urquhart's estimate is much larger, amounting on rich upland to eight worms per square foot, or 348,480 worms per acre. In uncultivated fern-land, the number of worms is small. In New Zealand, earthworms not only quit their holes, but climb trees in quest of food, this being done chiefly at night, although they are not unfrequently found still on the trees quite late on warm damp mornings.

[Earthworms in this country often climb, and certainly also travel in still damp weather.—ED. G. M.]

CHOICE CHRYSANTHEMUMS.

INCURVED FLOWERS FOR EXHIBITION.

ALFRED SALTER, Antonelli, Angelina, Barbara, Baron Beust, Blonde Beauty, Cherub, Empress Eugénie, Eve, Empress of India, Enamel, Emily Dale, a straw-coloured sport from Queen of England, large and fine, but not sufficiently distinct from Golden Queen of England to be shown in the same stand; Golden Beverley, Golden Eagle, General Bainbrigge, Golden Empress of India, Golden Queen of England, Gloria Mundi, Guernsey Nugget, Hero of Stoke Newington, Isabella Bott, Jardin des Plantes, the richest of all the yellow incurved flowers, but rather defective in form; John Salter, Lady Hardinge, Lady Slade, Lady Talfourd, Le Grand, Lord Derby, Lord Wolseley, not yet in commerce, but should be secured immediately it is distributed; it will be particularly valuable to those who are unable to produce good blooms of John Salter; Mabel Ward, Mr. Brunlees, Mr. Gladstone, Lady Carey, Mr. Howe, Mr. Corbay, Mr. Bunn, George Glenny, Mrs. G. Rundle, Mrs. Dixon, Mrs. Haliburton, Novelty, Nil Desperandum, Princess of Wales, Princess of Teck, Princess Beatrice, Prince Alfred, Prince of Wales, Pink Perfection (syn. Miss Mary Morgan), Queen of England, Rev. J. Dix, Refulgence (syn. Inner Temple), Venus, White Beverley, White Globe, and White Venus.

JAPANESE TASSELLED FLOWERS FOR EXHIBITION.

Agréments de la Nature, Album Plenum, Belle Gabrielle, Baronne de Prailly, Bertier Rendatler, Bend Or, Bouquet Fait, Boule d'Or, a grand flower of the type of Golden Dragon, which it surpasses; Cérés, Chinaman, Comtesse de Beauregard, Dr. Audiguier, Dolores, Duchesse de Gerolstein, Dr. Macary, Duchess of Connaught, Elaine, Fair Maid of Guernsey, Flambeau, Fanny Bouchalet, Garnet, Gloire de Toulouse, Guillaume Delaux, Hiver Fleuri, Kämpfer, in the way of Criterion, but superior; La Negre, La Charmeuse, L'Incomparable, Laurence, Madame Bertier Rendatler, Madame Clemence Audiguier, Marguerite Monarch, Mdle. Moulise, Mons. Delaux, Mons. Eugène Pourquié, Mons. Richard Larios, Nuit d'Hiver, Pere Delaux, Plantagenet, Peter the Great, Red Gauntlet, Rosa Bonheur, Red Dragon, Rubrum Striatum, Striatum Perfectum, Soleil Levant, The Sultan, Thunberg, The Daimio, Triomphe de Chatelet.

LARGE ANEMONES FOR EXHIBITION.

Acquisition, Bijon, Emperor, Empress, Fleur Marie, Georges Sands, Glack, King of Anemones, L'Africaine, Lily Margaret, Louis Bonamy, Madame Thérèse Clos, Mons. Chate, Margaret of York, Marguerite d'Anjou, Madame Godereau, Mrs. Pethers, Princess Louise, Prince of Anemone, Queen Margaret, Sunflower.

ANEMONE-POMPONES FOR EXHIBITION.

Agatha, Antonius, Astarte, Astrea, Calliope, Eugène Laujault, Firefly, Grace Darling, Jean Hatchette, Madame Montels, Madame Scutir, Madame Chalonge, Marguerite de Coi, Marguerite de Waldemar, Marie Stuart, Mrs. Wyness, Miss Nightingale, Mr. Astie, President Morel, Perle, Regulus, and Sidonie.

POMPONES FOR EXHIBITION IN A CUT STATE.

Anna de Belocce, Aurora Boreale, Bob, Captain Nemo, Crimson Perfection, Eleonore, Fanny, Golden Mdle. Marthe, Golden Trevenna, Germaine Clermont, Jason, La Vogue, Louis de Morvay, Lucrèce, Mdle. Marthe, Mdle. Pourquié, Madame Ferrand, Madame Pieux, Mrs. Bateman, Marabout, Mons. José Marquês Loureiro, President, Princess Mathilde, Rosa d'Amour, Rose Trevenna, Saint Michael, Soirée d'Été, and White Trevonna.

LARGE REFLEXED FOR EXHIBITION.

Annie Salter, Alma, Alfonso, Beauté du Nord, Chevalier Domage, Christine, Dr. Sharpe, Emperor of China, Golden Christine, Gazelle, Garibaldi, Julie Lagravère, King of Crimson, Mrs. Forsyth, Mons. L. Barthiere, Orange Annie Salter, Prince Albert, Progne, and Reverie.

LARGE FLOWERED VARIETIES FOR SPECIMENS.

Incurved.—Antonelli, Aregina, Barbara, Eve, Faust, Golden Beverley, General Bainbrigge, Guernsey Nugget, Lady Hardinge, Lady Slade, Lord Wolseley, Lord Derby, Mr. Brunlees, Mr. Bunn, George Glenny, Mrs. Dixon, Mrs. G. Rundle, Mrs. Haliburton, Princess of Wales, Prince Alfred, Prince of Wales, Pink Perfection, Venus, White Venus.

Reflexed.—Annie Salter, Chevalier Domage, Christine, Dr. Sharpe, Golden Christine, Julie Lagravère, King of Crimson, Mrs. Forsyth, and Orange Annie Salter.

POMPONE VARIETIES FOR SPECIMENS.

Pompone.—Aigle d'Or, Aurora Boreale, Bob, Eleonore, Fanny, Golden Mdle. Marthe, Golden Cedo Nulli, La Vogue, Mdle. Marthe, Miss Bateman, Mrs. Hutt, Marabout, President, Saint Michael, White Cedo Nulli.

Anemone Pompone.—Antonius, Astrea, Calliope, Firefly, Jean Hatchette, Madame Montels, Marie Stuart, Miss Nightingale, Mr. Astie, Perle, and Regulus.

The varieties in the several sections recommended for specimens are specially adapted for the decoration of the conservatory. It may, however, be mentioned that every variety enumerated in the respective selections may be employed for that purpose, where untrained plants are preferred.

EARLY-FLOWERING VARIETIES FOR THE GARDEN.

Anastasio, Aureole, Bolide, Dr. Bois Duval, Curiosity, Chromatella, Delphine Caboche, Fred Pele, Felecite, Golden Madame Domage, Illustration, Inimitable, La France, La Petite Marie, L'Admirable, La Vierge, Lyon, Madame Pecoul, Madame C. Desgrange, Mdle. Jolivat, Precocité, Red Madame Pecoul, Souvenir de Mons. Rampout, St. Crouts, St. Mary, and Virginia.

THE BEAUTIES OF BRITISH TREES.

From the *Journal of Forestry*.

THE HAWTHORN (*Crataegus oxyacantha*).—About a fifth of our forest trees belong to the Rose tribe, and nearly half of them have white flowers. Among these none perhaps exceed in beauty that characteristically English tree the Hawthorn. True, its geographical range includes all Europe, the north of Africa, and the west and north of Asia, whilst it has been introduced into North America; but in England, from the earliest days of private property in land, it has been our chief hedge-forming bush, and perhaps many of the large many-boded trees that stand alone or in clumps on bare hill-sides or commons date from even an earlier period. "Haw" is the same word as "hedge," and in the north the fruits of the thorn are still termed "haigs;" so that it is somewhat doubtful whether the word hedge is derived from the name of the tree that bears the haws, or whether, as is more probable, the fruit took its name from being borne on a hedgerow tree.

This fruit resembles a miniature rosy-cheeked apple. Though it may consist of but one carpel, while in the genus *Pyrus* there are never less than two, it often has five. In either case the round or oval fruit is surmounted, as in the apple, by the withered remains of the calyx. The flesh of the fruit, which is perfectly wholesome, though so tasteless as generally to be left, even by the omnivorous schoolboy, to the birds, conceals the upper end of the bony core. This boniness of the core is one of the leading distinctions of the genus *Crataegus*. Doubtless it protects the seeds from digestion or decaying moisture and so facilitates their germination in due time.

There are some fifty species of Hawthorn, all confined to the North Temperate Zone; but our English forms yield to none in their varied beauty and interest. They are but small trees, seldom more than twenty feet in height; but aged specimens sometimes have boles two or three feet in diameter, or still more frequently divide into several stout ascending limbs, from which the multitudinous boughs and twigs spread outwards, forming a close round-headed bush, the favourite nesting resort of many of our feathered friends. The leaves are small, shortly stalked and very variable in outline, and the snowy flowers are grouped in flat clusters, each containing many blossoms, in the centre of each of which is the bunch of stamens whose delicate pink anthers soon become brown as they burst and discharge their pollen.

There are several varieties of the Hawthorn, both wild and in cultivation. One, the *C. oxyacanthoides* of some, has larger flowers and fruit, with smooth flower-stalk and calyx-tube and with two or three carpels; another, *C. monogyna* has deeply cut leaves, downy flower-stalks and smaller flowers and fruit, the former appearing later, usually in June, and the latter having only one carpel. Other forms have yellow or black fruits, whilst every one knows the varieties with double pink and scarlet flowers, and most people must have heard of the celebrated Glastonbury thorn, reputed to have sprung from the staff of Joseph of Arimathea, planted on the top of Glastonbury Tor, which blossoms early in the year and sometimes as early as old Christmas-day.

The quiet pastoral charm of the Hawthorn in the simplicity of its beauty has endeared it to poets, who have sung its praises in conjunction with those of almost every season of the year. In winter when

Through the sharp Hawthorn blows the cold wind,
its boughs can hardly be said to present a cheerful aspect. They appear dull grey or

at a little distance almost as a black blot upon the landscape, save when the mildness of the season may have allowed the fastidious birds to leave its heavy crop of crimson fruit, preferring more dainty fare, or when in some moist dale a venerable tree

Is o'ergrown
With lichens to the very top,
And hung with heavy tufts of moss,
A melancholy crop.

Even then, when, as Sackville says,

Hawthorne has lost his motley livery,
The naked twigs are shivering all for cold,
And dropping down the teares abundantly,

the sunbeams, glistening on dew or hear-frost, or the delicate threads of the gossamer, lend it a borrowed grace. It is in April, however, "when Hawthorn-buds appear" as the first tufted harbingers of summer, throwing off their russet scales, and unfolding in the most perfect purity of green, that the tree first exhibits its real charm. Though the flowers have only in exceptionally warm springs made their appearance by the first of May, their coming tells us plainly, like the last fading of those of the Blackthorn, that winter is past and summer has come.

In "Britannia's Pastoral" Browne thus sings its praises:

Among the many buds proclaiming May,
Decking the field in holiday array,
Striving who shall surpass in braverie,
Mark the faire blooming of the Hawthorn tree,
Who, finely clothed in a robe of white,
Fills full the wanton eye with May's delight.
Yet for the braverie that she is in
Doth neither handle card nor wheel to spin,
Nor changeth robes but twice; is never seen
In other colours but in white or green.

The long leafy sprays, whose leaves are almost concealed by the lavish masses of blossom, which have earned for the plant its name of Whitethorn, as opposed to the black leafless boughs visible between the snowy flowers of the Blackthorn, seem to have attracted most of those who write its praises, its fragrance adding a great source of pleasure. Thus in the "Forest Minstrel," William Howitt sings of

The beautiful Hawthorn that has now put on
Its summer luxury of snowy wreaths;
Rending its branches in exuberant bloom,
While to the light enamour'd gale it breathes,
Rife as its loveliness, its rare perfume;
Glory of England's landscape! Favourite tree
Of bard or lover! It flings far and free
Its grateful incense.

That is indeed a joyous season of the year when the air is fresh, sweet with the breath of flowers and free from the dust of later summer; when the meadows are gay with cowslips, huttercups or ladies'-smocks and the woods still rejoice in primrose, orchis, hyacinth, and anemone; when the trees have lost the first freshness of their greenery, and the hedgerows on the distant hillside look like billowy snowdrifts unmelted by the summer sun. As Spenser says.

Youngthes folke now flocken in everywhere
To gather May baskets and smelling Brere;
And home they hasten the postes to dight,
And all the kirk-pillours care day-light,
With Hawthorne-buds, and sweet Eglantine.

The thickly set boughs, whether in flower or in leaf, make the tree afford a pleasant shade on the open down or by the village green. At noon-tide,

Every shepherd tells his tale
Under the Hawthorn in the dale,

whilst later in the day young lovers

In other's arms breathe out the tender tale,
Beneath the milk-white thorn that scents the ev'ning gale.

Goldsmith tells us that the shade may be pleasing to others besides Milton's shepherds and Burns' lovers:

The hawthorn bush, with seats beneath the shade,
For talking age and whispering lovers made.

The gay colours of decay, the signs of Autumn's reign and of Winter's approach, have less often formed the poet's theme; but when the summer beauty of the thorn "with its locks o' siller grey" has given place to the green fruit ripening to a pure, though opaque, crimson, the leaves put on what is indeed a "motley livery." Some become a clearer green, losing the yellow and brown shades that have dulled in July their April verdancy. Others blush pink on one half of the leaf or at their edges, whilst others outvie the crimson of the fruit or the reddish purple of a rain-stained hunting-coat. Some become yellow as the Maple, others orange or russet, and the later mists of autumn reduce all this varied splendour to the uniform dull brown of decay, which on the ground soon becomes a mere black leaf-mould.

And so, from hour to hour, we ripe and ripe,
And then, from hour to hour, we rot and rot,"

The scarlet May by itself has, perhaps, too glaring an effect, making one feel oppressed with it through the eyes as by its powerful perfume through the nostrils; but it is admirable when in a clump with several white-blossomed varieties, especially if in a shrubbery with a neighbouring laburnum. Thorns are pleasing when thus placed on the edge of the lawn or park, on the outside of the belt of trees, or in their common place, the hedgerow. The name of "quickset" is probably derived from the fact that living branches when set in the ground will form a live hedge, as opposed to a paling of dead wood. Undoubtedly, however, the most effective use of thorns is either singly or in clumps in the park, for they are rather too untidy for the lawn, or in the wild garden, especially on any elevated knoll. The landscape gardener of the future will think himself fortunate if he finds one or two venerable thorns, with much divided boles and with blossom-laden boughs, yearly sweeping to the ground, ready to his hand in such situations.

THE HAZEL (*Corylus avellana*). Belonging to that group of trees characterized by their catkins of simple and inconspicuous flowers, and by their nut-like fruits more or less enclosed in bracts forming a sheath or "cupule," often of cup-like shape, the Hazel seldom has the habit or dimensions of a tree. It is generally a shrub sending up many slender limbs remarkable for their brown bark and their great flexibility. At Eastwell Park, in Kent, however, it is a tree thirty feet in height with a girth of three feet at the ground. The young twigs are hairy and glandular and of a rusty brown hue. The flowers appear even as early as January, but are most frequently not open until March, whilst the leaves do not open until the end of April or the beginning of May. The male and female blossoms occur on the same tree but in distinct clusters, or "catkins." The male catkins are pendulous, first appearing as minute, sausage-shaped buds of a dull

brownish hue, but lengthening to two inches or more and becoming, when the anthers are fully matured, of a pale greenish-yellow or primrose colour, which is more decidedly green when the pollen has been shed. Each catkin consists of a number of bract-like scales, each bearing eight anthers on its inner surface, so that clouds of fine-grained yellow pollen is shaken from them by the March gales, after discharging which they drop off. The female flowers are grouped in little egg-shaped bud-like tufts, sessile on the branch, consisting of several overlapping green bracts, each of which bears two flowers on its inner surface, their crimson stigmas forming a tassel at the top of the cluster. The flower itself is only a two-chambered ovary, surrounded by a velvety cup-like "bracteole," which afterwards grows into the large leafy husk or "cupule" of the nut, and is surmounted by a short style and two of the long crimson tongue-like stigmas. There is a peculiarity in the positions of the catkins and the fruits, which is so well described by the Rev. H. N. Ellacombe, that I cannot do better than quote his words:

"The male blossoms, or catkins (also anciently called 'agglettes or blowings') are mostly produced at the ends of the year's shoots, while the pretty little crimson female blossoms are produced close to the branch: they are completely sessile or unstalked. Now in most fruit trees, when a flower is fertilized, the fruit is produced exactly in the same place, with respect to the main tree, that the flower occupied; a peach or apricot, for instance, rests upon the branch which bore the flower. But in the nut a different arrangement prevails. As soon as the flower is fertilized, it starts away as from the parent branch; a fresh branch is produced bearing leaves and the nut or nuts at the end, so that the nut is produced several inches away from the spot on which the flower originally was. I know of no other tree that produces its fruits in this way, nor do I know what special benefit to the plant arises from this arrangement."

Towards the solution of this problem it may be suggested that producing no petals, the shrub has energy to form abundant pollen, some of which will certainly be wind-wafted on to the spreading stigmas if there are no leaves in the way. Hence the advantage to wind fertilized flowers of blossoming before the leaves appear. Again *L'unioñ fait la force*, and a cluster or short spike of flowers (each of which is structurally a short branch), surrounded by bracts and sessile on a branch, will stand a better chance of keeping its place, in spite of spring storms, than a single flower. Moreover, the tufted stigmas secure the fertilization of some of their number. Fertilization acts as a stimulus. The male catkins have performed their function, and have dropped off, so nourishment flows towards the female one. That the fruit may not ripen too soon, however, fall to the ground, and rot before the winter's frosts, it must not develop thus early in spring. The food thus produces a branch below the nascent bunch of nuts.

The leaves of the hazel are large, rounded, heart-shaped leaves, with toothed edges, a long point, a downy under-surface and a short stalk. They are folded into several longitudinal plaits in the bud, and when young are bright and pleasing in hue; but later on they take yellow-brown tints of green and a dull woolliness that renders the tree heavy as a feature in the landscape, except when relieved by the brown stems, the pale green clusters of unripe nuts, or their own yellow, dull orange or reddish colour in autumn,

Red as the glow that morning's opening warms.

Though the lithe boughs are often used for hoops or crates, and many a farmer prides himself on a tough but yielding walking-stick of hazel wood, it is the fruit for which the tree is most valuable. At Windermere stout sticks of this tree, cut in the neighbourhood, are sold as souvenirs of the lovely lake; but it is in "the garden of England" round Maidstone that nuts are most extensively cultivated. The rows of heavy, dull-leaved, close-growing shrubs in this district can hardly be called beautiful. Immense quantities of nuts are imported from Spain and Italy. The hazel-rod is also of interest as being, at least in many districts, the orthodox instrument in the mysterious incantations of the rhabdomancer, as De Quincey would style the user of the divining rod. By some occult magnetic or psychic power it is asserted that the wand of hazel, willow, or, apparently many other woods, held loosely in the hand, turns downwards like a dipping magnetic needle when over a spot beneath which lies hidden a spring of water or a store of metal. Far more certain is the usefulness of the hazel at that season when

The scrambling shepherd with his hook,
'Mong hazel-boughs of rusty brown
That overhang some gulping brook,
Drags the ripened clusters down.

"The scrambling shepherd" will, however, often find in lieu of the nut he seeks, that chariot of Queen Mab,

An empty hazel nut
Made by the joiner squirrel or old grub,
Time out of mind the fairies' coachmakers.

The grub is the tawny brown weevil that we see creeping along the boughs or flying round the nut-bushes in the early summer. The female with her powerful jaws bores a hole in the young nut and in it lays an egg, which in about ten days, as Miss Ormerod informs us in her most valuable "Manual of Injurious Insects," hatches into a fat white maggot, whose devastations generally cause the nut to become rapidly to all appearance ripe, and to prematurely fall; whereupon the destroyer eats his way out and escapes. The squirrel makes a larger hole, removing nearly half the nut-shell.

Nuts were formerly cultivated mainly for their oil, the cultivated filbert differing mainly from the wild form that has grown in Britain since the numerous forests now submerged round our coasts afforded covert to the mammoth, the wild boar, the Irish elk, and the British lion, in the greater length of its leafy husk. There is a purple or "copper" leaved variety, as in the case of the beech, which growing rapidly but closely forms a pretty garden hedge, though it is not often seen; but, save for its nut, or as a covert for game, the common hazel can hardly be recommended for cultivation. It can sometimes be used as a screen of dull foliage to show off some finer species; but in general a tree of real beauty appears at its best when growing freely in the open, its every outline sharp against the sky.

G. S. BOULGER.

EXTRAORDINARY FATALITY.—The *Colonies and India* reports an extraordinary fatality from British Guiana, where an inexperienced traveller having, as is the custom in tropical countries, taken a refreshing draught from the stem of one of the many water-holding plants which thrive in the forests, qualified his cold refreshment by a "nip" of rum. Shortly afterwards he died in excruciating agony, and a post-mortem examination showed that his internal organs were literally sealed up with indiarubber. He had imbibed the sap of the *Mimusops balata*, the juice of which coagulates and hardens in alcohol, and the rum had had its usual effect in the poor man's stomach, with necessarily fatal results.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

The vinery, the orchard-house, and the green house will now afford the amateur plenty of work, and in gardens where it is intended to force asparagus, seakale, or rhubarb, preparations must be made forthwith.

PRUNING AND DRESSING VINES.

The proper time for pruning and dressing grape vines depends very much upon the season at which they are started, and the period to which the grapes are to be allowed to hang. Those started early in the year, as for example in January or February, may be pruned in October or November, whilst the pruning of those furnishing the late supplies must be deferred until the whole of the crop has been gathered. Vines that are allowed to start naturally and produce crops that are sent to table during the autumn months—and these constitute the majority in small gardens—may be pruned at any time between the middle of November and the middle of February with perfect success. But from long experience in grape growing I am fully convinced that there is no better month than December. The vines are then perfectly at rest; and as outdoor operations are necessarily at a standstill there is plenty of time for doing the work in a careful manner. I should strongly recommend those amateurs who leave the pruning until the year is out to have it done some time in January, for after that month the matters requiring attention increase at so rapid a rate that there is some danger of its being deferred until the growth has commenced, when the vines suffer more or less from a loss of sap. For general purposes they should be pruned according to the spur system, for it is simple, easily understood, and invariably affords satisfactory results. In a vine pruned on this system we have a main stem or rod, furnished on both sides with shoots produced in the previous summer, and technically known as laterals. To prune a vine of this description is very simple, for strictly speaking it consists simply in cutting each lateral back to the first prominent bud from the spur. In some cases the first bud will be prominent enough for the shoot to be cut back to it, but generally speaking the best course will be to prune to the second bud. When there are two laterals to a spur the weakest should be cut back to the first bud to encourage it to produce a strong shoot during the following season. Vines that have two or more leading stems are pruned in precisely the same way as those with one only, each cane being regarded as a separate vine. Young vines that were planted early in the year, and have reached the top of the house, should be shortened to about one-half their length to ensure their breaking strongly at the lower part; and if they are vigorous they may be allowed to carry three or four bunches, for not only will fruit-bearing do them no harm, but it may serve to check an excessive luxuriance, which is sometimes developed in the second year.

On the completion of the pruning the loose pieces of bark on the main stems may be removed; but the barbarous practice of stripping off every scrap of bark, which some cultivators consider so necessary, should not be indulged in unless the vines have suffered severely from the attacks of insect pests during the season of growth. In the latter case the removal of the bark is necessary to enable the cultivator to reach the pests lurking in the crevices.

We now come to the question of dressing the vines, on which a little difference of opinion prevails. Some gardeners believe it necessary to paint the vines with a mixture of clay, soot, cow dung, lime, sulphur, tobacco juice, and soft soap, worked up into a consistency similar to that of good whitewash, and a mixture of this description may be useful when the stripping process is resorted to. But when the more rational course is taken of allowing the bark to remain, with the exception of the loose pieces, no pasty dressings are wanted—in fact, I consider them hurtful. There is no better way than to first wash the vines with warm water and soft soap, and then dress them with some approved insecticide. To wash them have a can of warm water, a rather soft brush of medium size, a lump of soap in a saucer, and as the washing proceeds occasionally draw the end of the brush across the soap. But care must be taken not to lather the soap on too freely, particularly about the buds. Of the numerous insecticides I have tried for dressing vines there are none better than Gishurst Compound and Nicotine Soap, both of which can be depended upon, and are at the same time reasonable in price. Both these preparations should be used at the rate of four ounces to the gallon, and be mixed with hot water. It may be added that a lump of one of these insecticides may be used instead of soft soap when the latter is not readily obtainable.

The pruning and dressing completed, the vinery should have the woodwork and glass made as clean as hot water and soap will make it, and the walls be washed with hot lime. The latter I consider so important that when the house is so filled with plants that the woodwork and glass cannot be conveniently cleansed an effort should be made to apply the limewash to the walls. At the same time both inside and outside borders may have a dressing of partially rotted manure; and borders that have become exhausted should receive a top dressing of manure and fresh loam in equal proportions. In applying the latter, remove the old soil to a depth of six or eight inches, and with sufficient care to prevent injury to the roots, and lay the new soil and manure over the surface twelve inches in thickness.

WORK IN THE ORCHARD HOUSE.

Provided the trees received proper attention during the summer, they will not want a very severe pruning at the present moment, but some must be done. Pot trees of peaches, nectarines, and cherries that were stopped about twice during the summer will require a little of the wood thinned out, and a few of the longer shoots shortened. In all cases the shoots must be pruned to a wood bud, which can be

readily distinguished from the flower buds by their thin and pointed appearance. Trees that are trained to trellises will require some amount of thinning, and the young shoots that are left to be shortened by about one-third. In both summer and winter pruning every effort should be made to keep the lower parts of the trees well furnished with young wood, a point that is frequently neglected until the trees have become bare and almost destitute of fruit-bearing wood in the centre. Old and young wood should be painted with a solution of either Gishurst Compound or Nicotine Soap, prepared as advised for the vines, and in applying the mixture due care must be exercised to prevent injury to the buds. Washing the walls with lime and the glass and woodwork with scap can be recommended as not less necessary for the orchard house than for the vinery. Borders that are exhausted should receive a moderate coat of loam and manure, just sufficient to maintain a healthy growth. The manuring must not be overdone, or the trees will be started into a growth much too luxuriant to be productive.

This is a good time for making changes in the house, and filling up any blanks that may have occurred, and a brief reference to the selection of varieties may be useful. It is too much the practice to plant orchard houses with a very limited number of sorts, and to confine the varieties chiefly to those ripening their fruit at mid-season. I would suggest as a means of prolonging the season during which supplies may be had that the early and late varieties should be planted more extensively. I would advise, for example, the planting of Hale's Early and the Alexander peaches and Lord Napier nectarine for early supplies, and Lady Palmerston peach and Milton nectarine for late use. With the addition of these sorts, the usual supplies may be extended by about three weeks.

FORCING ASPARAGUS, SEAKALE, AND RHUBARB.

As the forcing of asparagus can hardly be recommended for small gardens, and full directions were given in the Magazine a few weeks since for the production of early supplies of seakale, it will not be necessary to dwell at any length upon the forcing of these subjects. The best plan of obtaining early supplies of asparagus in small as in large gardens is from permanent beds prepared specially for the purpose. The beds should be about three feet in width and have a trench round them; the trench to be between twenty-four and thirty inches wide and deep, and the sides of the beds to be supported by a four-inch wall, pigeon-holed to allow the heat from the fermenting materials to pass readily through to the soil. For covering the beds, span-roof frames of inexpensive construction should be provided, and when the beds are started the frames should be placed over them with the sides resting upon the walls, and the trenches be filled with stable manure or leaves. A mixture of the two may of course be employed, and to the fermenting materials additions can be made as becomes necessary. The glass ought to be regularly covered with mats or litter until the asparagus commences to make its appearance above the soil, and then the glass must be covered at night only, for light is most essential to the production of green, full-flavoured "grass." To economise the heat, the beds should be placed side by side, and, as a rule, not exceed twenty feet in length. To force asparagus in frames, make up a bed of leaves large enough to receive a one, two, or three light frame, according to the requirements. Then pack the roots as close together as possible, and cover to a depth of about four inches with any light soil available. The roots, which must be carefully lifted, may also be forced in pits heated with hot water. Rhubarb can be forced with equal success in the dark and in the light. The roots can be started in the open by having small, bottomless casks turned over them, and then be covered with a good thickness of fermenting materials, or they may be lifted and placed in a spare corner of the greenhouse or stove. When taken indoors they should have a little soil placed about them, and be liberally supplied with tepid water. Early supplies may also be obtained from roots placed in warm cellars and mushroom-houses. Tastes differ as to whether the stalks produced in the dark or in the light are the best flavoured; my employers prefer the produce of roots placed in a dark corner of a glass structure, as it is delicate in flavour without being so watery as that grown in the dark.

WORK IN THE GREENHOUSE.

For some time hence the supply of water to the occupants of cool structures will require great care, and I would assure the amateur that any extra attention will be amply repaid by the healthy condition of the plants. Excepting bulbous plants at rest and cacti, the soil must not become dust dry, as it cannot be allowed to reach that condition without injury to the delicate fibrils. On the other hand, the power of absorption is not great at this dull period, and supplies in excess of requirements will be most injurious. The stock of plants should have attention not less than three times a week, and as each plant requires water it should be supplied with just enough to well moisten the soil. Water ought not to be splashed about, and all pools on the floor ought to be at once brushed out. The morning is the best time for watering, which should as far as practicable be done at a time when the ventilators can be opened.

The fires will require careful regulation, for on the one hand the occupants of the house must not be exposed to frost, or on the other to a temperature equal to that of the forcing house. It is a very good plan in cold bright weather to light a fire in the afternoon and keep it burning steadily until the evening, when if there is a sharp frost the dampers can be withdrawn for half an hour or so, and everything made safe for the night. If the fire is not lighted until the thermometer has fallen to within a few degrees of the freezing point, it has to be driven hard for some time, and much anxiety created. Generally it is

allowed to burn briskly too long, with the result that the temperature is pushed up to 60 deg., and the plants subjected in a very short space of time to a great and most injurious change of temperature.

PROTECTING PITS AND FRAMES.

For covering pits and frames there is nothing in my opinion to equal the common Russian mats, for they are fairly cheap, very durable, and most efficient in keeping out frost. They have also the great advantages of being easily put on and taken off the pits, and of presenting a neat appearance. Refuse hay and straw are not to be despised for protective purposes, but there is some risk of breaking the glass in covering and uncovering. They soon become saturated with moisture, and also give the garden a very untidy appearance. Protective materials of all descriptions possess greater powers of excluding frost when dry, and mats and textile fabrics used should, if possible, be dried during the day. In some cases this may be done by suspending them across a bar of wood or a line fixed near at hand for this purpose, and at others by hanging them up in a stove-hole. One or two mats will suffice in the severest weather for pits that are heated, but all others will require a covering consisting of three mats in thickness, or a mat and a good layer of hay or straw. In using either of the two last mentioned materials invariably place a mat next the glass to facilitate removal and avoid the risk of breakages. In very severe weather—such for example as when from fifteen to twenty degrees of frost are experienced—brick pits and wooden frames containing tender plants should be banked up with ashes, soil, cocoanut fibre refuse, or leaves, to prevent the frost passing through the sides. When the frost is severe during the day, the unheated frames must remain covered even if the frost lasts for a week, and should the frost reach the plants the only safe course is to allow the covering, or a considerable proportion of it, to remain until they have become thawed. When tender plants in a frozen state are exposed to the light and a current of air they invariably perish; but kept in darkness they frequently pass through the ordeal without much injury. The practice of covering small plant houses and the lower part of the roofs of those of moderate size during severe frosts is one that can be strongly recommended.

THE MAKING OF A TOWN GARDEN.

How to do it and how not to do it—these are matters of vital importance to any townsman who would have a respectable garden. The difference between the bad way and the good way, as well as the thinness of the partition that separates them, have been strikingly exemplified in the case of a garden that has been under my observation during the past five years. It seems to me that the case of this particular garden, as I hope to be enabled to set it forth in strict accordance with the facts, may be regarded as covering thousands of cases, both as to the causes of failure and the secrets of success. At all events, the points that present themselves for attention in the history of this case are of considerable practical importance, not only to those who may have a town garden in need of embellishment, but to all who are interested in gardening, whether in town or country, for, broadly speaking, what applies in one case applies with equal force in the other. The main difference between town and country is seen in the range of operations. A thousand things that are possible and more or less desirable in the country are impossible in town, because the space is limited, the light subdued, the air impure, and the soil usually is ill-natured stuff. But what after all remains to be done must be done in much the same way both in town and country, and therefore the town gardener may bring knowledge to bear upon his work with as great advantage as the country gardener—with greater advantage, perhaps, because the other has nature with him, but the townsman has in some senses nature against him, or, at all events, her forces are so weakened that she cannot afford much help.

The garden I have made a few observations on is favourably situated in an open suburb, three and a-half miles distant as the crow flies from the centre of London city. It is of the usual rectangular form, enclosed with low brick walls, but it is not in any way "hemmed in" by houses. It looks out on a large triangular space, formed by the junction of three roads, and in this space are many trees and a capital subscription bowling green. Thus, in respect of air and light, we begin well, but the aspect is north-west, which is certainly less desirable than south-east, which it would be were it but on the other side of the house.

The special disadvantages are of a decisive nature—the north-west aspect I will not regard as a disadvantage—because we have command of so many varieties of vegetation that where there is not sun enough for this good thing, there may be shade enough for some other good thing. But two serious disadvantages occur here; the position is low, in fact, the entire great triangle formed by the three roads enclosing a great green space forms a distinct hollow, in which, all the winter long, fog collects earlier than elsewhere and continues longer, and is usually denser than on any similar area for a mile or two round. This fact affects certain forms of vegetation very unfavourably, for frost and fog together will kill many evergreen shrubs that a clear frost would not injure; while many trees and evergreen herbaceous plants suffer severely in such winters as 1879 and 1880. The second great disadvantage is a very bad soil of a pasty nature resting on a bed of tenacious clay unfavourable to natural drainage. The soil may be called a loam, and it abounds with those ferruginous stains that gardeners call "canery stuff." The writer remembers when the land was in good grass and was noted for fogs, and was occasionally swamped. The builders made an end of the swamping, for the drainage is perfect and the houses are large and well built. But those excellent builders peeled the green top crust off the earth, selling the top spit

at a good price, whereof thousands of loads were carted away, leaving the under crust of "canery stuff" for the occupants of the houses to try their skill upon in the way of gardening. A better soil for trees could not easily be found, for they grow amazingly, and the great open triangle of some two or three acres extent is quite rich with "wood-land," but for all surface gardening the soil is about as bad as it can be, and a glance at the gardens tells the tale that a better soil would give better results.

The person whose garden I am now referring to said, on taking possession of the house, "I shall probably not stay here long, and I will not waste a penny on such a paltry garden. But I must have it respectable, and so I shall fill it with cheap stuff and there stop." But he did not know what was written in the Book of Fate when he framed his resolution, or he might have saved a little in money and much in vexation of spirit. He set a man to work in September, and in the month of May following it appeared that the garden was nicely planted and would take care of itself, with the aid of a little trimming and dressing occasionally. All the trees were cut down and all the surface plants were burnt, and the whole thing was re-made and planted afresh. The fact is, the man who was most interested in the matter could not, even in the first instance, keep to his resolution. Instead of planting nothing but cheap stuff, he planted nothing but good stuff, and the walks were well made, and all the work was well done, save that the main requirement of the case was neglected, because of the resolve to "draw the line somewhere."

The winter in which the work was done was characterized by a heavy rainfall; the spring was wet; the summer was cold; the autumn windy; and for weeks together the little garden was a perfect swamp.

At the close of the first summer it was abundantly evident that success was not to be hoped for in the then condition of affairs. Another winter would in all probability kill off the whole stock of beautiful evergreen shrubs, herbaceous plants and bulbs, that had been, without stint of expense, collected and planted. Then said the owner, "It is no part of my plan to speculate on failure; we must begin again, and go to the heart of the matter."

The shrubs were all carefully lifted and packed in lots in the side borders, and all the herbaceous plants and bulbs were similarly treated. The beds in the open central space were then deeply trenched and the stuff heaped up high and loose for the air to act upon it. By keeping a sharp look out the gardener secured from a string of rubbish carts a lot of lime rubbish at a nominal price, and this was wheeled in and laid in heaps along the walks and wherever else a place could be found for it. It was determined to trust to lime rubbish solely, the soil, as regards fertility, being considered good enough, but needing to be drained and improved in texture. All the large stuff was sorted out from the lime rubbish, and all the wood was removed and sent to the kitchen to be burned. Not a scrap of wood should ever be dug into the ground knowingly by any one who would have a decent garden, for the mildew it engenders in the course of its decay is deadly to the roots of trees and shrubs. The beds were all deeply dug over again, and a large proportion of the lime rubbish was incorporated with it. The result was that the beds were somewhat elevated, but in the course of a year they came down to their former level, and the objection to hillocks was at an end. The beds being thus twice deeply stirred and amended, it was absolutely necessary to plant them at once, because the borders were much occupied with the trees and shrubs that had been "laid in." This being done the borders were treated in like manner, all their occupants being lifted and put out of the way, with their roots properly covered, and the soil being then well trenched and a liberal allowance of lime rubbish mixed with it.

The next step in the renovating process was to cut trenches in all the walks leading to the house drains, and in these trenches to lay half pipes and sole tiles and to cover in over these with the large stuff, the bricks, stones, lumps of cement, &c., that had been sorted out from the lime rubbish. Thus ready escape for water was provided, and nothing at all approaching to a state of bog or even to injurious wetness has been seen since. And yet this little plot is all of a piece with the great tract on which are many similar gardens, that are as swampy as ever during wet weather. This fact is full of encouragement to owners of small gardens. In the first consideration, it may seem that draining will be a waste of energy, because if the water of this plot is removed thereby the water from the next plot will come in to take its place, but the case before us proves that it is not so; there may be a sufficiently dry garden at No. 6 and a villainous bog at No. 7, and the walls appear to aid the drains by checking the surface movement of the water.

The success in this case may be pronounced complete. In the season following the thorough turn out and renovation a few good evergreen shrubs lost their looks by dying back considerably. But they have quite recovered, and the growth of the whole stock has been such that in the past autumn a considerable thinning was found necessary, and enough of handsome shrubs were removed to pay for the operation ten times over. The garden is richly furnished with evergreens of all the more useful kinds, many of them scarce and valuable; and they present at the present time a most beautiful appearance, the growth in many instances being remarkably free and rich. Those with golden variegations sparkle with health and richness of colour, but the silver-leaved plants are less attractive, for the London smoke smears their delicate faces and they are never quite what they should be. The herbaceous plants comprise pyrethrums, phloxes, primulas, lilies, and many useful miscellaneous plants. There is a sheet of common arabis on the front of a bank that is wonderful in its season, and the showy autumnal-flowering sedums appear in quantity in September, and are covered on sunny days with red admiral butterflies. In fact, there is a good assortment of first-class showy herba-

ceous subjects, including all the best of the bulbs for such a small space, and the show of early tulips forms a special and splendid feature.

The effect of drainage on one particular square plot in a great range of connected gardens is very interesting. It is not for me to say that none of the other gardens in the great triangle are drained, for I know nothing at all about them. But we may safely assume that many of them have been planted as this garden was in the first instance, and the planters have put up with the consequences, whereas in the case under notice the planter would not put up with the consequences, but violated his primary resolution and began again, having a golden rule to go by, never to speculate in a failure. And the result confirms the wisdom of the old saw that "What is worth doing is worth doing well." I propose for an eleventh commandment, "Thou shalt not spoil a ship for a ha'porth of tar," and I have a right to do so, because my Christian name is

MOSES.

MR. GEORGE'S ABUTILONS.

SINCE the introduction to English gardens of those well-known and remarkably dwarf and free flowering abutilons, *Boule de Nieve* and *Darwini*, the character of the genus has undergone considerable modification, much to the advantage of the cultivator. It is now no longer necessary to be content with a few kinds, mostly so strong in growth as to require a spacious conservatory for their cultivation, and so shy in blooming as to hardly justify the space occupied and the attention necessary to their maintenance in a healthy condition. The cultivator has a large number of kinds at his command, all possessing much beauty, and the majority so compact in habit and so free in blooming, even at an early stage, that a good representative collection may be grown in a structure of very limited dimensions. The reduction in the height of the plants and the increase in the production of the flowers are not the only gains. We have a comparatively large number of quite new colours, comprising bright scarlet, deep purple, rich crimson, delicate pink, bright yellow, and numerous intermediate shades, all more or less attractive. The improvements that have been effected in the abutilons during the past decade are indeed marvellous, more particularly when it is considered that the number of those engaged in the work has not at any time been large.

Chief amongst the English raisers of abutilons is Mr. George, of Putney Heath, who has achieved much success, his varieties having an exceptionally dwarf and free flowering habit, and including the brightest colours as yet known. It is now about six years since Mr. George turned his attention to the improvement of these subjects, and his first cross was between the two kinds mentioned above. Some of the seedlings were remarkable for their profusion of flowering; some gave colours quite new; and several were selected for distribution; and one had a certificate conferred upon it by the Royal Botanic Society. The results were indeed so satisfactory that Mr. George had every encouragement to proceed with the work he had taken in hand. Crosses were, as a matter of course, effected between such of the seedlings as possessed some distinctive character, and subsequently a variety with rather small bright red flowers was obtained. When this was in bloom Mr. George had in another house a flowering example of the old *Hibiscus sinensis*, and recognizing the fact that the abutilon and the hibiscus are both members of the great Mallow family, he determined to effect, if possible, a cross between the two. Accordingly an attempt was made to fertilize the flowers of the small red abutilon with the pollen of the hibiscus, and Mr. George firmly believes that he was successful. However that may be, amongst the seedlings was the bright scarlet variety so well known as *Swanley Red*, which at the time was a long way ahead of all other varieties in brilliancy of colouring. More recently Mr. George has been crossing some of his seedlings with the strong-growing *Abutilon sellowianum marmoratum*, which produces its flowers in clusters of a dozen or so on stalks standing out more or less horizontally. Here no doubt can arise as to whether a cross has been effected or not, for the seedlings show their parentage in an unmistakable manner. In some instances the flowers are borne in precisely the same manner as those of *A. sellowianum marmoratum*, and in others on leafy branchlets which stand out somewhat horizontally, the flowers in the latter case being borne successively at the points. Mr. George hopes to obtain eventually varieties that will bear their flowers beyond their leaves, but the difficulties in the way are not light, chief amongst them being the unattractiveness of the flowers of *A. sellowianum marmoratum*. In one variety the flowers are borne in pairs, that is to say, two on one stalk or peduncle, and as the blooms are of good size and shape and pleasing in colour it is by no means the least attractive. Special attention has been directed to the improvement in the habit, and the whole of Mr. George's most recent seedlings—in fact, all that he has—are short-jointed and free branching, and commence to bloom most profusely when from three to six inches high. Indeed, some of the seedlings do not exceed the maximum height mentioned when grown without any stopping; and in the collection at Putney Heath may be seen numerous bushy specimens, twelve inches or so in diameter, and not more than six inches, that have not been stopped. One or two of the dwarf-growing or pigmy strain are particularly good, but, generally speaking, the varieties that are rather more free in growth are the most valuable for general decorative purposes; but doubtless the very compact growers will be turned to good account as seed or pollen parents, and therefore are not without interest.

Mr. George devotes a span-roof house of moderate size to the abutilons, and the plants, which range from six to eighteen inches in height, are in so healthy a condition, and so splendidly bloomed, and the flowers so large and attractive, that the effect produced is beautiful. To cultivate the dwarf free-blooming race is not, this successful raiser and cultivator states, by any means difficult. The cuttings can be struck very readily at any time during the spring and summer, and the plants can be grown on

with very little attention beyond supplying them with water according to their requirements. When medium sized bushes are required for the decoration of spacious structures, Mr. George recommends striking the cuttings towards the end of the spring; and in raising neat examples for the table and for decorative purposes in a small state, he considers the end of July or the beginning of August quite early enough for propagating a stock. From the time the cuttings are struck the plants should be grown on in a pit or small house, with a moderate degree of atmospheric humidity and fair supplies of water, the ventilation to be regulated by the weather and to be sufficient without being excessive. During the autumn and winter no place is considered so suitable as a rather small span-roof house, such as that in which the stock is grown at Putney Heath, and, judging from the results, no better place could be desired. Mr. George advises a temperature between 55 deg. and 60 deg. from the latter part of the autumn until the spring, and he lays great stress upon the great importance of so admitting the air during the last mentioned period that the plants are not exposed to a draught. At Putney Heath ventilation is secured sometimes by opening the door a little way and sometimes by letting down one or two of the top lights two or three inches, according to the direction of the wind. The compost Mr. George uses is prepared with good fibrous loam, peat, leaf-mould, and sand; the peat, leaf-mould, and sand being employed in rather small proportions. Provided the plants enjoy a temperature such as is here advised, and a rather close atmosphere, they will bloom abundantly from October until quite the end of the following April.

The splendid varieties here made note of as being especially worthy of attention are:

Sir Garnet Wolseley.—A very large flower of superb form, and of a bright crimson veined with dark crimson.

King of the Roses.—Flowers equally as large as those of the first mentioned, stout in substance and of grand form; colour deep ruby red.

Crimson Gem.—A medium sized flower of the most perfect shape, and of a rich crimson colour.

Purpurea.—A large flower of splendid form and of a very deep rich purple; invaluable for its colour and otherwise desirable.

Orange Gem.—An effective flower of good quality; bright orange scarlet.

Lustrous.—A superb flower of rich red crimson; very distinct and effective.

Splendour.—Very fine, flowers large and of fine form; colour bright reddish crimson.

Goldfinch.—A charming and very distinct flower; colour yellow beautifully veined with rose.

The Bride.—A delicate pink flower beautifully veined with rose; valuable for its exquisite colouring.

The Premier.—Distinct and highly desirable; the flowers extra large and of a rich rose colour.

Cloth of Gold.—Deep yellow, a great improvement on other varieties of the same colour, more especially in habit and freedom of flowering.

Brilliant.—A rather small growing variety, remarkable for the profusion with which its brilliant scarlet flowers are produced; very fine for the table.

GEORGE GORDON.

"CHRYSANTHEMUM DUETT."

CHRYSANTHEMUMS, Chrysanthemums,
Who wants, who wants, Chrysanthemums?

There's red for love, and white for truth,
With every shade that comes between
Each flower, is fine enough forsooth
To grace a Queen, to grace a Queen.

We come to you when sunlit beams
Are hard to catch and shy;
We come to you, as hopeful gleams,
A thwart a sunless sky.

We come to you when native flowers
Have sunk into their rest;
We breathe new life through dying
blossoms,

And smile on winter's breast.

CHORUS: Chrysanthemums, &c.

Yet since we left our flow'ry clime,
No British hand hath strung
The lyre into poetic chime,
Nor wreathed our home in song.
There's not a flower that studs the plain,
From daisy to wild rose,

Heslington Hall, York.

But has been sung, and sung again,
To every breeze that blows.

CHORUS: Chrysanthemums, &c.

YELLOW.

They say I'm of a jealous cue,
If so, there is a cause;
And if I'm of a yellow hue,
'Tis one of nature's laws.
But science, with its learned powers,
Will surely put us right;
They are trying now at making flowers
Bloom by electric light.

WHITE.

Yes, so 'tis rumour'd wide and far,
And if they do succeed,
With all the seasons on a par,
Oh, how the bees will feed.
But no false hope will I indulge,
But if it should be so,
The truth alone must I divulge,
I'll tell you when I know.

CHORUS: Chrysanthemums, &c.

I. H.

ORCHARD ALUM WATER.—Readers who know the Peak country have probably heard of the orchard alum water, in which the country folk have so great faith as a specific. It is obtained from a disused coal-mine on a bleak hill farm near the summit of Axe Edge, named on the *lucus à non lucendo* principle "the orchard." The water is in great local repute as a tonic and vermifuge both for man and beast, the effects on the latter being, it is said, most remarkable in destroying internal parasites. An analysis of the water was read at a recent meeting of the Pharmaceutical Society, showing its red colour and its peculiar properties to be due to the presence of ferric and aluminic sulphates in exceptionally large quantities. It is too powerful to be used without dilution. Only one other water, it was alleged, is known having an analogous composition, which is described in a recent number of *Dingler's Polytechnisches Journal* as occurring in a coal-mine belonging to the Luzerne Company. In the course of the discussion which followed, the activity of such water in precipitating sewage matters was mentioned, and it was suggested that in the numerous streams crimsoned with ferric impurities from the tin works, with which travellers through Cornwall by the Great Western must be familiar, tons of valuable disinfectory material may be annually carried in waste to the sea.—*The Gardeners' Magazine*.

TRILLIUMS.

THIS singular but very beautiful liliaceous genus is but poorly represented in English gardens, for unless treated with care they pass away and leave no trace of their whereabouts, and amateurs who are fearful of trouble do not care to touch them. But like many other things, they are easy enough to cultivate when we go the right way about it, and the first step to success is to know exactly what these plants require. For a fair general statement it may be said they require some such treatment as the lovely *Cypripedium spectabile*, which loves a moist air, a moist soil, and shelter, but is perfectly hardy and must not be treated as a tender plant. But the trilliums are really easier to manage than the hardy cypripediums, for these latter do not thrive unless planted in a good peat soil, whereas the trilliums are not so particular, for any good sandy loam will suit them if deep and moist; and they certainly like shade, and should never be planted where gusts of wind are likely to distress them. Like the far-famed *Helleborus niger*, the trilliums may be grown in a town garden if protected when in flower by a common hand glass, slightly tilted to admit air, while protecting them from wind and the sooty rain that will sometimes occur when they are in flower. They are proper rock plants, but are not to be planted on dry ledges, where some succulents might live, but in moist, sheltered, shady nooks, where they will be safe against drought and storm, and the neglect that kills more plants than unfavourable conditions.

Trillium grandiflorum is the most important plant of this genus, and a truly noble thing of its kind with its three rich leaves, three

by the bright sunshine of success. I fear that we are living in a day when the peach on the open wall is sadly neglected. I have frequently seen trees of a vigorous growth against a good wall and in a good position completely ruined by bad management, viz., by digging near the tree, thereby causing the roots to descend into the lower soil, which is often unsuitable; also by close planting of various green crops, thus robbing the soil of a large portion of its nutriment. In many cases these crops shade the base of the trees injuriously. Another evil is the neglect of summer pruning until nearly the end of the season, which produces in a vigorous tree gross shoots and unmaturing wood, causing thereby a waste of strength in the tree. Then comes a severe pruning, when much sap is lost from the wounded roots before they can cicatrize. The above may be regarded as some of the principal causes of the many failures in the cultivation of the peach and nectarine.

I may say that for many years I have been successful in the cultivation of these excellent fruits on the open wall. The following is my mode of procedure. In planting I am careful to select a good balanced tree in which I can get an even circulation of sap. Should a shoot be inclined to grow too gross, the symptom being large dark leaves, these dark leaves are taken off the shoot in time; in many cases that will check its gross growth. I am fruiting about 50 trees, both peach and nectarine, but principally peaches, in 30 of the best varieties for succession. The trees are 14 feet apart on open S.E. and S.W. walls, the latter being the more successful. I commenced gathering this year on the 12th of July, Early Beatrice, then followed Early Louise, Hales' Early, Rivers's Early York, Early Grosse Mignonne, Royal George, &c., &c., on to Walburton's Admirable, which brought me into October. My walls are from eight to ten feet high. The



TRILLIUM NIVALE.

green sepals, and three snow-white petals, all arranged with a precision that might delight a geometrician, and will certainly please any lover of plants. *T. pendulum* is in my opinion a variety of the foregoing, but it ranks as a species, and differs sufficiently to be worth having. *T. sessile* is less attractive than the two above named, as the petals do not expand so fully. *T. nivale* is a sweet little gem, very small in growth, but full of character. In this the petals expand fully, and are lovely in their snowy-whiteness contrasted with their dark leaves. *T. cernuum* is the nodding trillium, equally worth having with the others. When a collection of trilliums goes wrong the last named is likely to last longest, as it is the least particular of any as to the usage it receives.

THE MANAGEMENT OF PEACH TREES.

THE leading article on page 635 on "The Failures in the Cultivation of the Peach and Nectarine" has interested me much. The following remarks on the subject may be interesting to the readers of your valuable magazine, and especially to those unfortunate ones whose peach and nectarine growing has proved a failure during the past five years, and who have still hanging over them the dark cloud driving them almost to despair respecting their future success.

I am happy to inform you from practical observation and experience that the dark cloud has a silver lining, and I have faith to believe that if gardeners will but make peach culture their special study, by care and perseverance the time is not far distant when the clouds of despair will be dispersed and most localities may be cheered

peach borders are well drained, the soil a pure loam. I never dig or plant any kind of crops within four feet of the trees, which space remains firm ground for the roots to work in and receive the full benefit of the solar rays and atmospheric action. Every year after the soil has been warmed by the sun, and the fruit begins to swell, I assist nature in maturing the fruit by giving the four feet space referred to a thick mulching of good manure mixed from the stable and cowshed, and an occasional watering with sewage water, as the season requires it. The principal pruning is done during the summer with the finger and thumb on the spur system, laying a new rod where wanted. The system speaks for itself; my trees are all clean and vigorous, with well matured wood and flower buds. I have not protected the flowers with any material whatever for some few years past, and I have never experienced a failure. The fruit sets freely, and requires a severe thinning. Many of the trees will mature 200 of large handsome fruit of good quality. I may also state that during the last three years I have been favoured with exceptional success. I am also informed that the past season has produced generally a good supply in this part of Kent, so that peach growers in this locality have been well satisfied with their success on open walls. I think, therefore, gardeners living in the county of Kent may consider themselves highly favoured with regard to open peach and nectarine culture.

The Garden, Orchard Lane, Sillingbourne.

JAMES BUTLER.

A MAP OF MR. A. R. COLQUHOUN'S ROUTE FROM CANTON TO RANGOON is given in a "special supplement" to the *Chamber of Commerce Journal*, published at 84, King William Street, E.C.

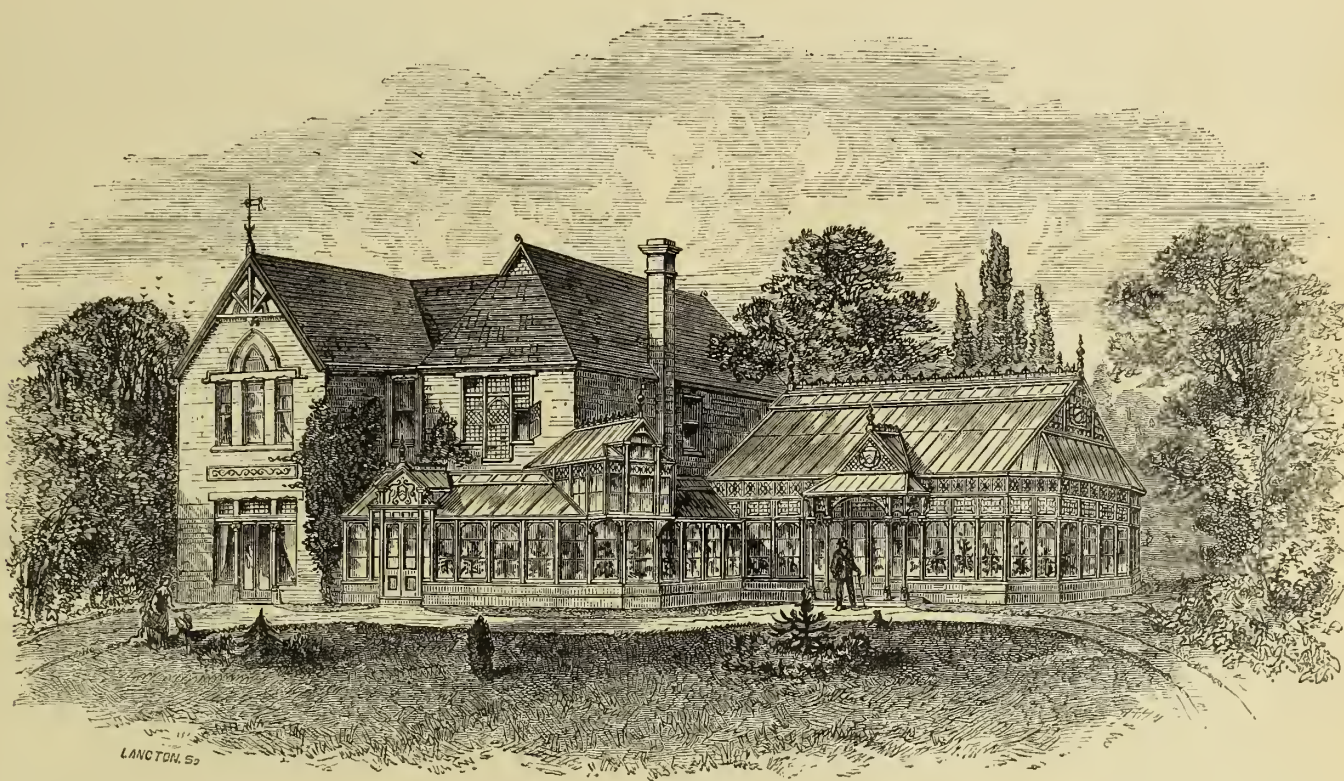
CONSERVATORIES ATTACHED TO DWELLING-HOUSES.

It is the occasional duty of the horticultural adviser to warn the public against architects and builders' plant houses, which are too often constructed with a view to external effect without any regard whatever to the special requirements of plant culture. The warning, however, is becoming of less urgency, for two good reasons. In the first place, those who employ architects and builders are more frequently on their guard than heretofore against the costly errors that are common to structures designed by men unacquainted with the conditions needful to efficiency. In the next place, the horticultural builders have prudently given attention, not only to the distribution of light and air and heat in plant houses—matters in which, of necessity, they are especially interested—but also to the elegance of the elevation and the various modes of adapting glass roofs to harmonize with the various styles of domestic architecture. Recent changes of fashion, and more especially the favour shown to the fantastic façades of the so-called Queen Anne constructions, have put to a somewhat severe test the capabilities of the artistes in this line of business. But they are equal to the occasion, and we see rising in many places plant houses of great beauty and in strict harmony with the general complexion of the dwelling-houses to which they are attached. As a matter of fact, glass can be adapted to any style, but the great point for the horticultural builder is not merely to ensure picturesque effect, but to take care that the house shall be as well adapted for maintaining plants in proper health and vigour as to the adornment of the site selected for it. A pleasing example of this adaptation is afforded in a conservatory by Messrs. Messenger and Co., of Loughborough, which is here figured. It is in two divisions, connected conveniently with the dwelling-house, and forming, as regards architectural lines, a beautiful continuation of it, with enriched details in strict keeping with the suggestions of the more important structure. The proposals of Mr. Adams, reported on in the issue of this paper for October 16, 1880, have exercised a most

are moderately well rooted. It will be well perhaps to state here my reasons for putting three cuttings in each pot. Briefly stated, our object is to obtain good heads of bloom and plants leafy down to the bottom. I find by having three plants in a pot I can accomplish this with less attention than I could with single plants, and, what is more, stopping the growth more than twice during the season is rendered unnecessary. Therefore by beginning early and stopping in good time I secure larger individual flowers and better furnished specimens than would be practicable with one plant in each pot.

Our stock is generally all rooted and ready to be placed in a cold pit about the middle of March, where they remain until the middle of May. But during the time they are in the pit they enjoy a liberal circulation of air, the ventilation being regulated according to the state of the weather. After the middle of April the lights are removed on fine mild days, but closed again at night. The frames are covered at night with mats when there is any danger of frost. I do not wait until the whole of the stock requires more root-space to begin repotting; but as the early taken cuttings fill their pots with roots they are shifted into six-inch pots. This is generally done about the third week in April, and the others are shifted on as soon as they require it.

I am not particular as to the kind of soil I use for the cuttings, provided it is rather light and sandy. But for the first and subsequent shift I use the most substantial I can obtain. I find a mixture consisting of three parts of good mellow loam mixed with one part of thoroughly rotten manure, with a little coarse sand or grit, admirably adapted for chrysanthemums. It should not be sifted, but well broken up upon the bench with a spade. The loam should not be used when wet; if it is likely to be so when wanted it should be spread out on the floor of an



ARCHITECTURAL PLANT HOUSE BY MESSENGER AND CO., OF LOUGHBOROUGH.

beneficial influence, and we may hope we have seen the last of the costly menstrosities that architects have been wont to provide for their employers under the general designations of conservatories.

CHRYSANTHEMUMS FOR THE CONSERVATORY.

By JOSEPH MACDONALD.

HAVING to provide chrysanthemums that do not exceed a height of two to three feet when in flower, I am compelled to adopt a somewhat stiff form of training, and I find this severe training checks the growth considerably. It in fact checks growth more than I like, because where there are so many other things requiring attention we cannot devote so much time to them as we should wish. But to obtain plants as large as it is possible to have I make an early start—that is, I secure my young plants as soon as the flowering season is over. The first varieties we have are Lady Talfourd, Mrs. G. Rundle, George Glenney, Aurea multiflora, and Venus. We always make sure of cuttings of these before the end of November, and I do not wait for the whole stock to go out of flower, but secure cuttings of the several varieties as they come from the conservatory. This shows that I lay great stress upon early propagation.

I make my plants from the young growth which rises from the base of the old flowering stems. Very generally shoots may be obtained with roots attached, but if they have no roots it will not be a matter of much consequence. Whether they have roots or not they are all potted in four inch pots, three in each; those with roots are put in a cold pit, where they are kept rather close, and the others are placed in a common hand-light in a warm corner of the greenhouse, where they remain until they

open shed a week or ten days beforehand. I prefer to pot chrysanthemums rather firmly, as there is a tendency in the roots to strike out to the sides of the pots when the soil is at all loose; but with firm potting they will be well distributed throughout the ball. I like to thoroughly drain pots for chrysanthemums, which means that the crocks used are carefully packed so as to secure the free escape of the water without occupying much space.

It will not do to give precise instructions as to when the plants should be shifted into larger pots, as it would in some instances be misleading. But no mistake can be made if the plants are examined once a week when they are growing rapidly, and those which have filled their pots with roots shifted without any delay. As we only grow varieties with incurved flowers, we do not make any difference in the size of the pots further than to put such strong growers as Prince of Wales, Jardin des Plantes, and others of similar growth, into the largest pots, which, I may add, do not exceed twelve inches in diameter; and some of the weak growers, such as Mrs. Dixon and Mrs. George Rundle, have ten-inch pots. As a rule, our plants are shifted into eight-inch pots early in May, and have the last shift not later than the third week in June.

Stopping of the plants is an important part of the work. I make a point of pinching off the tops of the young plants as soon as they are three inches high; this induces them to produce three or four side shoots, which also are stopped as soon as they are six or seven inches long. If it is necessary I stop them again in the middle of June, which is the latest time that chrysanthemum stopping should be done when large flowers are desired. I may remark here that the plants should have the protection of a cold pit or frame until the end of May.

The best place for the stock during the summer is a sunny position where the plants will be sheltered from rough winds. We place our plants in the frame ground, and plunge the pots to their rims in coal ashes, as the plunging prevents the rapid drying of the soil. Moreover, the change, as regards moisture, is not so sudden as it must be when the pots are stood on the surface.

With reference to the watering, it is necessary to say that from first to last the supply must be abundant, without being excessive. In the early part of the year the watering must be done with care, as the soil must not be kept constantly saturated. But, as the summer advances, water must be given liberally whenever necessary, but it is impossible to say how often they will want water, for so much depends on the weather. As to the use of stimulants, I would say I do not give my plants liquid manure until I can see the flower buds, and then they are supplied regularly with it.

We commence training the plants immediately after they are put into their flowering pots; from five to seven neat sticks are put to each. Of course all the training cannot be done at once, and our greatest anxiety is at first to furnish the lower part of the plant with young growth, and then to keep it in a healthy state by careful attention, so that all the leaves may be kept fresh and green. After the sticks are placed to the plants we make a point of attending to them once a fortnight, and train the young growth as may be found necessary, for it is only by this course that we can obtain handsome well-trained specimens. If the training is neglected, the growth become so hard that it is liable to be broken in the endeavours made to place it where it is wanted. The plants are not hurried into flower, but it is advisable to take them under cover in the first week in October. Preferably we place them in a span roof house, in which they can have plenty of air and light on all sides. As soon as the buds begin to show, the plants have attention once a week, for the purpose of reducing the number of buds where they are very thick. Many varieties produce more buds than they could develop in a satisfactory manner, and we find that two buds on strong shoots and one on weakly ones are sufficient. By thinning as here advised we have no fault to find with the quality of the flowers.

The House, Garden, and Home Farm.

SOLITUDE.

Oh, Solitude, if I must with thee dwell,
Let it not be among the jumbled heap
Of murky buildings: climb with me the steep,—
Nature's observatory—whence the dell,
Its flowery slopes, its river's crystal swell,
May seem a span: let me thy vigils keep
'Mongst boughs pavilioned, where the deer's swift leap
Startles the wild bee from the foxglove-bell.
But though I'll gladly trace these scenes with thee,
Yet the sweet converse of an innocent mind,
Whose words are images of thoughts refined,
Is my soul's pleasure: and it sure must be
Almost the highest bliss of human kind,
When to thy haunts two kindred spirits flee.

JOHN KEATS.

THE HOUSE.

VERY beautiful baskets and vases for the decoration of the drawing-room and other indoor apartments may be formed with Roman hyacinths, paper-white narcissus, and scarlet Van Thol tulips, all of which are now coming forward freely from the forcing pit. The whole of these bulbs can be turned out of the pots or pans in which they have been grown and arranged in the ornamental receptacles without suffering any appreciable injury. A few small plants of *Adiantum cuneatum* that have been grown in a cool structure tastefully intermixed with the bulbs will materially enhance the general effect. The ferns may also be turned out of the pots. Any light soil will suffice for putting in the baskets, and the surface should have a covering of green moss if at command.

THE GARDEN.

BULBS coming into bloom should, if practicable, be placed in an intermediate house before their removal to the conservatory or dwelling-house. Where this cannot be done, place them at first in a position where they will not be exposed to currents of cold air.

CALCEOLARIAS, PANSIES, and other nearly hardy plants, of which cuttings were put in late, may now be potted off singly. This will relieve the pressure of work at the turn of the spring, when there is so much potting to do that other important tasks are neglected.

CAULIFLOWERS, LETTUCES, &c., in frames and handlights must have plenty of air during mild weather.

CUCUMBERS that have been in bearing some time may always be restored to a youthful condition by the use of the knife and the addition of new compost. If we have a length of lights occupied with bearing vines at this time of year, we prepare for their renewal by opening a trench all round the roots of every alternate plant at a distance of one foot from the stem. This of course shortens in the roots to that length. We then fill the trench with a mixture of chopped turf, leaf-mould, and rotten dung. There will be new roots formed in this mixture at once, and a week after the operation we cut back the vines to within a foot of the soil, and then take up new runners, and stop and train as before. As soon as these show fruit, the remainder can be dealt with in the same way. They require a little extra bottom heat after cutting back.

ENDIVE will be valued now, and must be blanched as required. Plant a few in frames and other protected places; even if in the unused corners of sheds and out-houses, they may be safer than out of doors, and can be blanched as may be needful.

PARSLEY.—In all cold districts it is a good plan to secure a bed of parsley in a frame or pit, or, if a few plants are potted in September, they may be wintered in any place where they can have light and air freely. It is so im-

portant to have parsley at command as wanted, that it may be worth while now to put a frame over a few rows as they stand in the open quarter rather than risk the loss of all in the event of severe weather.

PEAS and BEANS just showing through the ground should be covered with a sprinkling of dry earth, and over this some dry light litter; this will check their growth and keep them hardy, and in case of frost afford considerable protection. Where sand is plentiful use it in preference to mould, because of its drying nature.

RHUBARB and SEAKALE.—Those who have not begun to force should do so now, either in the open ground or by potting. As a very mild heat suffices, this season's leaves and litter, if plentiful in bulk, will do as well to make up a bed for the purpose as stable manure. If the latter is used, it should be turned three times before making the bed, or the heat will be too fierce and too transient.

ROOT PRUNING, where required, should be commenced without delay; the simplest method is to open a trench on one side of the trees, and cut back the roots to within two feet to three feet of the stems (according to the size of the trees), half round each tree. Next year open trenches and cut back the roots on the other half round, and so on year after year.

STOVE PLANTS at rest may suffer if allowed to get too dry, especially those having porous foliage and soft stems. In giving air take care not to expose tender plants to cold draughts; in fact, air should not be admitted in a volume at this time of year. The general collection of stove plants will be satisfied with a temperature of 60 deg. by day and 50 by night. Orchids require a watchful eye among them; so many diverse climates are now represented in our collections that it is no easy matter to keep all at rest together, and it may be well to remove a few that require to be kept growing to the forcing pit rather than risk the safety of others by too high a temperature.

THE HOME FARM.

CAREFUL feeding of cattle is equally important with the provision of shelter. Now anybody can feed cattle in some sort of way, and hence we see mere boys now to work that requires the intelligence and gentleness of an observant and kind-hearted man. Then it follows that roots are given in the rough; there is neither slicing nor pulping done; if the roots are frozen they are considered quite as good as if the frost had never touched them. Good living will pay as well as good housing, and both will pay together, as you may guess when you find the farmer who does things badly in rags and want, while the man who keeps everything tight and snug, and makes his animals as comfortable as possible within reasonable limits, has a good coat on his back, a good bottle of wine in his cellar, a well-fed frame and cheerful countenance, and is respected and looked for at the market dinner. To pamper animals is almost, though not quite, as cruel and unprofitable as leaving them out all the winter long to be blinded by sleet, and have the flesh blown off their bones by the biting north wind. But the most unprofitable of all games in the farming line now is to keep animals exposed and hungry, for all the life the weather takes out of them has to be paid for in money by the owner. The cruelty of the thing is shocking, and the loss it occasions is ridiculous, and yet we see the poor things nibbling at frozen grass, and making the most of any wretched bit of shelter they can find. There is no rule more sound or more closely associated with the prosperity of a farm than the rule that shelter and food should be provided in sufficiency for all the animals, and in a way to facilitate the proper saving of all the manure made under cover.

Literature.

NEW BOOKS.

THREE very important works have been taken in hand by Messrs. Ward and Lock for the improvement of the national family library. It will not be expected of us to make any remarks on the relative merits of these works, but we are bound to welcome their reproduction by these spirited publishers in forms that combine elegance with cheapness. An *Edition de luxe* of the *Waverley Novels*, in parts at one shilling each, first claims notice. This will constitute a magnificent edition of the finest literary work of the great Wizard of the North, and we hope will be followed by his historical and poetical works. But the novels will do very well to begin with, and it is a point of some interest that the series begins with *Ivanhoe*, the story that English readers mostly read first, and being thereby fascinated, plunge into the others with finer zest than if they begin with one of the Scottish stories. The second important reprint is *Motley's Rise of the Dutch Republic*, one of the most compact and brilliant histories ever written, and for many years past a scarce book, commanding a high price. We have always felt it to be a calamity that this grand work was not written by an Englishman, seeing how closely we, as a nation, are bound up with the remarkable events it treats of. It is to be completed in ten sixpenny parts. The third novelty is a reprint of the *Complete Works of Thomas Hood*, to form ten volumes. The form is a neat octavo. In the part before us Hood's original pictures appear in shoals, and they are amongst the most refreshing of the many pleasures of memory.

From Messrs. Ward and Lock we have also received *Glenny's Garden Almanack* for 1883, and continuing parts of Dr. Adam Clarke's *Commentary on the Holy Bible*, *Child's Instructor*, *Abbott's Life of Napoleon Bonaparte*, *Universal Instructor*, *Great Thoughts on Great Truths*, *Gibbon's Decline and Fall of the Roman Empire*, *Haydu's Dictionary of Dates*, *Illustrated History of the World*, *Beeton's Dictionary of Science and Art*, *Illustrated Bible for the Young*, *Amateur Work*, *Arabian Nights Entertainments*, *Phelps's Complete Works of Shakespeare*, *Bonnehose's History of France*, *Disraeli's Miscellanies of Literature*, and *Sylvia's Home Journal*.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Chil's Service Gazette*.—Made simply with boiling water or milk. Sold only in packets, labelled "JAMES EPPS & Co., Homoeopathic Chemists, London."—Also makers of Epps's Chocolate Essence.—[Advt.]

Notes of Observation.

CHRYSANTHEMUM KING OF THE CRIMSONS.

I CAN fully endorse the remarks of Mr. George Gordon in the GARDENERS' MAGAZINE, of November 25, on the merits of King of the Crimson chrysanthemum. It is without question a grand variety both for home decoration and exhibition. The growth is free, the habit dwarf, and the flowers are produced so freely that it is of the highest possible value for specimens; the flowers are large and the colour so distinct, rich, and effective, that they tell well upon the plants and in a stand of cut blooms. I believe that it will, when generally known, become one of the most popular varieties in existence. Very little appears to be known with reference to its origin, but I am in a position to say how it became distributed in the south, and make clear that part of its history. Four years ago it was sent to me from the north, but without any intimation as to the length of time it had been grown there previously. On finding that it would prove such an acquisition I gave the stock for sending out to Mr. N. Davies, of Warner Road, Camberwell, who had for some time supplied me with chrysanthemums with much satisfaction to myself, for I always found them true to name, and was thus saved the disappointment so frequently felt from growing a variety under a wrong name. I believe it was from Mr. Davis that Messrs. Dixon and Co., Amhurst Nurseries, Hackney, first procured their stock of King of the Crimson.

Swanmore Park, Bishop's Waltham.

E. MOLYNEUX.

SOMERSET DEAN AND TULIP APPLES.

Your notice of the Somerset apple Tom Patt is particularly interesting to me, as the illustration as well as the description is very truthful; and your estimate of its quality corresponds exactly with my experience. In connection with the Somerset apples, I should like to refer to one or two other local varieties that in their season are quite as valuable as the Tom Patt. I would particularly mention a sort known as the Dean apple. This variety, it may be mentioned, was the only one that produced anything like a crop in any of the orchards near here during the past season. In appearance it is by no means showy; it is rather under medium size, and of excellent quality. It will boil and bake much better than many other kinds, and it retains its proper flavour until about Christmas, but not longer. The greatest merit of the Dean is, perhaps, its regular crops. The Tulip apple is another kind that I believe has only a local existence. It is not such a sure bearer as the above-mentioned, but in quality it is not surpassed, and it keeps well up to the end of November. In shape, as implied by the name, the fruit is not unlike a tulip. In colour it is beautifully streaked with a vermilion red, and this colour is faintly discernible to the core.

J. C. CLARKE.

PITTIOSPORUM TOBIRA.

The information which Mr. S. Tutton furnishes at page 622 in reference to Pittiosporum Tobira is most valuable. I did not mention the Pittiosporum in my remarks on seaside plants because I had not seen it within so short a distance of the sea as would warrant me in giving it a place amongst those subjects that can be recommended for positions on the coast. The only place at which I have seen it growing in the open near the coast was at Dunster Castle. Here it had a place close by the side of *Benthamia fragifera*. The spot on which I saw it growing must be more than a mile from the sea, and as it was somewhat sheltered I made no further note of it. However, from the condition of the specimens at Dunster Castle I am satisfied that it will endure the salt spray. Mr. Tutton has not said a word too much in its praise. I should be glad to hear if any reader near the sea has tried *Benthamia fragifera* in a position somewhat exposed.

J. C. CLARKE.

THE PALMATE ASPLENIUM.

The note on *Hymenodium* has put me in mind to make a note on the Palmate asplenium, which is usually catalogued as *Hemionitis cordata*. You have figured and described it, but you may search far to find it, for, like the last-named fern, it has a way of disappearing in consequence of bad treatment. It is remarkably distinct, with its large, broad, very simply lobed fronds of a rich green colour, like a modified *Scolopendrium*. In a cool house or case it thrives during the summer and dies in the winter. The only sure way to keep it is to winter it in a cool part of the stove, for cold and damp are deadly to it. This is all it wants in a special way, but it wants good growing, and some fine specimens I have owe their character, as I think, to my practice of annual repotting, using good yellow loam and plenty of sand.

W. BARKER.

COOL ORCHIDS.

Some years ago a paper in the "Garden Oracle" started me in the cultivation of cool orchids, in which I have been fairly successful, but not to an extent that would justify boasting. Perhaps for that very reason I may offer a note of observation that may be useful. My orchid house is a substantial span-roof structure with none too much head room, but still quite enough, and the temperature ranges from 45° to 55° through the winter. I find a reason in favour of cool orchids that you did not notice in your most useful and suggestive article in the Oracle for the year 1865. The reason is this, that cool orchids require less attention and bear with a little rough usage better than the tropical sorts, for the higher the temperature requisite the more severe is the tax on the strength and patience of the cultivator. As a man of business, much away from home, and aided in the garden by a man whom I trust for anything, but who does not pretend to be a master of orchids, it is of the first importance to me to select the kinds that will last longest and fare best under my particular circumstances. The following are, for the reasons stated above, as well as for their beauty, special favourites with me: *Anguloa Clowesi*, *A. eburneum*, *Arpophyllum giganteum*, *Barkeria spectabilis*, *Brassavola Digbyana*, *Cattleya citrina*, *C. Mossie*, *Celogyne cristata*, *Cymbidium eburneum*, *C. giganteum*, *Cypripedium insigne*, *Dendrobium chrysanthum*, *D. nobile*, *Epidendrum aurantiacum*, *E. vitellinum majus*, *Laelia purpurea*, *L. autumnalis*, *L. superbiens*, *Lycaste Skinneri*, *L. Skinneri alba*, *Odontoglossum Alexandræ*, *O. citrosum*, *O. gloriosum*, *O. triumphans*, *O. phalaenopsis*, *Oncidium crispum*, *O. leucochilum*, *O. ornithorhynchum*, *Pleione lagenaria*, *Renanthera coccinea*, *Sobralia macrantha*, *Sophranites grandiflora*, *Stanhopea tigrina*, *Trichopilia suavis*, *Zygopetalum crinitum*. I would give my old shoes if I could learn to grow *Disas*, but although I keep them and they look well they are very shy to flower. Is it possible that they are more in love with water than the rest of their brethren? Tell me where and how I fail.

W. BARKER.

HYMENODIUM CRINITUM.

This most remarkable of all ferns is very seldom seen, and surely if it lacks what may be termed "beauty," it is nevertheless very distinct and singular, and quaintly attractive. In the place of divided fronds arching over from a tuft, we have huge leaf-like fronds larger than the leaves of an evergreen magnolia, but of similar outline; the colour dull green, and the surface both of frond and rachis (that is of leaf and stalk) richly clothed with long black hairs. When well grown, this is a fern to be talked about, and to bring praise to the grower; when ill-grown it is not worth pot room. It is the ill-growing, however, that blots it out of the current catalogue, for it will not winter in a cool house, and it needs annual potting and good stove culture to develop its huge leaves and their striking hairy appendages. Every one who can grow stove ferns should make room for *Hymenodium crinitum*.

W. BARKER.

DAHLIA IMPERIALIS.

Having a lot of these that made a fine growth in the past summer in an open border, but did not flower, I lifted them with great care and put them in largish pots, and nursed them very tenderly in a cool house until they had recovered from the lifting. Then I put them in the cool end of the stove, and I am rewarded with a good bloom. This grand plant, I think, should be especially grown for the temperate house in winter, and in time to come I hope to do it justice in that way.

W.

AN ANNUAL FOR EVERYBODY.

There are so many annuals that may be said to suit everybody that I would not mention one except for a particular reason. The blue woodruff, *Asperula azurea*, has obtained so little notice that it is like a thing unknown, but its beauty and sweetness should secure for it a place in every garden. It grows ten to twelve inches high, its flowers are of a lovely tone of light blue, and their sweetness is delightful. In making up your list of spring seeds be sure to include the blue woodruff.

W.

THE ONE PEACH TREE.

Your interesting leader on the management of the peach tempts me, a constant and highly-interested reader, to give you my experience with my one tree. Seven years ago, in front of my greenhouse wall, I prepared a well-drained border by digging out the white gravel and sand, which is all that nature gives our pines and firs to live upon, and replacing it by the walls of an old mud cottage, rotten manure that had done duty in stable and cowshed, and half-inch bones. A two-year-old Royal George peach was planted, and thrived; but I had no joy in it to speak of for several years. Either the blossoms came (in abundance) too early, or the frosts too late. Every year protection was resorted to, but the result was disappointment, not more than ten or a dozen peaches condescending to reward me for all my trouble. These were scarcely sufficient for the earwigs, who delight to find a home just beneath the stalk and topple the fruit down long before it is ripe.

In the spring of the present year there was more sign of bloom than ever, and I was at my wits' end to know what to do. "There is going to be a sight of bloom here, and we shall have these confounded late frosts spoiling everything. We must cover up in the day and leave exposed at night, and so retard the buds from opening." But the buds wouldn't have it so; they seemed vexed, and opened all the more quickly. At last it occurred to me that if I could "fix" the pollen by some means I might cheat Master Frost. I therefore got a medium-sized camel's-hair brush, and went from blossom to blossom, simply dabbing the brush on it. I was called away by the time I had finished half the tree, and circumstances happened to prevent my returning to the work for a week, when I found, to my regret, that it was too late! The short of this long story is that soon the side of the tree thus treated was covered with little white spots, which proved to be tiny peaches. I was compelled twice to go over the tree to remove surplus fruit by the time it had attained the size of a small walnut. I had a hundred and three delicious fruits on the doctored half of the tree, and three only on the other half! There is a six-inch stoneware drain-pipe, two feet long, sunk near the tree. As soon as the stoning had commenced this was filled twice a week with strong, clear solution of horse-droppings, always kept in soak in a tub for all purposes. I felt I owed this kind of moral support to my tree. I am no friend to intoxicating drinks, and therefore never use guano. The other is a sort of life-giver, a zoedone, which cheers but not inebriates. I have frequently on the quiet whispered to my Royal George that if he behaves himself, and I am spared, he shall be served the same next year. So will a good many more things beside, if I stay away from business a day to do it.

Bournemouth, November 25th, 1882.

T. J. H.

P.S.—I notice that the contributors to your highly-interesting "Notes of Observation" seldom state the place from which they write, or where the treatment they recommend was practised. If I might suggest, I would say that it is important to know this, in order to be able to judge of the climate where the treatment was successful.

THE PLUM-LEAVED SPIRÆA.

It is quite a rare event to meet with *Spiræa prunifolia* as a pot plant, but it is one of the loveliest of white flowering shrubs for forcing known to our gardens. Its natural growth is of a light, wiry, graceful kind, the long whip-like branches being clothed to their tips with neat light green leaves like those of a miniature plum tree, and dotted with snow-white flowers of the most exquisite beauty. It does not well afford flowers for cutting, but it is a picturesque plant for growing and for special specimen uses, and it forces so easily that wherever such a thing is likely to be useful it should be grown in quantity for forcing.

W.

THE THICK-LEAVED PRIVET.

Patience has its reward. When the late Mr. Standish brought out *Ligustrum Japonicum*, I propagated a lot by grafting on seedling privets, and now they are so grand in their cast-iron style and solemn colour that I value them immensely. Some important alterations being in contemplation, I see a very important use for my thick-leaved privets, my standard ivies, and my beautiful osmanthus, &c., that I have persevered with for years; and I shall concurrently with the appropriation of these in the alterations set to work and get up another lot. *Ligustrum coriaceum* is a fine shrub when in flower, its dark, broad, glossy leaves setting off the flowers to the greatest advantage.

W.

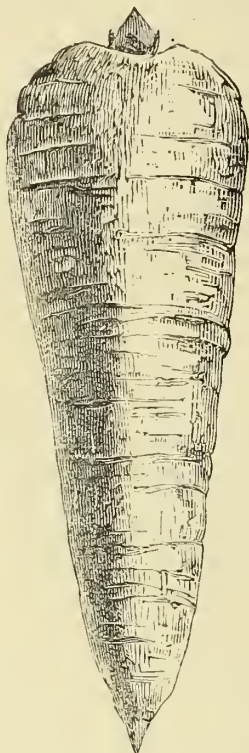
"SAPO CARBONIS DETERGENS" is a physicians' name for a remedy prescribed for the past quarter century for every variety of skin disease. The public have also adopted the same as a preventive of small-pox, scarlet fever, and measles. Purchasers should see that the Latin brand is on every tablet, and WRIGHT'S COAL TAR SOAP on each wrapper, without which none genuine.—[ADVT.]

The Household.

THE PARSNIP-ROOTED CHERVIL.

THIS elegant and very delicate root is scarcely at all known to the gardens or tables of this country. It is called *Cherophyllum bulbosum*, and is a biennial as regards its complete growth, but is grown as an annual for the little parsnip-like roots it produces, for if sown in autumn the seed is almost certain to perish during the winter. On the other hand, the seed is likely to perish if kept dry until the time for sowing; therefore it is best to stratify the seed in sand in a flower-pot from the time it is gathered until the following month of March, when it must be sown where it is to remain for a crop. It is only in a very mellow loam or sand that handsome roots can be grown, for if the soil is coarse or stony the roots will be so much forked and fanged as to be worthless. The figure shows a fair-sized sample, but roots of double that size are obtained when the circumstances are favourable.

To cook this delicate root it is necessary to scrape the roots and throw them into water containing a few drops of lemon-juice, which keeps them white. They should be put into boiling water with a fair allowance of salt, and boil fast for from seven to ten minutes. They are usually served with white sauce slightly flavoured with nutmeg, and make a very pretty side-dish. They may be added to a ragout or



PARSNIP-ROOTED CHERVIL.

any such dish with advantage, in which case they should be cooked as above advised, and be placed around the dish when it is served. The flavour is agreeably nutty, scarcely sweet, but very agreeable.

X. Y. Z.

Labo.

TRESPASS AND DAMAGE BY ANIMALS.

THE following reports appear to be of the highest importance to owners of animals and owners of gardens, and some points supposed to have been long since settled reappear in a quite new light.

In the Queen's Bench Division, before Lord Coleridge and Mr. Justice Stephen, the case of Local Board of Torquay v. Bridle raised a curious question as to the right of Local Boards to make bye-laws for the protection of public pleasure grounds, imposing fines on owners of animals or birds intruding into the grounds. There is a public pleasure ground at Torquay, and the Local Board has made bye-laws for its protection. The Boards have power to make bye-laws for the "regulation" of public grounds or gardens, and one of the bye-laws imposed a penalty not exceeding £5 on persons who should infringe the regulations, and another bye-law imposed a similar penalty on the owner of any animal—ox, horse, ass, pig, hog, or sow—or any fowl, duck, or goose, which should enter the grounds. The defendant had been summoned under this bye-law on account of some ducks and geese of his which had got into the garden. The magistrate, however, doubted the validity of the bye-law and declined to convict. The Board appealed from that decision, and

Mr. G. Pitt-Lewis appeared on their behalf, and endeavoured to maintain that the objection of the magistrates was unfounded and that they ought to have convicted the defendant. It was necessary, he said, for the protection of such places that bye-laws should be established and penalties imposed, and the Boards have power to establish such bye-laws. [Mr. Justice Stephen.—Bye-laws for the "regulation" of the grounds, but not further. There is no power to make such a bye-law as this, which goes much further than the regulation

of the grounds and imposes penalties on persons out of the grounds whose animals trespass.] If the regulations exclude such animals, surely they may be enforced by penalty? Bye-laws can only be enforced by penalties or they are nugatory. [Mr. Justice Stephen.—This bye-law affects indirectly all the owners of ducks and geese in the neighbourhood of the pleasure grounds.] Only if their ducks and geese get into the garden, and their owners should prevent them. [Lord Coleridge.—How?] By fencing their grounds. [Lord Coleridge.—How high would it be necessary to raise the fences?] Not unreasonably so; at all events it is for the owners of ducks and geese and fowls to keep them from getting into gardens. [Mr. Justice Stephen.—Possibly; but it does not follow that the Board had a right to make a bye-law imposing a penalty on the owners. They were not without remedy; they might employ a small boy at a moderate expense to chase the fowls out, or, if the fowls did damage, they might, perhaps, be distrained *damage feasant*, or the owners, perhaps, might be sued for damages.] Nominal damages probably would be recovered. [Mr. Justice Stephen.—Well, if you have the legal right you assert, you must have a common law remedy, and the only remedies I know of are those I have suggested. There is no right to inflict fines on the owners.] Surely it is not unreasonable? [Lord Coleridge.—I am afraid you must get it allowed by some higher authority.] It is feared there is "no higher authority" to appeal to than this Court. [Lord Coleridge.—Have you any authority?] There is no decision on such a bye-law, no doubt. [Mr. Justice Stephen.—There soon will be. (A laugh.)] Such bye-laws are very common and are made, for instance, for all public gardens under the control of the Metropolitan Board. [Mr. Justice Stephen.—They had better think once or twice before they attempt to enforce them. Is there any case in which such a bye-law has been enforced?] It is believed there is not.

The Court, after hearing the learned counsel, were clearly of opinion that the Board had no power to make such a bye-law, [and that the magistrates, therefore, were right in refusing to convict.]

TILLET V. WARD.

This also was a case of intrusion by an animal, but it was a case of a much more formidable animal, and into a much more awkward place, for it was a case of an intrusion of an ox into an ironmonger's shop. Two men were driving an ox through the streets of Stamford, and, so far as appeared, they were driving it along the street when it got on to the footpath and went on it for twelve yards, and then, suddenly, it took it into its head to enter an ironmonger's shop, which was a very awkward place for it to get into on account of the difficulty of getting it out again, more especially from the almost impossibility of its turning round. The consequence was that, although the articles in the shop were not so fragile as they would have been in a china shop, the beast before he was got out did damage to the amount of a pound, for which the owner was sued by the ironmonger in the County Court, and the Judge decided in favour of the ironmonger, not on the ground of any negligence in driving the ox (no such negligence being imputed or proved), but on the broad ground that it was the duty of the owner of the ox to take care that while it was being driven in a town it did no harm. The question was whether that view could be sustained.

Mr. Moon (with Mr. Graham) argued for the owner against it; Mr. Sills argued for the ironmonger in support of it.

At the close of the arguments the learned Judges retired and conferred together, and, on their return into Court,

Lord Coleridge said the Judge had found as a fact that there had been no negligence on the part of the driver of the ox, and it must be taken that there was none. As a general rule the owner of cattle must keep them from trespassing, and that if they trespass on another's land the owner of the cattle is liable for damages. Where both parties were on the highway, then, in order to establish a liability of either, it must be shown that he or his servants had been guilty of negligence. Where the injury was done by an animal viciously or fiercely, it must be shown that the owner knew it to be fierce or vicious. Here the trespass, if it were so, was committed on the plaintiff's house, immediately adjoining the highway, and in such a case, unless there was negligence, no action lay. If the plaintiff could have shown negligence on the part of the driver, the action might have been sustained, but there had been no such negligence. But where there was a trespass by cattle on land immediately adjoining a highway, the owner of the cattle was not liable, and the owner of the land or property injured must bear the loss. That had been laid down many years ago in a case in which Mr. Baron Bramwell had given his opinion, and also in another case by Lord Blackburn. He concurred in that view of the law, and therefore, had no hesitation in acting upon it. He could see no distinction in this respect between highways out of towns and streets in market towns. Such accidents as this were naturally incident to the driving of animals on the highway, either in or out of town. The amount at stake in this case was small, but it was interesting. There had been a long and interesting argument, and each party had had more than a guinea's worth of law upon it. (A laugh.) But he thought that the County Court Judge had been wrong in the view he had taken of the case, and that, therefore, the judgment he had given must be reversed and the judgment entered for the defendant, the owner of the ox.

Mr. Justice Stephen concurred.

The judgment was for the defendant. Leave to appeal was refused.

TRADE MARKS.

In the Court of Appeal, November 26, 1882, before the Master of the Rolls and Lords Justices Cotton and Bowen, was heard the appeal in the case of Ransomes, Head, and Jefferies v. Graham and Joslin. Mr. Aston, Q.C. (with whom were Mr. Davey, Q.C., and Mr. William Barber, Q.C.), on behalf of the plaintiffs, stated that it had been arranged that the appeal of the defendants in this case from the judgment of Vice-Chancellor Bacon should be dismissed without costs. The case, which was one of considerable importance to the manufacturing and agricultural community, raised the question whether Messrs. Ransomes, the well-known manufacturers of ploughs, were entitled to the exclusive use of, and to register as their trade marks, certain combinations of letters which they had stamped upon particular parts of their ploughs for the purpose of denoting that ploughs so marked were of their manufacture; the right of the plaintiffs to claim as trade marks combinations of letters which were alleged to be merely pattern marks being denied by the defendants. The Vice-Chancellor decided in last Easter sittings that the plaintiffs were entitled to the exclusive use of these marks as their trade marks, and the appeal having been now withdrawn the right claimed by the plaintiffs has been established. Mr. Rigby, Q.C., Mr. Cozens Hardy, Q.C., and Mr. Carmichael were for the defendants, the appellants.

RIGHT TO DRAIN SEWAGE THROUGH ANOTHER MAN'S LAND.

In the Court of Appeal before Lords Justices Baggallay, Brett, and Lindley, the case of *Watson v. Troughton* arose out of a dispute as to rights of drainage, the plaintiff claiming a right to drain sewage through the defendant's premises, the defendant objecting that the right was limited to surface water. Prior to November, 1877, the properties, situated at Kendal, in question belonged to the same person. At that time it was admitted a four-inch pipe passed from the plaintiff's premises through the defendant's yard. In 1871 an underground drain was substituted, but it was not connected with any soil pipe. On October 9, 1877, the property was put up for sale by auction in several lots, one of the conditions of sale being that the lots were sold subject to the rights of roadways or other easements then existing in respect of the same. The defendant bought his part of the property at the auction, and signed the contract on October 9. The plaintiff bought by private contract on November 5, subject to the conditions of sale. A conveyance, dated November 10, was executed by the defendant on that day, and one of even date was signed by the plaintiff on November 15. In April, 1880, the plaintiff having received a notice to abate a nuisance, took up the four-inch pipes and substituted six-inch pipes, which he connected with a water-closet. The defendant thereupon stopped the drain, and the plaintiff brought this action for an injunction and for damages. The defendant put in a counter-claim for an injunction for damages. Neither conveyance on the face of it reserved any such easement as was claimed by the plaintiff, but it was contended that the properties having been put up to auction at the same time, and the conveyances being of even date, though not executed simultaneously, the right to have the pipe laid through the defendant's land passed as an apparent and continuous easement. It was also contended that this right extended to drainage of sewage, as the defendant must on the facts be taken to have known such an extension was contemplated. At the trial, before Mr. Justice Lopes, at Appleby, his Lordship reserved the case for further consideration, and in the result gave judgment for the defendant. From this judgment the present appeal was brought. Mr. Gully, Q.C., and Mr. Mattinson appeared for the plaintiff; Mr. Ambrose, Q.C., and Mr. Heury for the defendant. Their Lordships, without calling upon the defendant's counsel to argue, dismissed the appeal. They were of opinion that the plaintiff had no right to drain his sewage through the defendant's land, as at the time of the conveyances that had never in fact been done, and therefore, was not then an existing easement. It was unnecessary to give an opinion as to the right to drainage of surface water, as the defendant undertook not to interfere with the restoration of the four-inch pipe to be used as in 1877.

Exhibitions and Meetings.

HEADINGTON (OXON) VILLAGE WINTER FLOWER AND FRUIT SHOW, NOVEMBER 29.

On the above date the second annual winter show of the Headington Horticultural Society was held in the British Workman Hall, Old Headington, and the weather being bright was well attended in the evening. The display of plants was large, and consisted chiefly of untrained specimen chrysanthemums, white and crimson primulas, geraniums, cinerarias, ferns, orchids, fuchsias, palms, mosses, and exotic grasses, &c.; in addition several very handsome and valuable epergnes graced the table.

In the class for groups of plants, Mr. Gurden, gardener to Miss Watson Taylor, Manor House, filled the post of honour with a very effectively arranged group of some seventy plants, the bulk being Japanese varieties, comprising Peter the Great, yellow; Red Dragon, crimson; Elaine, white; Fair Maid of Guernsey, white; The Cossack, red orange; Gold Thread, red and gold; Kry Kwang, mauve; To Kio, red maroon; and Sœur Maline, a pure white pom-pone after the habit of the Japanese; this group occupied a low platform at the east end of the hall, and being set with a number of fuchsias and geraniums in flower, added much to the general beauty of the show. At the western end Messrs. North and West, florists, Old Headington, staged about thirty plants in variety, including double crimson tropæolums, cuphias, begonias, ferns, fuchsias, &c., and were awarded second prize. Miss Lyne's third prize group consisted wholly of untrained chrysanthemums.

In the class for single specimen chrysanthemums, Mr. Dearlove, St. Clement's, Oxford, was awarded the first and second cards for finely finished, well bloomed plants of Geo. Glenny and Fingal; Miss Watson Taylor third for a plant of Fair Maid of Guernsey; a highly commended going to General Desborough, Headington Lodge, for an untrained plant of Mr. Astie, a yellow pom-pone anemone. For a stand of blooms for first place Messrs. North and West presented blooms of large and small flowering chrysanthemums; Mr. John Price being second with a splendid arrangement of helichrysums. The table decorations were very choice, the winning card going to Mr. George Jacob's epergne, which was acknowledged to be most elegant and valuable; Miss Barnes' second prize was altogether good, but the feathery plumes of the pampas grass used gave it a trifling heavy appearance; the third prize piece by Miss Desborough was smaller and only needed a few spikes of wavy grass to have rendered it complete.

For specimen plants of any kind Mr. George Jacob put up a very choice orchid named *Oncidium Forbesi*, carrying on a spike of rich orange-brown flowers. This exhibitor also put up several other orchids, such as *odontogloss*, *cyripediums*, &c., he being also the winner of the prize awarded for double primulas. The number of plants staged was nearly 220.

The display of fruit was large, and comprised some fifty dishes of apples and pears, many of them exceptionally fine, the principal varieties being Blenheim Orange, Ribston Pippin, King Pippin, Grenadier, Northern Greening, Golden Magnet, Norfolk Beautin, Winter Greening, Hanwell Souring, &c., while of pears were several handsome dishes of Beurré Diel, Easter Beurré, Chaumontel, Beurré Raucé, Uvedale's St. Germain, and Duchesse d'Angoulême.

Among the general subjects were dishes of grapes, marrows, geraniums, hand bouquets of garden and dried flowers, a stag's horn fern, a model rockery, and a very fine collection of trusses of geranium blooms in nine varieties.

The judging of the products was very efficiently carried out by Mr. W. Hovell (gardener to G. H. Morrell, Esq.), Headington Hill Hall; and Mr. J. Mattock, in the classes for plants and blooms; Messrs. F. North and C. Bodimead adjudicating in the fruit classes. The following were the awards:—

Groups of plants staged for effect.—First, Miss Watson-Taylor, Manor

House (gardener, Mr. F. Gurdon); second, Messrs. North and West; third, Miss Lyne, High Street, Headington.

Specimen Chrysanthemum.—First and second, Mr. James Dearlove, Cherwell Street, St. Clement's; third, Miss Watson-Taylor; highly commended, Major-General Desborough, Headington Lodge.

Stands of blooms, any kind.—First, Messrs. North and West; second, Mr. John Price.

Table decorations or epergne.—First, Mr. Geo. Jacob, jun., Barton; second, Miss Barnes, Manor House; third, Miss Desborough.

Apples, six dishes.—First, Mr. John Price; second, General Desborough; third and highly commended, Rev. J. W. A. Taylor, The Rookery (gardener, Mr. W. Wheeler); highly commended, Mrs. Thomas Jacob, Rose Cottage, Headington Quarry. Three dishes.—First, Mr. Henry Stuart, 25, Walton Street, and the Market, Oxford; second, Messrs. North and West. Oao dish.—First, John Roso, New Headington.

Three dishes of pears.—First, Messrs. North and West; second, Mr. H. Smart; third, Mr. Thomas Jacob.

Pears, one dish.—First, General Desborough; second, Mr. Stephen Coppock, Headington Quarry; third, Mr. Sinkins, gardener to Mr. J. Ralph, Headington Quarry; highly commended, Rev. J. W. A. Taylor.

Collection of fruit, four dishes.—First, Mr. John Price.

Specimen plant in flower.—First, Mr. George Jacob, jun.

Six primulas.—First, Mr. George Jacob, jun.

General subjects.—First, Master W. Mattock, New Headington (model garden); first, Mr. George Jacob, jun. (collection of orchids, primulas, and other decorative plants); first, Miss Watson Taylor, stand of geranium trusses; first, Messrs. North and West (Stag Horn Fern); very highly commended, Mrs. Jacob, sen., Barton (six bouquets of dried flowers); bouquet of helichrysums, Mr. John Price; highly commended, Rev. J. W. A. Taylor (hand bouquet); Thomas Adams (three geraniums, bouquet of chrysanthemums, and vegetable marrow); Mrs. Lewis North (two dishes of grapes); Mr. Sinkins (three decorative plants, and vegetable marrows); and Edward Morris (vegetable marrow).

Votes of thanks were also accorded to Miss Watson Taylor for collection of apples, &c.; and to Mr. George Jacob, jun., for an extra collection of ferns, primulas, &c.

No money prizes were given, but the honorary awards made proved satisfactory to the exhibitors. The general arrangements were under the direction of

WILLIAM GREENAWAY, Secretary.

Oxford.

CHESTERFIELD CHRYSANTHEMUM SOCIETY, NOVEMBER 28 AND 29.

The above society held their first annual show last week in the assembly room over the Market Hall, a room admirably adapted for the purpose; and although it was considered late by several exhibitors, owing to the committee not wishing to clash with any other shows in the immediate neighbourhood, it was pronounced to be by competent judges and growers the best show in the district. T. P. Wood, Esq., well known for his liberality, accords the society his patronage as President. The Vice-Presidents include several of the leading gentlemen in the town. The arrangements were carried out under the superintendence of Mr. J. Hall (hon. secretary) and an influential committee, of which the most prominent are Messrs. W. M. Hewitt, W. Slack, C. Auckland, and R. W. Proctor, and several of the leading gardeners in the neighbourhood, including Mr. J. H. Clements, of Whittington.

There were no money prizes, but in lieu of them first, second, and third class certificates of excellence were awarded. The President paid for the use of the rooms; Mr. Eastwood, one of the committee, lent boards for tables, &c.; Mr. J. K. Swallow lent cloth for covering the same; and after the expenses, which cannot amount to much, are paid, the proceeds will be handed over to the Chesterfield and North Derbyshire Hospital.

The plants, which included large-flowering varieties, Japanese, and pom-pones, were not quite so good as we like to see. Although well bloomed, the majority of them were too high on long naked stems. One collection, however, exhibitors in future might advantageously imitate. This was of six large-flowered plants staged by Mr. R. W. Proctor, and deservedly placed first in a strong class—the plants from three to four feet high, with beautiful fresh green foliage down to the rim of the pots, and every flower almost fit for a stand in the cut bloom class.

Cut blooms were the chief feature of the exhibition. Mr. Tree, gardener to J. R. Swallow, Esq., was deservedly first for twenty-four large-flowering varieties, as was Mr. J. H. Clements. The judges considered them equal, but all the local florists considered Mr. Tree the winner, as did most of the leading gardeners. The blooms shown by Mr. Tree were neat, clean, fresh, and well put up, and one old florist remarked that they might have all come out of one mould, so neatly were they incurred. Among the best flowers of Mr. Tree's were White Beverley, Beauty, Mrs. Dixon, Jardin des Plantes, Yellow Beverley, George Glenny, Mrs. G. Rundle, Empress of India, Lady Slade, Golden Empress of India, and Golden Queen of England. The best blooms in Mr. Clements' stand were Virgin Queen, splendid; and Prince Alfred, good; several of the others had bad centres. This exhibitor and several others made a great mistake in setting their blooms down too low. For eighteen blooms, large-flowered varieties, Mr. R. W. Proctor was an easy first, his best flowers being Golden Empress of India, Red Dragon, Empress of India, George Glenny, Lady Slade, Lord Derby, and Prince Alfred; second, Mr. J. Marsden, who made the same mistake mentioned above, and some blooms looked dull. Twelve large-flowering varieties, Messrs. Hall and Auckland had some very neat blooms. We also noticed an excellent stand of Japanese and incurved exhibited not for competition by T. P. Wood, Esq., and a stand from Mr. Gosling quite equal to anything in the classes for cut blooms.

In the class for six primulas the competition was very keen, Mr. R. W. Proctor ultimately winning, being very closely pressed by Mr. Frith, gardener to J. P. Jackson, Esq., J.P., Stabbin Edge; third prize going to Mr. Reynolds, gardener to W. G. Turbitt, Esq., Ogston Hall. In the class for three primulas Mr. Parker, gardener to Mr. C. Markham, Tapton House, took the lead.

There was a grand display of grapes and stove plants, kindly lent by the following gentlemen:—His Grace the Duke of Devonshire, Messrs. A. Barnes, M.P., Ashgate; H. A. Fowler, Whittington; J. B. Barrow, Ringwood Hall, W. B. Smith Milnes, Dunston Hall; F. Swanwick, Whittington; J. Britt, Chesterfield; Fletcher and Son, Chesterfield; R. W. Proctor, Chesterfield; who also lent a good collection of evergreens for the staircase. Mr. C. Shentall, fruiterer, had a very good table of fruit. Mr. Ewing, Sheffield Botanic Gardens, and Mr. Stephens, gardener to Sir John Brown, Sheffield, were the judges.

LOUGHBOROUGH CHRYSANTHEMUM SOCIETY, NOVEMBER 25.

The annual exhibition of this society was held in the Town Hall, Loughborough, on the above-mentioned date, and was generally regarded as the most satisfactory show of its kind that has yet been held in the town. The number of competing collections were about equal to the average, but the quality was considerably above it, and the attendance was much larger than on any previous occasion.

In the classes for trained specimens the chief prizes were taken by the Rev. J. Bird, Walton Rectory, the president of the society, who staged remarkably fine examples, and was first for four, for two, and for a single specimen. Mr. J. Pullen, gardener to W. B. Paget, Esq., was second for four and for a single specimen, and first with six untrained examples. In competition for the prizes for a group of plants not to exceed four feet in diameter or to contain less than six chrysanthemums, Mr. H. Smith, gardener to Sir W. H. Salt, Bart., was first with an excellent and admirably arranged collection. For six primulas the prizetakers were Mr. A. Squires, Mr. H. Smith, and the Rev. J. Bird in the order of their names, and in the class for three Mr. Squires and the Rev. J. Bird were first and second respectively.

The leading exhibitors in the classes for cut flowers were the Rev. J. Bird, Mr. J. Lausdell, and Mr. H. Smith. In the class for eighteen incurved, Mr. Lausdell was first with a stand of superb blooms, and the Rev. J. Bird second with excellent flowers; Messrs. J. and H. Hickling, who were third, also exhibited remarkably well. The first prizes for twelve and six were awarded to the Rev. J. Bird, who presented capital stands; Mr. Lausdell was second in each class, Mr. H. Smith was third for twelve, and Mr. A. Squires third for six. In competition for the prizes for six Japanese flowers, Mr. H. Smith was first, Mr. Lausdell second, and the Rev. J. Bird third.

The fruit classes were well filled, and the produce was remarkably good. Mr. R. Shaw was successful in taking the first prizes for two bunches of black grapes and the heaviest bunch of grapes; Mr. Squires the first prize for two bunches of white grapes; Mr. J. Smith the first prizes for four dishes of pears and six heaviest stewing pears; and the Rev. J. Bird the first prizes for one dish of dessert pears, four dishes of dessert apples, four dishes of cooking apples, a dish of dessert apples, and a dish of cooking apples. Mr. Lausdell and Messrs. J. and H. Hickling also exhibited well, and secured several first and second awards.

The judges were Mr. J. McLean, Mr. D. Roberts, and Mr. Faire.

SMITHFIELD CLUB CATTLE SHOW, DECEMBER 5 TO 9.

THE Cattle Show held in the Agricultural Hall, Islington, during the past week was fully up to the average, both as regards the number and the condition of the animals exhibited, and the attendance of visitors was such as to show that these gatherings are in no way declining in popularity. There was, as usual, an immense assemblage of implements and machinery of the farm, and in the galleries the stands of roots and seeds from the leading seedsmen formed a most important and decidedly attractive feature.

At the Western end of the North Gallery Messrs. James Carter and Co., 237 and 238, High Holborn, W.C., had an immense display of roots, comprising splendid samples of their stocks of swedes, mangels, and yellow and white fleshed turnips, which are now held in such high esteem in all parts of the country for heavy cropping and high feeding value. Particularly noteworthy were the immense roots of Carters' Mammoth Long Red mangel, which is remarkable for the heavy crops it produces under ordinary culture; Carters' Warden mangel, one of the finest of the Glohe types, and Carters' Prize-winner swede, a type well known and highly valued for its hardiness, heavy cropping, and excellent quality. Carters' Improved Purple-top Mammoth and Carters' Champion Green-top Hybrid turnips, which are white and yellow fleshed respectively, and of great excellency for feeding purposes, were also represented by large numbers of fine samples. Messrs. J. Carter and Co. had also on their stand a fine display of grasses and clovers in full growth, to show the kinds best suited for permanent pastures in various parts of the United Kingdom, and due prominence was given to the grasses specially recommended by the Royal Agricultural Society. The grasses were grown in boxes about fifteen inches in width, and arranged to form a hand along the front of the roots they gave a very pleasing finish to the stand. Potatoes were, it need hardly be said, well represented, and amongst other noteworthy kinds was a good dish of Cosmopolitan.

The stand of Messrs. Sutton and Sons, of Reading, occupied a conspicuous position, and did not fail to attract a full share of attention. Along the front of the stand was arranged a series of magnificent photographs, illustrating the premises of the firm at Reading, and as the photographs are of so large a size as to give a fair idea of the extent of the premises, and the magnitude of the several departments, they proved a great source of attraction to all classes of visitors. Above the photographs were piled great heaps of the several excellent types of mangels, swedes, and white and yellow fleshed turnips, with which the name of the Reading firm is so closely identified. In front of the stand was arranged a large and excellent collection of potatoes. Amongst the agricultural produce were splendid roots of Suttons' Champion swede, so well known and highly appreciated on all sides, and Suttons' Berkshire Prize Yellow Globe, Suttons' Yellow Intermediate, and Suttons' Mammoth Long Red mangels; examples of the last-mentioned weighing fifty-four pounds. In the collection of potatoes were examples of all the leading kinds, and prominent amongst them were the valuable varieties distributed within the past two or three years by the Messrs. Sutton. The new varieties comprised Suttons' Reading Hero, a valuable round variety now rapidly making its way into general cultivation. It appears to have already become popular amongst the large growers in Scotland, and crops ranging from twelve to sixteen tons per acre are reported to be quite common. It is said to be equal to Magnum Bonum as a disease resister, and to be a heavier cropper and of a much finer quality. Suttons' Early Regent, a heavy-cropping white round, ready for lifting at the middle of July, and of immense value for early supplies; Suttons' First and Best, a now well-known excellent white round, as early as the old Ashleaf; Suttons' Reading Russet and Suttons' Prizetaker, two red-skinned potatoes, remarkable for their productiveness and fine quality; Suttons' Filbasket and Suttons' Fiftyfold, two excellent main crop varieties; Suttons' Favourite and Lady Truscott, both of which are of a high degree of merit. The stand also contained a representative collection of dried agricultural grasses.

Mr. John King, Coggeshall, Essex, exhibited a remarkably well-filled and interesting stand, on which garden produce formed a prominent feature. Swedes, mangels, and other farm roots were all represented by stocks of great excellence and evincing cultural skill of a high order. The garden produce comprised a good collection of potatoes, amongst which was Essex Challenge, an excellent white round introduced two years since. A capital stock of Brussels sprouts,

an excellent type of heartroot, and a fine strain of parsley under the designation of King's Extra Triple-curved also well merit special notice. The parsley, it may be added, was represented by plants in pots, and a good opportunity was thus afforded for forming an opinion of its general character. Messrs. Harrison and Sons, Leicester, contributed a capital collection of roots from both farm and garden. Amongst the latter were samples of New Marble turnip, a very hardy green-top variety, producing roots of medium size, perfectly globular in form, and very solid and delicate in flavour. This variety, which has been recently distributed, well merits the attention of cultivators. Messrs. Harrison also had a select collection of potatoes and a dozen or so of very large and solid heads of Leicester Red celery, one of the finest red varieties at present in cultivation. Messrs. Thomas Gibbs and Co., Half Moon Street, Piccadilly, contributed an immense display of turnips, swedes, mangels, cattle cabbages, and potatoes.

The admirably-arranged stand of Messrs. E. Webb and Sons, Wordsley, Stourbridge, was of large dimensions, and contained remarkably fine samples of the various and excellent agricultural roots for which the firm enjoys so high a reputation, and a good collection of potatoes representing the most approved kinds in general cultivation. Chief amongst the farm roots were Webbs' Imperial swede, Webbs' Champion Yellow Globe, Webbs' Mammoth Long Red, Webbs' Yellow-fleshed Tankard, Webbs' Kinver Globe, and Webbs' Yellow Intermediate mangels, Webbs' Purple-top and Webbs' Green Globe turnips. The samples of seed corn, to which the Messrs. Webb devote much attention, of grasses for permanent pastures and other purposes, and the potatoes all afforded much interest and materially enhanced the general effect. The new potato Webb's Reliance, a round white, had a very promising appearance, and is likely to prove useful for farm and garden.

KERRIA JAPONICA.

As this plant is often labelled *Corchorus japonica*, we commence this notice by saying that it is not a corchorus, and should never be so called. The corchorus is allied to the lime-tree; the kerria is allied to the spiræa, and is, therefore, a rosaceous plant. The leaves are quite spiræa-like; but the flower of the double variety may take us far away from spiræa, until we examine it carefully.

The Japan Kerria is named in honour of Mr. William Kerr, a collector sent out from the Royal Gardens at Kew, and some time superintendent of the Botanic Garden in Ceylon. The hardiness and beauty of the double variety, which was first introduced, made the botanists desire to obtain the single form of the plant; and Don, in the second volume of his "Dichlamydeus Plants" (p. 517) intimates that it was still unknown in 1832, when that work was published. But it was figured in the fourth volume of Sweet's "Flower Garden" (t. 337), which is dated 1838, and its introduction is there ascribed to Mr. Reeves, through whom many valuable plants were secured from China and Japan for the enrichment of our gardens. Sweet reports that the double kerria was introduced in the year 1804; but in the current works of reference the year 1700 is attached to both the single and double kinds, as though they were introduced together. Perhaps a reference to De Candolle's paper on the affinities of the plant, published in the twelfth volume of the "Transactions of the Linnæan Society," might clear up these matters. As the writer of this cannot make the needful reference, he will dismiss the subject in the way the fox dismissed the grapes, by saying that it is of no great consequence whether this plant, as an inmate of our gardens, dates from 1700 or 1804.

Kerria japonica is perfectly hardy, and very accommodating. It will grow in any good border, and is usually planted next a wall; and while being trained in the ordinary way, it soon lends the adornment of its bright green leaves and golden flowers. It is not given to any great degree of variation; but a handsome large-flowered variety has lately been presented to the notice of the Royal Horticultural Society by James McIntosh, Esq., of Weybridge, and has been named, to distinguish it, "Kerria japonica major."

The single form, as figured by Sweet, is simple and elegant, the flowers having five rounded ohlong petals and a rich yellow colour, and resembling somewhat those of a potentilla. It is, we think, a matter for regret that this single flower is not to be met with in gardens generally; indeed, we doubt if it could be easily found in botanic gardens, so little attention has it hitherto obtained.

To propagate the kerria is an easy matter. The old wood is of no use for the purpose. Young shoots, when just becoming firm, may be cut off at a joint and planted firmly in a pot filled with sandy loam, and covered with a bell glass. These will need an occasional sprinkling of water to keep them fresh, but the soil should not be more than moderately moist or the cuttings will rot. In the course of about three weeks roots will be formed, and then the glass may be removed. Plants of this kind should be grown in pots for a year and then be planted out where they are to remain.

There are many fine subjects available for the clothing of a warm wall that cannot be advantageously grown any other way. Those who can command a sheltered situation and a good deep, well-drained border, may festoon their walls with some splendid examples of exotic vegetation. One of the finest plants for the purpose is the *Bignonia radicans*, the "trumpet-flowered ash," a North American plant; and there is a near relative, *Tecoma grandiflora*, a native of Northern Asia. These have trumpet-shaped flowers, richly coloured scarlet and yellow. The *Wistaria sinensis*, though well known, is not so often to be seen as one would wish, considering how many grimy walls there are in the world, and how easy it is to make them beautiful. *Bomarea saxifolia* may be called the climbing lily, although it is not a lily, but an amaryllid. It will run from five to seven feet, and produce pretty clusters of purple flowers. *Clianthus puniceus*, the glory pea of New Zealand, is a grand wall plant for the western counties. The flowers are curious and splendid, and may be likened to lobster claws in form and colour. *Magnolia grandiflora* is, perhaps, the finest of all the wall plants that are hardy enough to bear twenty degrees of frost. This it will bear, but no more, and therefore it is only in the southern and western counties that the evergreen magnolia acquires age enough to flower freely.

But while these and many more fine subjects are at our command, it must never be forgotten that we have clematis, roses, pyracanthas, jasmines, cotoneasters, creepers, ivies, and many more glorious wall plants that twenty degrees of frost will not touch; and the prudent planter will take care to secure some of the handsomest and hardiest subjects before incurring risk with those that are in some degree tender.—*Familiar Garden Flowers.*

Correspondence.

WHAT IS GENERAL EFFECT?

As the majority of the chrysanthemum societies offer prizes for groups of chrysanthemums in which "general effect is to be the leading feature," it appears desirable in the interest of exhibitors that the question, "What is general effect?" should have some attention and be satisfactorily answered. I have my own ideas upon the point, and I know the opinions of the majority of my friends who officiate as judges. But all preconceived ideas were entirely upset by the decision arrived at in determining the relative merits of the groups arranged for effect at the recent exhibition at the Royal Aquarium, and as a question of principle is involved, the matter cannot well be allowed to pass without some reference being made to it. Briefly stated, four or more groups were staged in the class, one comprising trained specimens acknowledged on all sides to be of great excellence, and the others were formed by untrained plants closely massed to produce as far as possible solid banks of flowers. Whether the group which obtained the first prize or that formed by the specimens was the most effective hardly concerns us, and had the latter been placed second I should not have presumed to question the decision, knowing how greatly tastes differ, and that many prefer a solid block of colour presenting so level an appearance as to suggest the idea that the "straight edge" had been employed, to well-trained specimens so grouped as to appear to the greatest possible advantage. But if the group of trained examples was not better than the first-prize collection, it was certainly better than those to which the second and third prizes were awarded. The judges decreed otherwise, not because the plants were indifferently grown, or that they were badly arranged, but because trained specimens, however good or well put up, are not admissible in a class in which it is stipulated, "general effect will be the leading feature." Accordingly they were passed by, and the exhibitor, who, so far as I am aware, was perfectly satisfied, was awarded an extra prize and a first-class certificate. For my own part, I have no hesitation in asserting that the interpretation of the rule was altogether wrong, and that trained specimens are equally as admissible in a collection arranged for effect as plants which have been allowed to run up with single stems to a height of five or six feet. The discretion of exhibitors should, in fact, be entirely unfettered, and they should be allowed to employ as their taste dictates the plants at their command.

GEORGE GORDON.

WHAT IS AN AMATEUR?

The question of what constitutes a *bona fide* amateur is one which is so constantly being asked, that I venture to trespass upon your valuable space to beg the kind assistance of your many readers to endeavour to arrive at some definite conclusion on a point which has pressed somewhat heavily on the class of exhibitors on whose behalf I write. The Kingston, Putney, Wimbledon, and other societies, describe an amateur in their schedules as being a person who does not employ a gardener regularly. The Borough of Hackney Society also offers prizes in open classes to amateurs who do not employ one or more permanent gardeners—and with all these definitions of an amateur I do not in any way join issue. But in the schedule of the last mentioned society I find a new interpretation put on the word amateur applicable to a special prize given by Messrs. Dixon and Co. Here an amateur is said to be "any one but a professional gardener or nurseryman," and it has actually been stated that a person although he employs a permanent gardener is entitled to compete as an amateur. Now, I fail to see the slightest difference between an amateur who employs a permanent professional gardener, and a professional gardener pure and simple, and I take it that under the rule I have mentioned the employer of Mr. G. Harding (the winner of the Kingston Challenge Vase), *provided the former exhibited in his own name*, was as much entitled to compete in this class as any *bona fide* amateur. In that case how would the latter fare? I do not say whether Mr. J. Starling, the winner of Messrs. Dixon's prize, does or does not employ a gardener permanently, or whether in the latter case he could fairly be considered as an "amateur" in the sense one generally understands the word. But I do urge that some distinct and clear rule should be settled and adopted by all societies as to what really does constitute an amateur.

AN AMATEUR.

THE WORK OF THE SCIENTIFIC COMMITTEE.

While agreeing with much that you write (page 651), I cannot let one sentence remain unchallenged in a paper which is read by so many good horticulturists. It is this: "We pass over all possible changes that may appear to be needed in the Scientific Committee, because so few persons take any interest in its proceedings, which consist for the most part in splitting of hairs, and the superficial study of vegetable malformations." I have been a member of the Scientific Committee, though only a humble one, for some years, during which time it has numbered among its members the highest authorities in the country in their different branches of science—botanists, entomologists, chemists, fungologists, meteorologists, &c. It is well attended, and matters of the greatest importance and interest come before it. For example, all new plant plagues appearing in our colonies are at once submitted to it; and to give an example coming more home to florists, I may mention that one of its members has lately shown that the pest which has so much distressed the lovers of hollyhocks is present in the seed. Surely this is practical as well as scientific. The Scientific Committee's usefulness is lessened by want of funds, like other parts of the society's work; but I believe an important and influential section of the society's supporters look upon the Scientific Committee as doing about the most valuable part of the society's work. I know you would wish to be corrected as to a matter of fact. The *Chionodoxa Lucillæ* received its well-deserved First-class Certificate in 1879.

GEORGE F. WILSON.

AN ANCIENT EGG.—In the course of the excavations at the great Roman bath recently discovered at Bath, there was found, lying in the decayed and buried remains of vegetation, an egg, which the British Museum naturalists pronounce to be the egg either of a teal or of a eared grebe, a bird now nearly, if not quite, extinct in the British Isles. The egg was broken in its transit to London, and proved to be full of water, which had gradually percolated through the shell during its long interment. At one end was a curious crystalline mass, which was the yolk petrified. The egg is to be preserved in the Grand Pump Room. In the British Museum, we learn from an antiquarian contemporary, there is a Greek chalice from Rhodes, dating from 200 B.C., wherein were found the remains of five hen's eggs, much fractured, and forming, with a fine sandy deposit, a hard solid mass, in which state they remain.

Obituary.

SINCE our last publication three distinguished men have passed over to the great majority—the Archbishop of CANTERBURY, LOUIS BLANC, and Mr. ANTHONY TROLLOPE. Their names suggest the diversities of gifts bestowed on men, and the strangely different careers that are open to the capable in the ordinary business of the world.

On the 28th of November Mr. GOREGE HAVELOCK, of Abbey Wood Nurseries, Lessness Heath, Kent, aged 56 years.

Markets.

COVENT GARDEN.

FRUIT.	
Apples.....per 3 sieve	24. 0d. to 64. 0d.
Cob Nuts.....per lb.	04. 0d. " 04. 8d.
Grapes.....per doz.	14. 0d. " 74. 6d.
Lemons.....per 100	59. 0d. " 64. 0d.
Pears.....per 100	23. 0d. " 74. 0d.
Pine-apples, Eng.....per lb.	24. 0d. " 34. 0d.
Pine apples, St. Mch's, ea.	58. 0d. " 28. 0d.

VEGETABLES.

Artichokes, Globe, per dz.	38. 0d. to 64. 0d.
Beet.....per 100	18. 0d. " 24. 0d.
Brussels Sprouts, per 2 sv.	28. 6d. " 34. 6d.
Cabbages.....per doz.	08. 9d. " 12. 6d.
Carrots.....per bunch	08. 4d. " 08. 6d.
Cauliflowers, Eng., per dz.	28. 0d. " 48. 0d.
Celery.....per bun.	18. 0d. " 28. 6d.
Coleworts.....per doz. bun.	24. 0d. " 48. 6d.
Cucumbers.....each	08. 9d. " 12. 6d.
Endive.....per doz.	18. 0d. " 24. 0d.
Garlic.....per lb.	08. 10d. " 18. 0d.
Herbs.....per bunch	08. 2d. " 08. 4d.
Horseradish.....per bun.	38. 0d. " 48. 0d.
Leeks.....per 100	08. 3d. " 08. 4d.
Lettuces.....per doz.	18. 6d. " 28. 6d.
Mushrooms.....per basket	18. 3d. " 28. 0d.
Onions.....per bushel	38. 0d. " 48. 0d.
Onions, Spring, per bunch	08. 4d. " 08. 6d.
Parsley.....per bunch	08. 4d. " 08. 6d.
Radishes.....per 100	08. 1d. " 08. 3d.
Salsify.....per bun.	18. 0d. " 18. 6d.
Seakale.....per pun.	18. 6d. " 28. 6d.
Small Salading.....	08. 3d. " 08. 4d.
Spinach.....per bushel	28. 0d. " 38. 0d.
Tomatoes.....per lb.	08. 9d. " 18. 0d.
Turnips.....per bunch	08. 4d. " 08. 6d.

FLOWERS.

Abutilons, per doz. blooms	08. 2d. to 08. 4d.
Azaleas.....per doz. sprays	18. 0d. " 28. 0d.
Bouvardias.....per bunch	08. 9d. " 18. 6d.
Callas.....per doz.	68. 0d. " 88. 0d.
Camellias.....per doz.	28. 0d. " 48. 0d.
Cyclamens, per doz. blms.	08. 4d. " 08. 6d.
Eucharis.....per doz.	38. 6d. " 78. 6d.
Gardenias, per doz. blooms	38. 6d. " 68. 6d.
Heliotropiums.....sprays	18. 0d. " 18. 6d.
Hyacinths, Roman, per doz. spikes	28. 0d. " 38. 0d.
Lapagerias, per doz. blms.	28. 6d. " 58. 0d.
Lilac.....per bun.	78. 6d. " 98. 0d.
Marguerites, per doz. bun.	48. 0d. " 68. 0d.
Mignonette.....	28. 0d. " 68. 6d.
Pelargoniums, Zonal, per doz. trusses	08. 4d. " 08. 8d.
Primulas, double, per bun.	18. 0d. " 28. 0d.
Roses.....per doz.	18. 6d. " 48. 6d.
Stephanotis, per doz. sprays	68. 0d. " 88. 0d.
Tropeolum.....	18. 3d. " 38. 6d.
Violets.....per doz. bun.	18. 0d. " 18. 6d.

POTATO MARKETS.

BOROUGH AND SPITALFIELDS.	
Magnum Bonums.....per ton	120s. to 140s.
Regents.....	110s. " 120s.
Champions.....	100s. " 110s.
German Reds.....per ton	125s. to 135s.
German Blues.....	58. 0d. " 68. 0d.
Dutch Rocks.....	48. 3d. " 48. 0d.
Dutch Reds.....	48. 0d. " 48. 0d.

MONEY MARKET.

Consols.....	101½ to 101½
Reduced 3 per cent.....	100½ " 101½

HAY MARKET.

WHITECHAPEL.	
Prime Clover.....per load	100s. to 125s.
Inferior do.....	60s. " 95s.
Prime Meadow Hay.....	90s. " 110s.
Inferior do.....	50s. " 85s.
Straw.....	30s. " 42s.

CORN.—MARK LANE.

Wheat, Red.....per qr.	35s. to 42s.
Wheat, White.....	37s. " 45s.
Flour, London nom. top price, per sack of 280lbs.	— " 43s.
Flour, town-made whites.....	36s. " 37s.
Flour, households.....	33s. " 35s.
Flour, country households, best makes.....	34s. " 37s.
Flour, Norfolk and other seconds	30s. " 33s.
Barley, Grinding.....per qr.	24s. " 30s.
Barley, Maltng.....	32s. " 50s.
Malt, English, new.....	38s. " 48s.
Malt, English, old.....	28s. " 33s.
Malt, Scotch.....	38s. " 43s.
Malt, brown.....	29s. " 32s.
Oats, English.....	22s. " 26s.
Oats, Irish.....	22s. " 25s.
Oats, Scotch.....	22s. " 30s.
Rye.....	27s. " 37s.
Tares.....	40s. " 48s.
Beans, English, Mazagan.....	36s. " 40s.
Beans, Tick.....	39s. " 41s.
Beans, Winter.....	37s. " 40s.
Peas, Grey.....	30s. " 35s.
Peas, Maple.....	42s. " 43s.
Peas, White.....	40s. " 44s.

METROPOLITAN MEAT MARKET.

Beef, American killed, hind qtr's, per 3lbs.	4s. 4d. to 5s. 2d.
" fore quarters.....	3s. 4d. " 3s. 8d.
Beef, inferior.....	3s. 2d. " 3s. 6d.
Beef, prime.....	4s. 8d. " 5s. 4d.
Beef, middling.....	3s. 10d. " 4s. 2d.
Mutton, inferior.....	3s. 2d. " 3s. 10d.
Mutton, prime.....	5s. 0d. " 6s. 6d.
Mutton, middling.....	4s. 2d. " 4s. 10d.
Mutton, very choice.....	6s. 8d. " —
Pork, inferior.....	3s. 0d. " 3s. 6d.
Pork, middling.....	3s. 4d. " 3s. 8d.
Pork, prime.....	4s. 4d. " 4s. 8d.
Veal, prime.....	5s. 6d. " 6s. 0d.
Veal, middling.....	4s. 10d. " 5s. 2d.
Veal, inferior.....	3s. 10d. " 4s. 2d.

GAME AND POULTRY.

Black Game.....each	2s. 0d. to 3s. 0d.
Chickens.....	18. 10d. " 3s. 0d.
Pigeons.....	4s. 8d. " 0. 1d.
Grouse.....	0s. 0d. " 0s. 0d.
Pheasants.....	2s. 0d. " 3s. 3d.
Partridges.....	1s. 6d. " 2s. 0d.
Woodcock.....	2s. 6d. " 4s. 0d.
Duckings.....	2s. 6d. " 3s. 6d.
Geese.....	4s. 0d. " 7s. 9d.
Hares.....	3s. 6d. " 4s. 6d.
Hares, white Scotch.....	2s. 6d. " 2s. 9d.
Rabbits.....	1s. 9d. " 2s. 6d.
Conies.....	0s. 1d. " 1s. 3d.

COAL MARKET.

Wallsend, Hetton.....per ton	18s. 6d.
" Hetton Lyons.....	16s. 6d.
" Lambton.....	17s. 0d.
" Wear.....	16s. 6d.
" East Hartlepool.....	16s. 9d.

THE BEAUTY OF THE FIELDS.

On the fitful autumn breeze, with brown leaves whirling and grey grass rustling in the hedges, the hum of the fly-wheel sounds afar, travelling through the mist which hides the hills. Sometimes the ricks are in the open stubbles up the Down side, where the wind comes in a long, strong rush, like a tide carrying away the smoke from the funnel in a sweeping trail; while the brown canvas, stretched as a screen, flaps and tears, and the folk at work can scarce hear each other speak any more than you can by the side of the sea. Vast atmospheric curtains—what else can you call them?—roll away, opening a view of the stage of hills a moment, and, closing again, reach from heaven to earth around. The dark sky thickens and lowers as if it were gathering thunder, as women glean wheat-ears in their laps. It is not thunder; it is as if the wind grew solid and hurled itself—as a man might throw out his clenched fist—at the hills. The inclined plane of the mist-clouds again reflects a grey light, and, as if swept up by the fierce gale, a beam of sunshine comes. You see it first long, as it is at an angle; then overhead it shortens, and again lengthens after it has passed, somewhat like the spoke of a wheel. In the second of its presence a red handkerchief a woman wears on the ricks stands out, the brass on the engine glows, the water in the butt gleams, men's faces brighten, the cart-horse's coat looks glossy, the straw a pleasant yellow. It is gone, and lights up the backs of the sheep yonder as it runs up the hill swifter than a hare. Swish! The north wind darkens the sky, and the fly-wheel moans in the gloom; the wood-pigeons go a mile a minute on the wind, hardly using their wings; the brown woods below huddle together, rounding their shadows to the blast; a great air shadow, not mist, a shadow of thickness in the air looms behind a tiled roof in the valley. The vast profound is full of the rushing air.

These are days of autumn; but earlier than this, when the wheat that is now being threshed was ripe, the reaping-machine went round and round the field, beginning at the outside by the hedges. Red arms, not unlike a travelling windmill on a small scale, sweep the corn as it is cut and leave it spread on the ground. The bright red fans, the white jacket of the man driving, the brown and iron-grey horses, and yellow wheat are toned—melted together at their edges—with warm sunlight. The machine is lost in the corn, and nothing is visible but the colours, and the fact that it is the reaping, the time of harvest, dear to man these how many thousand years! There is nothing new in it; it is all old as the hills. The straw covers over the knives, the rims of the wheels sink into pimpernel, convolvulus, veronica; the dry earth powders them, and so all beneath is concealed. Above the sunlight (and once now and then the shadow of a tree) throws its mantle over, and, like the hand of an enchanter softly waving, surrounds it with a charm. So the cranks, and wheels, and knives, and mechanism do not exist—it was a machine in the workshop, but it is not a machine in the wheat-field. For the wheat-field, you see, is very, very old, and the air is of old time, and the shadow, the flowers, and the sunlight; and that which moves among them becomes of them. The solitary reaper alone in the great field goes round and round, the red fans striking beside him, alone with the sunlight, and the blue sky, and the distant hills; and he and his reaper are as much of the cornfield as the long-forgotten sickle or the reaping-hook.

The sharp rattle of the moving-machine disturbs the corn-crake in the meadow. Crake! crake! for many a long day since the grass began to grow fast in April till the cowslips flowered, and white parsley flourished like a thicket, blue scabious came up, and yonder the apple-trees dropped their bloom. Crake! crake! nearly day and night; but now the rattle begins, and the bird must take refuge in the corn. Like the reaper, the mowing machine is buried under the swathe it cuts, and flowers fall over it—broad ox-eye daisies, and red sorrel. Upon the hedge June roses bloom; blackbirds whistle in the oaks; now and again comes the soft hollow notes of the cuckoo. Angels and wheels, cranks and cogs, where are they? They are lost; it is not these we see, but the flowers and the pollen on the grass. There is an odour of new-made hay; there is the song of birds, and the trees are beautiful.

As for the drill in spring-time, it is ancient indeed, and ancients follow it—aged men stepping after over the clods, and watching it as if it were a living thing that the grains may fall each in its appointed place. Their faces, their gait—nay, the very planting of their heavy shoes' stamp on the earth, are full of the importance of this matter. On this the year depends, and the harvest, and all our lives, that the sowing be accomplished in good order, as it meet. Therefore, they are in earnest, and do not turn aside to gaze at strangers, like those who do hoe, being of no account. This is a serious matter, needing men of days, little of speech, but long of experience. So the heavy drill, with its hanging rows of funnels, travels across the field well tended, and there is not one who notes the deep azure of the March sky above the elm.

Still another step, tracing the seasons backwards, brings in the steam plough. When the spotted arum leaves unfold on the bank, before the violets or the first celandine, while the pussies hang on the hazel, the engines roll into the field, pressing the earth into barred ruts. The massive wheels leave their imprint, the footsteps of steam, behind them. By the hedges they stand, one on either side, and they hold the field between them with their rope of iron. Like the claws of some pre-historic monster, the shares rout up the ground; the solid ground is helpless before them; they tear and rend it. One engine is under an oak, dark, yet with leafless boughs, up through which the black smoke rises; the other overtops a low hedge, and is in full profile. By the panting, and the humming, and the clanking as the drum unwinds, by the smoke hanging in the still air, by the trembling of the monster as it strains and tugs, by the sense of heat, and effort, and pent-up energy bubbling over in jets of steam that come through crevices somewhere, by the straightened rope and the jerking of the plough as it comes, you know how mighty is the power that thus in narrow space works its will upon the earth. Planted broadside, its four limbs—the massive wheels—bold the ground like a wrestler drawing to him the unwilling opponent. Humming, panting, trembling, with stretched but irresistible muscles, the iron creature conquers, and the plough approaches. All the fields for the minute seem concentrated in this thing of power. There are acres and acres, scores of acres around, but they are a surface only. This is the central spot; they are nothing, mere matter. This is force—Thor in another form. If you are near you cannot take your eyes off the sentient iron, the wrestler straining. But now the plough has come over, and the

signal given reverses its way. The lazy monotonous clanking as the drum unwinds on this side, the rustling of the rope as it is dragged forth over the clods, the quiet rotation of the fly-wheel—these sounds let the excited thoughts down as the rotating fly-wheel works off the maddened steam. The combat over you can look round.

It is the February summer that comes, and lasts a week or so between the January frosts and the east winds that rush through the thorns. Some little green is even now visible along the mound where seed-leaves are springing up. The sun is warm and the still air genial, the sky only dotted with a few white clouds. Wood-pigeons are busy in the elms, where the ivy is thick with ripe berries. There is a feeling of spring and of growth; in a day or two we shall find violets; and listen, how sweetly the larks are singing! Some chase each other, and then hover fluttering above the hedge. The stubble, whitened by exposure to the weather, looks lighter in the sunshine, and the distant view is softened by haze. A water-tank approaches, and the cart-horse steps in the pride of strength. The carter's lad goes to look at the engine and to wonder at the uses of the gauge. All the brazen parts gleam in the bright sun, and the driver presses some waste against the piston; now it works slowly till it shines like polished silver. The red glow within, as the furnace-door is opened, lights up the lad's studious face beneath like sunset. A few brown leaves yet cling to one bough of the oak, and the rooks come over cawing happily in the unwonted warmth. The low hum and the monotonous clanking, the rustling of the wire rope give a sense of quiet. Let us wander along the hedge, and look for signs of spring. This is to-day. To-morrow, if we come, the engines are half hidden from afar by driving sleet and scattered snow-flakes fleeting aslant the field. Still sternly they labour in the cold and gloom. A third time you may find them, in September or bright October, with acorns dropping from the oaks, the distant sound of the gun, and perhaps a pheasant looking out from the corner. If the moon be full and bright they work on an hour or so by her light, and the vast shadows of the engines are thrown upon the stubble.—RICHARD JEFFERIES, in the *Magazine of Art*.

Replies to Queries.

J. B.—Your zonal came to hand in a bad state, and we could see no special merit in it. Zonals sent in paper boxes never make a journey advantageously.

Ferns.—*K.*—Greenhouse ferns must not be allowed to become dust dry during the winter, but the water supply must be considerably lessened during that season, and the plants ought to be kept as cold as is consistent with their welfare to ensure their having a proper season of rest.

G. H.—*Lobelia* will winter well in a brick pit. Your plants have probably been too wet and too cold. The following are good roses for forcing: *Juno*, *Charles Lawson*, *Beauty of Waltham*, *Duc de Rohan*, *La France*, *Général Jacqueminot*, *Paul Verdier*, *Perfection de Lyon*, *Souvenir de la Malmaison*, *Gloire de Dijon*, *Shirley Hibberd*, *President*, and *Souvenir d'un Ami*.

Rose Marechal Neil.—*F. C. D.*—The pruning of this rose may be done at any time during this and the two following months when the plants are growing under glass, towards the end of the current month is best for the work. In pruning thin out the small wood, cutting it back to within one or two buds of the base, and shorten the strong shoots slightly. The latter should merely have the soft points taken off, as it is upon these that the flowers will be produced; if they are well ripened they will flower along their whole length.

Names of Plants.—*A. B. G.*—*Helenium autumnale*. *W. F.*—1, *Dendrobium moniliforme*; 2, *Cypripedium insigni-maulei*; 3, *Zygopetalum crinitum ceruleum*; 4, *Habrothamnus fascicularis*; 5, *Oncidium ornithorhynchum*; 6, *O. varicosum*. *R. M. F. C. D.*—No. 2 is *Fatugium grande*, the others cannot be named without the flowers; larger specimens should be sent, for it is sometimes impossible, and at all times most difficult, to name plants from small scraps. *Amateur.*—1, *Cheilanthes lendigera*; 2, *Asplenium rachirhizon*; 3, *Platyloma brachypterum*; 4, *Gleichenia semi-vestita*. *W. B. H.*—1, *Dipladenia Boliviana*; 2, *Calanthe Veitchii*. *W. G. A.*—The large pink flower is *Hero* of *Stoke Newington*; the chestnut-red flower *James Salter*, and the pink pom-pone *Rose Trevenna*. The others are not sufficiently developed to be identified. All specimens should have numbers attached corresponding with numbers affixed to the plants from which they are taken.

WILL BE PUBLISHED ON SATURDAY NEXT, DECEMBER 16,

THE

CHRISTMAS NUMBER

OF

"THE GARDENERS' MAGAZINE."

CONTAINING TWO SHEETS OF ATTRACTIVE ENGRAVINGS,

WITH AN ILLUSTRATED FLORAL ALMANACK FOR 1883 (GRATIS).

AMONG THE CONTENTS WILL BE FOUND

EVOLUTION, REVOLUTION, AND DEVOLUTION, by ALLEN GRANT, Esq.

THE DULCET DOLPHIN AND THE GRAMPUS OF THE CAVE, by ONE OF THE STARFISHES.

THE DECORATION OF CHURCHES AND GRAVEYARDS, by Mr. C. R. KELLY, of Tarporey.

THE THREE NOBLE DONKEYS, by STULTUS ASINUS.

SELLING THE MOON: a Statement of Facts that can be Sworn to.

A COTTON YARN FROM COTTONOPOLIS, by STRAIGHTORFTHREEL.

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THE DISAPPEARANCE OF DURHAM: a Sequel to York, you're Wanted!

THE ATHLETE IN A DIFFICULTY, and Showing How he Got Out of it by Running Away.

A WALK ROUND AN OLD HORTICULTURAL SUBURB, by the PILOT OF BALL'S POND.

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THE GARDENER'S MAGAZINE CHRISTMAS NUMBER

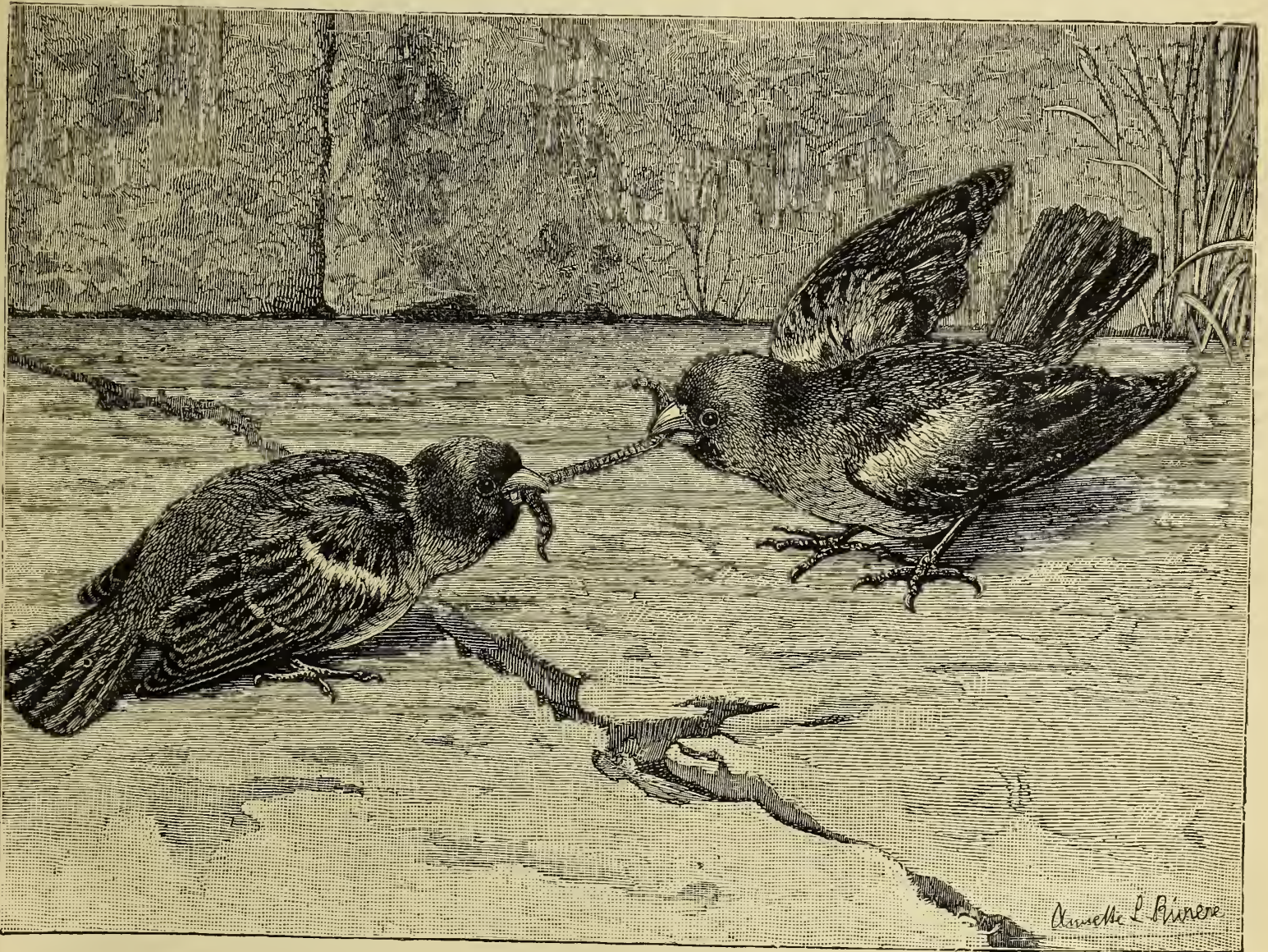
DECEMBER 16, 1882.

THE DAISY.

ALL hail ! to the fairest star of the earth,
The daisy, beloved of old ;
So modest and lowly it comes to its birth
When winds whistle hollow and cold.
In its beauty it shines on the mountain side,
When the furze and the heather blooms glow ;
And it glitters in sunshine and grows in its pride,
Where the water-brooks tumble and flow.

It glows on the hedge bank, and in the green brake,
And under the shade of the trees,
In the clefts of the rock, it gleams in the wake
Of the fierce beating mountainous breeze.
In every meadow, and cranny, and nook,
Where'er there's an inch of soil,
It preaches its homilies better than book
To the sons and the daughters of toil.

Under Donningtons' oaks in times of yore
Old Chaucer in joy would recline,
To gaze on the daisy, and drink in its store
Of wisdom and beauty sublimo.
For the heart of the poet was warmed into love
When he gazed on its starlighted form,
And his soul was illumined with light from above
When he saw it at earliest dawn.



THE TUG OF WAR.

So the bard of the North—the hero of toil—
By its bloom was enraptured and blessed,
Feeling proud that old Scotia's heather-clad soil
Had a gem so endeared and caressed.
With the heart of a man, he could yet shed a tear
For the blossom destroyed by his plough ;
For it taught him that trouble, and sorrow, and fear,
Must fall on each humble brow.

Then I'll cherish the daisy, the daisy for me,
With it's wee little star made of snow ;
'Mid the mosses and grasses so gaily and free
Doth it merrily, bonnily grow.
'Tis the flower of home, and 'twill blossom again,
Whatever our fate may befall ;
Bringing promise of sunshine and joy in its train,
And a blessing for each and for all.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.			MOON.		HIGH WATER AT				M.tmp. avrg. of 40 yrs. Chis- wick.	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.	
			Rises.	Souths before Noon.	Sets.	Rises. Morn.	Sets. Morn.	London Bridge.		Liverpool Dock.					
								Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	D.F.G.				
17	S	3rd Sunday in Advent. First Quarter, Thomas Guy died, 1724. [4h. 39m. after.	8 3	3 33	3 49	11 38	—	6 20	6 45	3 18	3 45	40.2	Camellia alba plena, G.	White.	1582
18	M	Pitt first Premier, 1783.	8 4	3 8	3 50	After.	0 24	7 15	7 45	4 10	4 40	40.0	Camellia imbricata, G.	Red.	351
19	Tu	Napoleon III. elected President, 1848.	8 5	2 38	3 50	0 32	1 42	8 17	8 50	5 10	5 42	39.8	Erica hyemalis, G.	Rose-white.	352
20	W	St. Thomas. Michaelmas Law Sittings end.	8 6	2 9	3 50	1 2	3 0	9 28	10 5	6 15	6 53	39.7	Dendrobium moniliforme, S.	Purple.	353
21	Th	Training Ship Goliath burnt, 1875.	8 6	1 59	3 51	1 38	4 16	10 40	11 15	7 30	8 5	39.4	Narcissus Paper White, G.	White.	354
22	F	Prince Consort buried, 1861.	8 6	1 9	3 51	2 23	5 23	11 50	—	8 40	9 15	39.0	Tulip Van Thol, G.	Scarlet.	355
23	S		8 6	0 30	3 51	3 16	6 33	0 20	0 47	9 45	10 12	38.9	Tydia insignis, S.	Crimson.	356
															357

The Gardeners' Magazine.

SATURDAY, DECEMBER 16, 1882.

THE GARDEN ORACLE AND FLORICULTURAL YEAR BOOK FOR 1883 is Now Ready, and may be obtained of all Booksellers, price 1s., or direct from the "Gardeners' Magazine" Office, 4, Ave Maria Lane, London, E.C.

THE GARDEN ORACLE FOR 1883 contains complete Business Calendars, Garden Calendars, and all the astronomical, fiscal, and statistical information proper to an almanac; and in addition references to figures and descriptions of New Plants, copious Catalogues of New Flowers and Fruits, a Directory for Purchasers of Garden Requirements, comprising Selections of the best varieties of Seeds, Flowers, &c., and a general review of the inventions and achievements in horticulture during the past year.

Auction Sales for the Ensuing Week.

MONDAY, DECEMBER 18, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; *Lilium auratum*.

WEDNESDAY, DECEMBER 20, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

THURSDAY, DECEMBER 21, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

LEADING ARTICLES are of many kinds and serve various purposes. It is expected of editors to entertain their readers with leading articles, original, wise, and seasonable, and the reader knows that they never fail to satisfy the expectation. They often go beyond the mark, and display more originality, wisdom, and seasonableness than is required or than can be accepted with proper thankfulness. We are very anxious not to offend in the present instance, and have, therefore, put all proper thoughts out of mind, lest by some excess of enlightenment we should spoil somebody's Christmas dinner, for it is admitted all round that we have entered on the English Carnival, and, whatever the flowers of the season may be, its true sentiment is of the colour of the carnation. It is very odd, but it is even so; the elements are against us; we must rest from our labours; and if there is a time for everything under the sun, there must be a time for eating and drinking. The leading article should tell people what to do in such a crisis, and of course we shall be equal to the occasion. Read the book of Ecclesiasticus that you will find in the Apocrypha, for therein are the rules of the ancient Church as to the eating of a feast. If the book is not at hand, we can give the substance of it, which is, eat and drink with the intention of enjoying the good things that Providence has provided; but before you go to the table remind yourself that there may be some one at your gates in want of a dinner, or it may be of a bushel of coals, or it may be of a pair of blankets. Kind words are more than coronets just now; therefore if you can squeeze out a few let somebody have them who deserves them, and if you have any to spare bestow them on people who do not deserve them. You may be merry, but you must not be wicked; you may be bountiful, but not prodigal; you may be free in your manner and employ a warm iron to smooth out the frowns, but you must not forget for one moment the blessed proprieties that keep the world in order, and therefore at every step in merry-making we have, by the aid of common sense and good feeling, some words to "dress the fun."

But this is preaching, not leader writing! Alas, alas, we are undone! When the leader in a team goes over a precipice, what follows? But why present a picture of horror at such a season? Because we know not what else to do, for we are undone, and our best intentions appear to be suitable only to make a tessellated pavement to be trodden under foot by the most unhappy. Then let the good intentions go—we will have no intentions; and will seek refuge in the thought that nobody wants any, and in the fact that nobody asked for any, and that leader writing at this time is like filling a balloon for a voyage to the dogstar.

Some leading articles are intended to lead people by the nose and save them the trouble of thinking. At one place of business "our leading article" is a two-shilling tea that nobody can drink. The grocers, indeed, are prolific in leading articles, from coupons, payable on demand, to Japanese goods of mythical value. But there is nothing grosser in the grocery line than the leading article sugar,

that they heap up as if just shot from a sand cart; its peculiarity being that it is not sugar, but a sublime acidulated solution of sawdust! The leading article at the tobaccoist's is the scented cigarette, which you can masticate secretly or smoke publicly, and in either case be poisoned in your own time, for the effect depends on the quantity. Probably the youth desirous of hastening his unhappy end, when he has sucked the goodness out of a cigar-end, might advantageously swallow cigarettes, and make arrangements in advance for some one to kiss him for his mother. The leading article with the young ladies is the marriage service, especially if there happen to be at hand another leading article who with his worldly goods will thee endow. A lawyer's leading article is six-and-eight-pence, unless, in the way of charity, he condescends to take a glass of wine with you, in which case the account runs up to thirteen-and-fourpence. Our stationer tells us that his leading article is postage stamps, and we could almost hope, as he is a worthy man, that he could steal them, because the legitimate profit is so very small that a man might stick them all over the parish and actually lose by the transaction. There is trickery everywhere, except in this paper. We are placed beyond the region of deception, because our leading article is in the reader's hands, and if he does not like it we will change it next week for one a thousand times better. There is no deception: the thing is in print and open to criticism. It will be seen that it consists of the concentrated essence of bottled sunshine, continuing even to this sunless season the warmth and brightness of the summer. It is particularly desired that this sheet be not carried into the garden, for if wetted by rain it will be more chilly to the touch than a wet blanket; and if the weather is fair and the temperature high for the season, the reflection of its reservation of summer lustre may cause the trees to show leaves and flowers before their time. No; keep it to reflect additional warmth upon the parlour fire, and should it, in sympathy with the smoke, fly up the chimney, you can call at our office and demand another copy, price sixpence.

THE DUNDEE HORTICULTURAL SOCIETY will hold an International Exhibition in 1874. The prizes offered will amount to £1,000.

NATIONAL ROSE SOCIETY.—The annual meeting was held on the 7th inst., Dr. Hogg presiding. The balance-sheet shows a liberal expenditure and a fair balance in hand.

THE "CITY PRESS" OF DECEMBER 13 is accompanied with an illustrated supplement descriptive of the new City of London School, which forms a conspicuous and noble adornment of the Thames Embankment.

COLUMBIA MARKET, generously given by Baroness Burdett-Coutts in the interest of a district wherein a market appeared to be needed, has, after many strange vicissitudes, so completely failed of its purpose that it is now a tobacco store and cigar factory. It is easier to talk about markets than to make them.

WINTER WEATHER of the gloomiest kind set in on the 9th, for which there was ample preparation in a fall of snow and a rapidly-declining temperature three days previously. Sunday the 10th was a dreadful day in London, the fog impenetrable, the frost severe, and no prospect then of any material change. This is called "seasonable Christmas weather," but it will prove fatal to thousands who might live through a milder visitation.

ROYAL HORTICULTURAL SOCIETY.—The exhibitions and meetings arranged for 1883 are as follow: Promenade Shows, Tuesdays, March 27, April 10, May 8, June 12, July 10; National Auricula Society's Exhibition, Tuesday, April 24; Great Summer Show, Tuesday and Wednesday, May 22 and 23; Pelargonium Society's Exhibition, Tuesday, June 26; National Rose Society's Exhibition, Tuesday, July 3; National Carnation and Picotee Society's Exhibition, Tuesday, July 24. The Fruit and Floral Committees will meet on Tuesdays, Jan. 9, Feb. 13, March 13 and 27, April 10 and 24, May 8 and 22, June 12 and 26, July 10 and 24, Aug. 14 and 28, Sep. 11, Oct. 9, Nov. 13, and Dec. 11.

FREE COMMONS.—Croydon and Caterham are to be congratulated on the perpetual benefit they will derive from the beneficence of the Corporation of London, which, to its many claims on public favour, has added that of purchasing all the rights of property appertaining to the common lands of Riddlesdown, Kenley, Coulsdon, and Farthingdown, for the purpose of devoting these 347 acres as recreation grounds forever. A wiser use of their wealth could not have been devised than is seen in this expenditure of £7,000 from its private purse; thus giving to our neighbourhood a share of its provision for the health of town residents, and supplying attractions that will enhance the value of all surrounding property, which it has already exercised in the case of Epping Forest, Burnham Beeches, and other open spaces around London.—*Croydon Guardian*.

CHURCH DECORATION.

By C. R. KELLY, Landscape Gardener, Thorporley, Cheshire.

THE decoration of the church must be admitted to be of much greater importance than that of any other building, public or private, and being "The House of God," therefore an edifice very different from others, both in its architecture and in the purposes for which it is used; the decoration thereof must not only be esteemed a work of great importance, but also one which should always be treated with reverence and care. In this spirit I desire to treat the subject, having, since the appearance of my new style of "leaf decoration," had the honour of being repeatedly requested to let my opinions thereon be known to the public. Regarding the history of church decoration I have nothing to say, but beg to express the opinion that, however old it may be, I believe it is still in its infancy, compared with what it shall yet become in true beauty and real embellishment.

The importance of church decoration over every other being granted the question arises, Should there, therefore, be a decided difference? Most decidedly; as the building is different in its architecture and in the purposes for which it is used, so it must also be different in its embellishments. Hence the nearer any building approaches the church in the style of its architecture and in the purposes for which it is used the nearer does it approach it in its requirements with regard to adornment. And not only is there a difference

concealed or spoiled in their proportions. If, therefore, you cannot at once design all that is required, which after due consideration every true decorator ought to be able to do, begin by doing very little, and by adding one touch after another try to enhance the beauty of the edifice. And not only must you do little, but do that little well; let it be neat and not too large in proportion to the place where it is to be fixed, for much harm may be done by using material too large and coarse in itself, or by using too much of it; but how seldom is it too small or too neat, or that too little material is used in any given portion of the work?

Not only must the work be done in the neatest possible manner, and of due proportion to the space to be occupied, but it is also of the very greatest importance that it be properly fixed. Therefore both in the dressing of the piece, whatever it is, and in the fixing of it, try as much as possible to give it the appearance of belonging to the part of the building to which it is fixed, as if it formed part of it, or grew out of it. Let the leaf and flower be placed in a neat and graceful manner, as if the carver had carved them there, and instead of remaining a work of art they had become a work of nature; as if the carved leaf and flower had assumed true form, colour, and life, instead of remaining dead stone; thereby becoming "a thing of beauty and a joy"—if not for ever, still for a reasonable length of time, which may easily be ensured by having the flower inserted in a small vessel of water, which must be provided for in the construction of the framework, and concealed by the dressing.



FIG. 1.



FIG. 2.



FIG. 3.



FIG. 4.

required in the general style, but there is also a vast difference in the kinds of material suitable for the embellishment of each, for in private houses and public halls many things, such as plaster, paint, paper, &c., are employed which are not generally used to such a large extent, if at all, in the church. So in the decoration of such places many things can be used with grand effect which would be altogether out of place in the church. But there is another great difference which must not be overlooked, viz., that in the decoration of public halls and private houses great freedom may be used in producing grand floral or other displays, most beautiful and becoming in themselves, but which are by no means, strictly speaking, an embellishment of the building. Now in the decoration of the church all this in my opinion must be laid aside, and all the ingenuity and taste of the decorator must be employed in beautifying the edifice without in any way concealing its embellishments or destroying the beauty of its architectural proportions. This then is a task sufficient to tax the ingenuity of the most skilful decorator, and in proportion to the architectural beauty of the design will be the importance of the work; the more beautiful the edifice the less embellishment will it require, but all the greater will be the care and taste necessary in the endeavour to adorn that which is already so beautiful, lest, by adding that which is not required, you conceal, or in any way destroy, the harmony of the design. No fear of doing too little, for the edifice is already beautiful, and none of its beauties are as yet

The dressing must be arranged so as to conceal the framework, and all means by which the different parts are fixed, for where it is impossible to do this the work had much better be left undone. But in order to achieve this object, begin by deciding upon the parts of the church to be decorated, and the general design of the work; and for each part have the necessary framework made in as simple yet in as neat and light a manner as possible, and in such a way as to admit of being easily and quickly fixed when dressed, without doing injury to the stonework. Let all such things be arranged and made so as to be used again and again; yet capable of being dressed in a somewhat different manner each time, so that each decoration may not necessarily require to be a repetition of any former one.

Having thus decided everything with regard to the design, and got all framework and fixings ready, very little more of the work will require to be done in the church; and the dressing of the various parts can be proceeded with some considerable time before they are required, and thus allow of their being well and neatly done without hurry or confusion. If the work is done gratuitously by ladies, they will thus be able to devote part of their leisure to the work for some time before, instead of having too much on their hands just at the last moment; and if paid for a few handy labourers or women will very easily be taught to do all the ordinary dressing in a neat manner. The work being light can be performed by the weak and the poor, who may thereby be

enabled to earn the means of keeping the festival of the church with a more thankful spirit than they might otherwise be able to do.

To get up all necessary framework, &c., for the full decoration of even a medium-sized church may, perhaps, require more time and necessitate more expense than can conveniently be devoted to the work at one time; if so, do not attempt too much, and be sure you begin at the right place, for the object in view is not to present a great display of flowers, berries, and evergreens, but to beautify and adorn the sacred edifice, to render more beautiful each part without destroying the beauty and harmony of the whole. Carefully consider and endeavour to find out where the embellishments of the architect have ceased, so as to find out where his next touches would most probably have been added.

If the columns with their capitals and arches are all plain stonework without carving, and you find that you cannot undertake to dress all these parts in a really neat and graceful manner, begin with the capitals, and having your framework arranged so as to be concealed by the dressing and easily fixed, having attached to it on places formed in it for the necessary number of small vessels for water for the flowers, made in whatever form the stonework will admit of, do up all the capitals as well as you possibly can, and do not conceal or cross any of the lines, but place a graceful arrangement of foliage and flower on each plain face, or surface, by no means large enough to cover it all, but in due proportion to its size.*

If you can do no more at this time be content to wait, rather than do anything in a rough-and-ready manner that would spoil the effect of what you have done; perhaps by the time the next decoration is required you may be in a position to extend the work to the columns and arches.

In dressing these single leaf-work, as shown in fig. 1, will have a very graceful and light appearance, either made of green holly leaves, or alternately dark green and golden holly leaves, or the almost pure white leaves to be found sometimes very plentifully on the Golden Queen holly.

Where the space is too large for single leaf work, double leaf-work, as in fig. 2, may be used, wreathed with sprays of ivy or any other suitable material; or triple, as in fig. 3, which will admit of a greater variety of colour in the arrangement of the leaves, and which at intervals, where required, can be increased in width in a graceful and neat manner, and have a nicely-set flower or bunch of berries in the centre, with its own leaves attached, so as to give it a natural appearance, a rough sketch of which is seen in fig. 3.

All such work may be dressed on single fillets of thin wood, and instead of the enlargement above described being made on the fillet and with the same dressing, a separate piece of wood may be used, and dressed with the leaves of the flowers and berries, mixed with fern fronds, as in fig. 4. Nor need you confine yourself to holly leaves for such dressings, for ivy, yew, box, cupressus, and such things may all be used in the same way, if the greatest care is taken to have the pieces all very small and the dressing the perfection of neatness. Autumn-tinted leaves when dried, and for some purposes varnished, and dried and stiffened fern fronds, can be used with splendid effect when really neatly and gracefully arranged, to crown the capitals, or embellish the bases of the columns.†

No doubt a considerable amount of work is required for the embellishment of six or eight arches, with their columns and capitals, &c., in a full and perfect manner; but once the framework and fixings are provided the work of dressing for each decoration will not be very great; besides, the work does not require to be all done in one day, but if really well done, and if even only a very moderate amount of dressing be put on each column and arch, with the capitals done in a really artistic manner, the gracefulness and harmony of the whole will compensate for any want of fullness, while the effect will far surpass that of any lumpy rough-and-ready, though very full, display of flowers, berries, and evergreens.

Nor should attention be devoted to these, though very important, parts of the edifice to the neglect of others. Rather let us hope that previous to all this some good lady has devoted her very special attention to the font. But as fonts are in many designs, in stone and in marble, it is very difficult to offer any really practical suggestions for their embellishment. For, no matter how simple the design of any given object, before any attempt can be made to embellish it it must be well-known and carefully studied. Turfs of green moss are sometimes used with very good effect on the steps of the font, but whatever material is used be very careful not to cover up too much, lest you destroy the proportions of the design. Where wreaths are used they should be made of the very finest material in the most neat and graceful manner possible; in fact, small enough to pass through a lady's ring. Flowers may perhaps be used at the font in greater profusion than in any other part of the church except at the altar, on the embellishment of which I do not presume to speak at present, preferring to leave that part of the work entirely to the priests who minister at the altar; but at the font flowers can be used, not only more largely, but also with a more natural appearance than on column or capital. Still the object should not be to present a great display of flowers, but to make the font itself more beautiful.

The font, columns, arches, and capitals, being all gracefully decorated, do not forget the windows; they also afford opportunities for the exercise of much ingenuity and good taste. On the sills much freedom may be used, for they furnish the finest opportunity for what may be called a design; but let the design be simple, and whatever the material employed do not aim at presenting a great display, but true beauty. Flowers, ferns, leaves, and for harvest thanksgivings fruits and grain, may be used for these designs; but the jambs will require to be dressed more in accordance with the style recommended for the columns and capitals,‡ while up the sides of the jambs, and round the arches of some windows, a line of single leaf-work will be very appropriate.

The cornice along the top of the walls of the church, when suitable for the purpose, may be run with rows of single leaf-work or very fine lines of yew or any other suitable material: the number of lines required will of course depend upon the form and size of the cornice.

In some churches, where the Creeds and Commandments are engraved on the walls, or where there is any other special ornament, splendid opportunities may be found for the exercise of good taste in neatly framing or wreathing them; but beyond this it would not be wise to attempt anything on the plain walls of the edifice. Let such places be used for texts, &c., which are not, strictly speaking, used to decorate the church, but because of their own goodness and beauty, although they are at the same time valuable ornaments to the places they occupy. Again, there are churches of great architectural beauty, and rich in embellishments, where the height of the columns may suggest wreathing instead of following the lines, or where capitals richly

carved seem to require no other ornament. In such cases sound judgment, good taste, and experience are indispensable.

But whatever the architecture of the church may be, the decoration thereof must be treated with reverence and care, and always esteemed a work of importance, the sole aim of which is to make the church itself more beautiful.

THE ATHELETE AS A BACHELOR.

I AM a poor, miserable, dejected bachelor, without a companion to cheer my heart, or a fond voice to enliven my fireside; a sorry plight to be alone in this great world, living a life of solitude and celibacy in the midst of social enjoyment, and surrounded with happy hearths and homes. Ah, a sorry plight, but it is so, and the reader must know why.

The right use of our faculties is said to constitute the first condition of prosperity and happiness. The truth of the proposition may or may not be illustrated by my case. The reader must decide. It is sufficient, by way of preface, to say that in my schooldays I was a famous athlete, and my forte was running. In leaping, walking, boxing, and miscellaneous exercises, my talents were freely displayed, but in running I became pre-eminent, and when my schooldays were over I did occasionally run, but whether to my advantage or otherwise I am not even now prepared to say. We can only speak definitely of what has really happened.

Many years ago, I lived in a sweet little sequestered village, about thirty-four miles from London—the very bosom of domestic peace, and garden of rustic beauty. It was a green, old hamlet, with fresh emerald meadows, where the lark trilled his spring song of love, and with mossy and richly-fruited orchards, where the blackbird and the wren resumed their autumn warblings; it was surrounded with sloping hills, with verdant sides, where the furze climbed up the steep with its golden laughter, and the heather hung its crimson bells. It had broad forests, shelving down into the valleys, and scattered clumps of trees, and luxuriant brakes. In fact, it was just the place to fill a young enthusiast with romance and poetry, and I, with a susceptible heart, and a keen appreciation of natural beauty, was thoroughly intoxicated.

At the further end of the village dwelt an old dame, with a lovely daughter, and from the first intimation I had of this, I was in a state of great anxiety to see her—the daughter, not the dame. At last I did behold her, and like a lark carried away by a storm, when sunning himself in the blue heavens, so was I, upon the wings of my own enthusiasm, hurried into the anxieties of impassioned first love. She was a thorough Hebe, with a delicious cherry complexion, soft, hazel eyes, lips that really were like rubies—putting aside the hackneyed phrases of novelists—and rich flowing ringlets of jet black hair. Oh! pens and ink are detestable mediums of expression—she was perfection,—let that suffice.

Well, we became acquainted, and were plighted in troth, after a romantic fashion of our own, by means of a flower correspondence, for she was, if possible, even more enthusiastic than myself in the preservation of ancient and poetic customs, and delighted in anything that was opposed to the prosaic methods of the conventional world. Into the bonds of mutual constancy and affection we entered with ardent souls, and with a total disregard for the etiquette of courtship, caring for poetry only, and endeavouring, at any sacrifice, to give every one of our actions a warm colouring of romance.

My Julia, for that was her name, informed me that she had a comfortable fortune at her command when she should be of age; and I learned, also, that she had a brother embarked in commercial enterprise in London. Introductions and explanations, however, were of too common-place a character for us, and so it was long before I had an interview with Julia's mother. Unless the adventure had in it something very extravagant, we neither of us cared to prosecute it. Meeting in the forest at sunrise to recite verses to each other, gliding down the glassy river, and between the beds of rushes and green islands, at moonlight; having imaginary partings and greetings, and making protestations of eternal affection, writing sonnets to each other, and leaving them under stones and beside springs, till called for; these were the sort of adventures into which we plunged, and nothing which smacked of romance, or bore the stamp of chivalry, or primitive custom, was too ridiculous for us. I studied the Spanish guitar on purpose to serenade her, and arranged (at great care, and almost incalculable anxiety), a series of morris dances, hawking parties, May Day festivals, and other rustic sports and pastimes, on purpose to amuse my Julia; and when there was a chance of placing her in a prominent position, as on May Day, for instance, when she presided as queen, my heart would thump so, and my whole nervous system be in such a state of excitement, that I swooned before it was half over. We corresponded with each other by means of flowers, and I sat up three nights successively, besides purchasing several pounds' worth of books upon the subject in order to decipher her first letter, and then I was a week, labouring almost incessantly night and day, before I could choose the proper flowers to compose an answer. Things were going on in this style, and we were literally steeped in a frenzy, and knew no limits to our manifestations of poetic feeling. I began to talk of marriage; Julia consented, and we were soon on the high road to the altar. I bought a ring, prepared our cards, had an introduction to Julia's mother, and the promise of the same to her brother, and I seemed now waiting on the borders of a happy region into which, when the time should arrive, I should enter, to realise the delicious luxuries of connubial bliss. Oh! what a happy man was I! I wandered all day in the woods, absorbed in the one thought of the happiness which awaited me, and dreamed at night (when I was so lucky as to get ten minutes' sleep) that the gates of Paradise were opening before me, and the path thereto was strewn with honeydews and flowers.

Just at this juncture, the manner of Julia underwent a great change; she grew prosaic, and actually introduced the idea of money into her conversation, and hinted at the penalties associated with commercial speculations and the anguish which must wait upon a noble mind when entangled in pecuniary difficulty. I was perplexed almost to confusion. Did she hint at my slender means, and consequent inability to keep a home together? I had never thought of such a thing; and if the idea had ever entered my mind, it would have been immediately dismissed. What had we to do with money matters? Could we not live on the nectar of flowers?—or on morning dew?—or upon the fragrance of summer nights? The flowers and the stars do not trouble themselves about such sordid things,—and why should we, who were infinitely more ethereal than they? The thought rushed upon me that she had used me as a toy, and having had her fill of romance and folly, cared no more for me than for a faded rush. My conclusion was confirmed by her strange manner; and one evening, when we had engaged to meet at our old trysting place, under a clump of elms in the wood, it struck me that I would watch her from her house.

* See GARDENERS' MAGAZINE, December 18, 1880, page 649.

† Ibid, page 649.

‡ Ibid, page 648.

I did so, and saw her leave her mother's threshold; but oh!—the remembrance almost chokes me—she was not alone, but leaning on the arm of a young and handsome man! I gasped for breath, and rocked from side to side in my gait. I was giddy, and sat down upon the grass to save myself from falling! She false to me!—to me, too; after I had studied French, Italian, and Spanish; had mastered the Language of Flowers, and the Spanish guitar; had gone through innumerable tortures in learning to dance; had been thrice on the point of death from taking cold by rambling with her in the moonlight, and had twice been half-drowned by seeking water-lilies for her in a boat which I was unable to manage! She false to me! after I had gone through all this—not to mention hundreds of other things, most of which turned out wretched failures—for her, and her only! Oh, gall and wormwood! Oh, rankled soul and lacerated heart! I would have been spiked for sparrows to peck at, or cast beneath the wheels of Juggernaut, rather than she should have jilted me.

Well, I followed Julia and her companion—saw them take the path to the appointed meeting-place—saw him entrust to her a bundle of papers,—vows and honeyed words, of course;—saw him clasp her in his arms and kiss her and then, after bidding her farewell, depart.

What was the impulse which possessed me I know not; but somehow my heart seemed turned upside down within me, and I had not the courage to meet her as I had appointed. I stood behind a thicket, trembling from head to foot. I summoned all my courage, turned upon my heel, and ran like an affrighted deer across the forest. I reached the hamlet, gained my room, packed up my few papers, and stowed them away in my pockets, gathered together the only few shillings I possessed, and set off again, and did not cease running till I found myself in the streets of London, with sore feet, haggard looks, a famished stomach, and a broken heart. The moment I paused—which I did from sheer exhaustion—I made a vow never to contract an intimacy with another woman as long as I might live.

It was a remarkable change to find myself in the wilderness of a great city, without a friend, and without a shilling, and with a heart literally bursting with anguish. But I bore up, and wrote to my friends for assistance; and, at last, after innumerable sufferings, obtained a position in which to earn my bread. I never wrote to the place of my former residence; I resolved that not a soul there should hear from me again; it was the Dead Sea of my hopes, from which I had escaped with a blighted heart; and its rustic simplicity and verdant beauty made it appear, through the hazy medium of memory, only more hateful still, as a place which promised what it meant never to fulfil. Ten years elapsed, during which time I mingled with the chafing crowd of a commercial city, and learnt the bitter lessons of its daily woes; becoming, at last, perfectly reconciled with its dusty details, and harmonized with all its iron customs and conventionalities. As for romance, I had not to be cured of that, for I left it behind me, under the clump of elms, when I started on my running expedition.

One morning I was conversing on business matters with a friend, and he introduced me to a young man as a fit person to assist me in a speculation then pending. The agent was a fine fellow, of some thirty-five years. I took a fancy to him, and felt anxious for a commercial interest to be struck between us. We grew desperately friendly, and spent our evenings together at the debating clubs and lecture-rooms; and were soon established on visiting terms, and in the most cordial exchange of mutual sympathies.

The autumn was near, and one morning my new friend called upon me to take a trip with him to a distant county town, as business was somewhat dead, and my health somewhat shaken. I consented, and the next morning we were on the coach at seven, for the town of W——, where most of my friend's relatives resided.

Away we went, whisking along merrily through the green hedgerows, till the grey spire of the village church peeped at us from above the trees. We put up at an inn for the night; and the next morning repaired to the house of my friend's mother, with whom resided also his sister. I was to have a general introduction to the family, and looked forward to the full development of a friendship, which had already proved a delight and solace to me, in this introduction to his family.

We arrived at the house, which was a substantial farm residence, and were soon comfortably seated at dinner, I on the best of terms with my friend's very aged mother, Mr. Wilmot, his brother-in-law, and the little Wilmots, his nephews and nieces. Mrs. Wilmot, his sister, was away on a visit to a friend, and was expected home in the evening, when I was to be introduced to her.

The dinner was over. We had a comfortable gossip, and while my friend Courtney arranged some family matters, I had a hearty romp with the children. We had a ramble, and returning home for the evening; and learnt that during our absence Mrs. Wilmot had returned, and would be with us presently. By some accident, I was left sitting by the fire alone, when a rustling on the stairs startled me, and with a matronly air, in walked—starlight and darkness!—my former idol, Julia. I felt the blood rush to my cheeks, and my heart seemed hot with the mutual recognition. Feelings, which had slumbered for ten years, rushed in a flood upon me, and I was overwhelmed with emotion. Before she could recover from her own surprise, and address me, I fell on my knees, and implored her mercy. "Will you be mine?" I shrieked. "Marry me, my own Julia, and make me happy." My frantic manner terrified her, and she answered, "Here is my husband, Mr. Wilmot." The word "husband" went through my heart like a sharp splinter from an iceberg, or a volley of frozen shot, and chilled every drop of blood in my body. I was on my feet in an instant, and without a single word more—without, for the moment, knowing what I was about—I rushed into the hall, seized my hat, and away I ran, looking neither right nor left for three weary hours, when I found myself on the outskirts of the city. I now slackened my pace, and began to think whether I was strictly *compos mentis*, or whether I was bound up with some mysterious ordination of fate. I trudged on, and got to my lodgings, where I plunged headlong into bed, and stayed there, half asleep and half awake, tortured both asleep and awake by the most horrible dreams, for three days and nights. At last, I ventured to rise and dress myself, and somewhat composed by starvation and quiet, I shaved, breakfasted, and went to business.

There was Courtney, like an evil genius, sitting in my counting-house, waiting my arrival. We greeted each other somewhat coldly, stared at each other, made a few remarks upon the weather, and the current news, to which I said yea and nay quite at random, and without thinking or knowing aught of what I was speaking. We grew cordial again, however, but not a single word was ever said, not the most distant reference ever made, to the mysterious meeting, and my more mysterious departure from the town of W——.

I have learned, however, by other means, that the man with whom I saw my Julia conversing—the supposed rival, who put his arm fondly around her waist, and kissed her in the forest path—was no other than her own brother Courtney, who at the time was in difficulties, and under fear of arrest, and hence unwilling to be seen by strangers until his affairs improved. I ascertained, also, that Julia had instituted every search and inquiry for me, but in vain; that she had suffered almost inexpressible grief at losing me, and after a long and painful affliction, induced by the troubled state of her mind, had accepted the hand of Mr. Wilmot, in the hope of banishing, by the active duties of married life, a memory which to her was one of suffering and sadness.

I felt keenly for her, and the consciousness that my own hasty and harsh judgment was the cause of misery to her and to myself, tortures me almost to madness, whenever I suffer it to occupy my thoughts. I know now how faithfully she loved me, but it is too late; and for the rest of my days I shall do penance as a cheerless and companionless wanderer; and reap the bitter fruit of my own hasty and uncharitable judgment as a miserable bachelor.

AN OLD HORTICULTURAL SUBURB.

By the PILOT OF BALL'S POND.

WHEN the very interesting article on South Kensington appeared in the Magazine (Aug. 5, 1882, p. 490) it occurred to me that a certain district in the northern suburbs could very well match it in importance as regards horticulture, if not in other ways. Chelsea, Brompton, and Kensington, with the secondary places that are entangled with them, are undoubtedly important historical centres of horticultural influences; but on the opposite side of London may be found a school as great, a classic ground as interesting, and a history as epochal as the south-western suburbs can afford. We have not often seen Royal faces or courtly equipages; we have but recently obtained a second-rate public park, and a botanic garden has never been thought of in our district. But it has been, and in some degree still is, the steadfast home and "procreant cradle" of horticultural tastes and energies. It is not so very far back that the forest of Waltham covered the land almost to the gates of London City, and as the population has spread in the north-eastern suburbs there has been a continuous conflict of bricks and mortar with venerable and lovely ruralities; and as a matter of fact the district I intend to gossip about, though only three to four miles distant from St. Paul's Cathedral, was the very last in the great boundary belt of the metropolis to be built upon and systematically urbanized, so as to become part and parcel of great London. The Crystal Palace at Sydenham was hemmed in with houses at a time when we of Stamford Hill and Stoke Newington still possessed our open meadows, our woodlands, groves, rookeries, and nightingales, the air being remarkably pure considering the nearness of the great City, and roses, and coniferous trees, and pelargoniums, and even ericas being in no way distressed even within the shadow of St. Mary's Church, which, as the crow flies, is exactly three miles distant from the General Post Office. But things have changed and are changing. London grows, and its growth is sustained by the consumption of sylvan food; it swallows parks and woodlands, it walks over green fields, and it uses the singing birds as kickshaws to make a variation in the order of the more solid dishes. The builders "discovered" this district about the year 1865; from that date there was an end of the group of "villages" that until then preserved, as at the very gates of the metropolis, many sweet traditions and much of the picturesque beauty of suburban country life. Even at this time a shadow of the rural charm remains. The Alexander Park, lying between Paradise Row and the Albion; Clissold Park, extending in an opposite direction as far as Lordship Park; to which may be added as public property Finsbury Park, which forms a proper boundary to the district, keep for us some green open spaces, and enable us still to see starlings and rooks and a few rarer birds at times, and to hear with some constancy the songs of the thrush, the blackbird, the blackcap, and the robin; although, alas, the nightingale has not been heard within our boundaries since the year 1876, when the writer of this heard it for the last time in its long accustomed haunts, the great estate of the New River Company. The "parks" have been mentioned. To these may be added Hackney Downs on the London side, and the New River property on the country side. It may be that the New River Company has many sins to answer for, and one great crime may be charged against them by the writer at any time that may be convenient. But their settling lakes, filtering beds, and engine works extending from the beautiful engine house in the Green Lanes to the district of Woodberry at the extreme end of Lordship Road, fixes in this district a good square mile of wood and water, or in other words, of grass, trees, gardens, open sky, and say, about seventy acres of pure water, which is always in motion and always most beautiful to behold.

But I started with the idea "of a walk." Let us then, as the clown used to say at Stepney Fair, "let us take a walk down Bond Street." We will start from Dalston Junction, and trip eastward, westward, and northward, but not southward, lest by following the compass we should be lost in London, or tempted at last to turn westward to that very Bond Street where clowns delight to perambulate, peregrinate, and procrustinate. Dalston, you will please remember, should be spelt Dordlston, and Hoxton is rightly pronounced by the vulgar people, who soften the *x* into a *g*, for the proper spelling is Hogsden: in old times the place was a piggery. The writer of this remembers with no faint remembrance when Hackney, Dalston, and Homerton were largely dotted with flower gardens, orchards, and water-cress beds, Hackney being especially celebrated for its "water-cresses." Does any horticultural reader of this remember John Smith of Dalston? He made a good nursery and a good trade, and if Fate were just (as she cannot be as the sister of Fame) he would be now enrolled amongst England's worthies; whereas the man is forgotten, and the site of the nursery is marked by rows of small houses. John Smith carried out the proper governing principles of a nursery trade in a high-handed manner. His nursery stock was of first-class character, his fruit trees might be trusted to be true to name, and he was a pioneer in the herbaceous line, his old foreman, Mr. Mackenzie, being a master of that department, after having devoted forty-five years (as he told me) to the collecting and verifying of the species and varieties. Two great features of this nursery were the camellias and chrysanthemums, which were admirably grown. And there was another thing grown here, and its name was honesty—not the plant honesty, although that, being as God made it, is honest enough; but the business was carried on in such a way that no honest man ever could have a quarrel with the house. But history is history. Yes. There was a great trade carried on by John Smith, and it may interest the "lordings" of this generation to inform them that Mr. Smith owned and supplied the best shop in Covent Garden for many years—the very shop now occupied by Mr. Buck. And what became of Smith's nursery? Well, just the same case as John Salter's nursery of classic

fame. A railway company put its huge foot on the ground, and the flowers were trampled out. The North London Railway went through the heart of the nursery, and it ceased to be, and now where the trees waved the houses are all as stiff and square as the paradoxes that De Morgan ran away from.

Having by the fancy stago reached Dalston, we may as well turn aside to Ball's Pond. And what is, or was, Ball's Pond? It was a real pond, filled with common water of a somewhat muddy colour. Tho' here it celebrates was one John Ball, who kept a house of entertainment here, of a class we now know nothing of. He invited the gentry to his garden to see bull-baiting, and to his "pond" to see a duck hunt, such sports being quite the fashion on this side of London so late as the year 1832. The Ball's Pond Road, in the remembrance of the writer was occupied with the nurseries of Messrs. Barr and Brookes, who carried on a trade of a quite general character. On the western side of the road were the plantations of forest and fruit trees, and on the opposite side, where now the almshouses stand, were the forcing pits, green-houses, stoves, and frames. The cactus tribe had justice done to it here, and one of the lions of the time was the now common *Cactus speciosissima*, the stock of which occupied top shelves in large lean-to houses, where they flowered gloriously.

If we pursue our way westward we shall touch Islington; therefore, we will turn back and ask why Kingsland bears the name it is known by? It seems very properly connected with King Henry's Walk, which was a secluded woodland path leading to the proper and improper haunts of King Hal. The adjoining country was convenient and suitable for the chase; and, in short, here were the king's lands, and had there been a rising town it would doubtless have been called the King's town or Kingston. The modern name testifies to the rurality of the district at a comparatively late date, when London was learning to swallow and digest forests, farms, parks, and chases, and to this day here are the king's lands. But another step brings us to Hackney, the name of which is said by Maitland to be associated with hackney horses and hackney coaches, because of the frequent resort to this suburb for the sake of its fresh air and rural scenes of the gentry of London. It happens, unfortunately for Maitland, that the term "hackney" for a hired horse is as old as Chaucer at the least, and is really derived from the old French for a slow-paced nag. However, this was not many years since a place for orchards and water-cress beds, and Homerton, close at hand, was not less famous for market gardens. One of the most amusing bits of Hackney history, perhaps, is connected with "Ward's Corner," at the upper end of Mare Street, near Dalston Lane. Ward was a member of Parliament, a grasping usurer, a forger, a cheat, a wretched poisoner of cats and dogs; he not only sat in the "House" but in the pillory, and although doubtless he could curse, he could also pray. And here is a prayer of his, unique, perhaps, for its whining avaricious hypocrisy: "O Lord, Thou knowest I have nine estates in the City of London, and likewise that I have lately purchased an estate in the county of Essex. I beseech Thee to preserve the two counties of Middlesex and Essex from fire and earthquake; and as I have a mortgage in Hertfordshire, I beg of Thee likewise to have an eye of compassion on that county; and for the rest of the counties Thou mayest deal with them as Thou art pleased."

It is more to the purpose of these notes to remember that in Hackney the Messrs. Loddiges established and maintained the most important horticultural establishment of its class ever known up to that time, whether in this or any country. I shall first go to "Old and New London" (vol. v., p. 514), and then draw upon my own recollections.

St. Thomas's Place, Mare Street, marks the site of Barber's Barn, once the residence of John Okey, the regicide. In due time this became the abode of John Busch, who formed a nursery ground here, and was employed by Catherine II. of Russia to lay out her garden. In the year 1771 Busch sold his stock and business to Messrs. Loddiges, and this was the beginning of the historical firm. The business grew, and the boundaries extended, so that Well Street defines one of the earlier landmarks. But in 1787 the Loddiges removed to land purchased by them from the governors of St. Thomas's Hospital, and then the firm entered upon what may be called its classical career. Turning to memory's notebook, the writer of this can remember when the nursery, which stood, as it were, on the horder lands of Hackney and Clapton, contained a better collection of plants than was then to be found at Kew. It is a point of no small importance that the demands of trade, though treated in a proper business spirit, were not the only stimulants to action; for the pits, houses, and open plantations were furnished with a view to certain botanical proprieties, and plants that were not in demand were secured and carefully cultivated for the then sufficient reason that they were interesting. The "Botanical Cabinet," a book of the highest value for purposes of reference, was the outcome of the large system of management that prevailed, and it carried the name and fame of the house around the world. The great curvilinear house, of a grand old type of construction, that sheltered the camellias, was one of the lions of London for a sightseer interested in horticulture; and the management of the camellias made an impression. Some of the timid cultivators of the present day would be benefited could the whole affair be conjured into life again, and the process of watering be performed as in the daring days of the Loddiges. The water was driven in amongst them and over them as though they could never have enough, and the growth and flowering justified the liberal system. The palm house was even more interesting than the camellia house, and the orchid houses were crowded with all the known species of which stocks could be obtained. In several parts of the nursery were little gardens in the nature of forsaken nooks, where certain choice plants were most carefully provided for, and then left undisturbed for years to take care of themselves. There was a garden of *Ixias*, a garden of hardy *Cypripediums*, and the *Trilliums* were indulged with a nook to make another little special garden; and there were many more such, wherein vegetable beauties held festival in their own way, showing a beauty corresponding with their perfect health.

The year 1860 saw the obliteration of these important nurseries. Then the Crystal Palace had become fixed at Sydenham, and its first furnishing of palms, cycads, and other of the more characteristic plants was accomplished by the transference of the finest specimens from Hackney. The ground is now all covered, but possibly a memorial of the nursery remains, for not many years since the writer saw a fine *Magnolia conspicua* in the small garden adjoining the dwelling house, and can aver from knowledge that in the palmy days of the nursery this tree was one of its attractions.

From Loddiges of the past to Hugh Low and Co. of the present the transition is easy in a horticultural as well as a geographical sense. It is somewhat singular that so important a nursery should rise so near the spot occupied by the Loddiges, more especially seeing the likeness of the later to the earlier establishment. To a certain class of horticulturists Messrs. Low are famous for orchids, but to the great body of buyers of plants they are noted for keeping everything from ninepenny apple trees to the most costly stove plants. The

Clapton Nursery was commenced in 1815 or 1816 by Mr. Thomas Bailey, who at that early date sent out a plant collector to New Holland. This collector was the late Mr. William Baxter. In the year 1822 the nursery passed into the hands of Mr. Hinchman and Mr. J. B. Mackay. Of these the last named still cherishes a love of choice plants, and has a considerable collection at Totteridge. Soon after the date last named Mr. Hugh Low came to the nursery, and it was carried on by him, with the assistance of his sons, for many years until his death. The present head of the firm is Mr. Stuart Henry Low, who is assisted by his sons. It is a matter of peculiar interest that the Clapton nursery was the first establishment of its kind in which heating by hot water was carried into effect in the place of the old smoke flue. Thus the old horticultural suburb is qualified to contribute an important entry to Haydn's "Dictionary of Dates."

There are few perhaps on our side who can call to remembrance the nursery of Mr. Alexander, which occupied the ground now known as the Queen's Road, Dalston. His taste and trade ran in the lines of the florists, and he stood high amongst them as representing the ranunculus, the pink, the carnation, the anemone, and other favourites of the "old school." In that time there were market gardens, small nurseries, and the gardens of amateurs innumerable, extending from London Fields, northwards and eastwards, for very considerable distances. Bethnal Green was a great home of humble but enthusiastic florists; Shoreditch and Hoxton abounded with gardens in which auriculas, pansies, pinks, and polyanthus were admirably grown; and in Stoke Newington, which was then quite "in the country," roses, gooseberries, strawberries, and dahlias were added to the pets that prospered nearer London, and the working classes were (so, at least, I think) healthier and happier than they are now; for they now have to live in Gothic cottages that are fanciful in front, but consist only of brown-paper walls and mud foundations, and have no gardens to compensate for their inward discomfort.

The police station at Stoke Newington marks the site of the Eden Nursery of Mr. William Ross, which extended along the line of frontage as far as Victoria Road, comprising perhaps about one and a half acres. This place was quite a botanical repository, and the little shop window was almost invariably occupied by some rare and beautiful plant in flower. A great favourite here was the *Strelitzia regina*. On the other side, extending from the Caledonian Tavern to Shacklewel Lane, was the Caledonian Nursery of Mr. John Ross, brother of the owner of the Eden Nursery. There was here a long and lofty plant-house, always painted green, and usually occupied with camellias. A great plant at that time was the now common *Aucuba japonica*, the hardiness of which had not long been demonstrated. Here the writer first saw *Salvia splendens*, which, like other common things, was once a rarity and a wonder.

Now let us take a walk outward towards the country. The first notable spot that memory's notebook bids me halt at is between Barret's Grove and the Brunswick Nursery—say, opposite West Hackney Church. It is not many years since there remained a small square tract of nursery ground here (now covered with shops), wherein might be seen clumps of rhubarb, miniature avenues of mulberry trees, and a very old dirty greenhouse filled with double white camellias that in their season were literally sheeted with their lovely flowers. This was the nursery of Mr. Mackay, who made special pets of his mulberry trees, charging a high price for them, and usually, or as often as possible, bargaining to plant them himself. A few yards further north and we reach the "Rochester Castle," where the pleasant smile of Robert James gave welcome to florists of "all denominations," and where in 1846 was held the very first of all the chrysanthemum shows. And you may remember, perhaps, that as late as fifteen or sixteen years ago Mr. James used every year to adorn the windows of the tavern with chrysanthemum blooms and grand specimens of apples and pears. Having innumerable gardening friends, it might be no difficulty to him to secure a few showy samples, but in the rear of the Rochester Castle there was a glorious fruit garden that produced an abundance of fine fruits. This ground was divided by a broad footway between two tall hedges, now marked out by Kynaston Road. Sixty years ago it was occupied by a Mr. Rigby; then it passed into the hands of Mr. Reed, and finally, the builders walked over it. Nearly opposite the Rochester Castle was the old dispensary, where, some thirty-five or thirty-six years ago, Dr. John Denny began to minister to the necessities of the poor, and to cultivate roses, gooseberries, strawberries, and chrysanthemums in his leisure hours. Those subjects were his especial pets at that time, and he occupied himself chiefly in the raising of seedlings. But the town was growing too fast for such enterprises; the day for roses and strawberries was coming to a close; and when he moved a furlong or so farther out to the present dispensary, a few yards beyond Church Street, he entered upon the cultivation of the pelargonium, and in the manipulation of the zonals made a distinct and brilliant epoch in the history of floriculture. There is no name more tenderly cherished in Stoke Newington than that of Dr. Denny, the just man, the cheerful companion, the painstaking florist, the friend of the poor.

A few yards further and we step across, and in a few moments reach a place once famous for rural beauty, for nightingales, and for plant growing. Stoke Newington Common is so changed that a severe process of introspection is necessary to recall the pictures of the past. But I have dug up from my memory the name of Adamson, who had a nursery here and also a market garden. Other grounds he had abutting on Stamford Hill and skirting Hackney Downs; in fact, Avenue Road, Hackney, may be regarded as the centre of his cauliflower grounds. He was a great grower for hungry London, and everything he touched brought him money. I remember his peaches, pines, cherries, gooseberries, all thriving as unconscious of the proximity of London smoke, for the air was comparatively pure in these districts until very recently, and even now the great open spaces that remain ensure a better atmosphere than in many other suburbs that are further removed from the "great ween." It is deeply impressed upon the writer that Mr. Adamson treated every detail of his business artistically. The cauliflowers may be cited as an example. They were planted out in pits, at eight inches apart, for the winter. In the spring they were taken up with care, being then strong plants with large leaves and abundant roots. They were all carefully packed in "rounds" in hay, and carried over to the grounds at Hackney, where they were planted in rich soil thoroughly well made. Although many acres were thus covered with cauliflowers, every plant was treated as though required for exhibition, and the result was what he wanted—a paying crop for hungry London. When time had shaken the once sturdy frame of this good man his sons took to the business, but altered its character, and failed. Then came Mr. Wortley, and thus we come round once more to the Stoke Newington Chrysanthemum Society, wherein, during a run of years—say, from 1859 onwards—one of the Wortleys stood first, and immovably so, in the top classes for cut blooms, the most successful man in that section that perhaps has been known. But the

gardens are gone, and the common has, for a common, an uncommon appearance, being divided between a railway company, a board of works, and skirtings of uncomfortable-looking houses.

Once more we trudge along the high road, and find Stamford Hill not much altered during a run of forty years. On the right we pass the nursery of Mr. William Chitty, one of our few good and true men of the old school, and a most worthy follower in the footsteps of his worthy father. Mr. Chitty does more for his neighbours than plant their gardens and supply them with bulbs and seeds. He labours in the interest of the young, and occasionally steals an hour to supply an essay to a horticultural paper, having no bookish notions, but the impulse that comes from having something fresh to say, and a consciousness of capacity to tell the story with effect. A few yards further and we reach the substantial abode of Dr. Kellock, whose collection of hard-wooded plants—yuccas, agaves, dasylirions, and the like—has furnished this paper with matter of permanent interest and value. Dr. Kellock and Dr. Denny were foremost in fighting the battle for Horticulture at South Kensington, when the Philistines invaded the sacred land, and would have made a second Cremorne of it. The horticulturists triumphed, and if things are not very bright up there just now the disgrace of a complete extinction of horticultural endeavour was averted by a certain brave band, of which the two gentlemen named were conspicuous members. A mile further down the road was the nursery of Mr. Coleman, where a good business was done, but of which the only remainder is the name of the place. It is still known as “the nursery” and the Baptist Chapel at Tottenham may be considered to mark the southern side of it.

We will return to the centre of the district, and on retracing our steps will note what should have been noted before, that the Stoke Newington railway station occupies the spot where dwelt Mr. Williams, the famous tulip grower, whose spacious garden was overlooked by those who rode on the outside of the Tottenham omnibus, and was one of the best of many sylvan peeps then at command in the pleasant ride to the High Cross. But we must go up Church Street and pass the spot where stood Abney House, and where stood the residence of Fleetwood, and where stood the residence of Daniel Defoe; and again to Church Row, where dwelt Isaac D'Israeli, and where also dwelt, under the care of a Mr. Allan, Edgar Allan Poe, the American poet, who returned to the United States in 1822. The whole of the street from Stamford Hill to the Green Lanes—a length, say, of nearly half a mile—is as rich in history as any half-mile in all London; but it would consume a whole sheet of the Magazine to make a mere outline of particulars. The Assembly Rooms and the half-dozen shops that fill up between the narrow alley and Defoe Road mark the spot where stood Defoe's house, wherein “Robinson Crusoe” was written. There was a mulberry tree in the garden, under the shade of which, tradition said, Defoe often plied his pen in the pleasant summer time, and that mulberry tree was secured by a worthy man, John Curry, of Brook Street, who cut it up for rustic furniture, and it might be difficult now to identify or even hear of a square foot of the memorial timber. Twenty years ago the churchyard was in a deplorable state of neglect; but Mr. Shirley Hibberd, then residing near at hand, planted it at his own expense in the informal style of a country churchyard with miscellaneous shrubs and trees, all of which have made fine growth and do credit to the planter and the parish.

A turn to the left up Albion Road takes us past the site of a very important nursery that about fifty years since was formed by Mr. John Milne out of an old sandpit. It was one of the best known nurseries of its time. Some of the houses were deep in the hollow of the pit, and some of the plantations of fruit trees and shrubs were on steep slopes, very little having been done to alter the configuration of the ground. For nursery purposes the ground answered admirably. Such peculiar plants as rhododendrons, andromedas, and the like, grew as freely in the sand as in the best of peat. In the houses were many fine camellias, and a remarkably fine Rhododendron arboreum, and near the entrance gate was a fine tree of Magnolia conspicua, and in the extreme front, disputing the public way with the passer-by, was a very beautiful but smallish tree of the purple beech. Milne was cut off at the early age of 45, and was succeeded by a Mr. Brown, and after him came Mr. Kirtland, and after him the inevitable, inexorable, and emphatic blotter out of all romance and beauty—the Builder!

A turn to the right brings us to the nursery of Mr. Robert Oubridge, in years gone by a great chrysanthemum man, a great fuchsia man, a great camellia man, and for some years past a busy market man, and a great gun in bouvardias, fuchsias, poinsettias, and pelargoniums, which are turned out in quantities, and are destined, like the cauliflowers that have been discoursed of, to feed hungry London.

Passing the southern side of Clissold Park, with its beautiful boundary of trees, turf, and water, we reach the Green Lanes, which, by reason of this same park, are still green, though the wild roses and brambles that many of you remember have changed to walls and gates, and the houses rank in order where the dairy cows grazed, from which many of us obtained the nourishments that youth needed. Brownswood Park, which lies all on the left as we go down the hill towards the castle of the New River Company, was formerly occupied with an extensive nursery extending from Blackstock Road to Lordship Park. The owner was Mr. Smith, a first-class tradesman, who kept a good general collection of useful plants. The greenhouses were contained in a quadrangle surrounded by a lofty wall, and in these were large stocks of pelargoniums, verbenas, petunias, and camellias. From this nursery the Mimulus Youngi, which stirred the horticultural world to some purpose fifty years ago, was distributed in thousands.

We will finish our walk and shake hands at Newington Green, which has been made respectable by the landscape gardener. Where you see the name of “Burton” on a shop front was the home of the poet Rogers, who has described its interior in the opening lines of his “Pleasures of Memory.” The writer remembers the house and the garden and the great plane tree as Rogers left them at his death in 1855, at which time there were many noble elm trees on the green, of which a few remain in sad decrepitude. Mildmay House was on the north side of the green: it was our English Blue Beard's secret rendezvous, and became the property of Sir Henry Mildmay in the reign of Charles I. Not a vestige of it now remains. On the same side of the green lived for many years Mr. Bowerbank, the naturalist, whose widow occupies the house still, and in some degree maintains the zoological collection. Whenever any decided change takes place in the configuration of this spot, Mrs. Bowerbank's house will surely go, for it narrows the entrance to the Green Lanes, and its garden wall contributes an element of danger. It is not unusual for a peacock or golden pheasant to quit the garden and roam upon the green, but the truant is caught with little difficulty and restored to the historical garden. On the southern side there is a house made conspicuous by a pair of stone eagles on the gateway piers. That, according to local tradition, was a royal palace, first of Henry VII., afterwards of Henry VIII., but there are no trustful evidences

at command to justify the story; and the house and its belongings, even if but a remainder of the original structure, is undoubtedly of later date than the time of King Hal. It is Jacobean and a mere remnant. But there is not one house in this enclosure but is worthy of a history, and for the most part of an honourable nature; for scholars, divines, philosophers, and patriots have sought the retirement of this open space, with its green grass and leafy trees, and have been enabled, by the quiet they enjoyed in a pure air and a cheerful scene to carry on their beneficial labours free from the disturbance of the giddy town. And it may be worth adding that the few old red brick houses that now remain here, and in Church Street, are genuine relics of the time of Queen Anne. This point is of interest only because we are agitated by an architectural revival, which probably reproduces the Queen Anne style with a difference. Farewell.

HOT CODLINGS.

MARK how the introduction brings us at once into the very heart of the interesting plot to be developed:—

A little old woman her living she got
By selling of codlings—hot—hot—hot.

“A little old woman!” What an exquisite picture does it suggest of aged poverty endeavouring to gain by honest industry a livelihood through the sale of fruit, rendered more tempting by the culinary preparation it had undergone! Gratifying is it for us to know that her exertions were rewarded—that “her living she got.” Her desires were doubtless few, but these were attained, and the trifling necessities that her age required were within her reach. A poet who adhered less strictly to nature would have doubtless sacrificed truth for elegance of diction, and described the heroine as

An elderly dame, who emolument sought,
By the sale of fruit to a baked state brought—

or, perhaps, as Alfred Tennyson would have more harmoniously phrased it—

Near unto the ancient portal,
Telling yet of Templar's fame,
Daily sat an aged mortal,
Daily sat an aged dame;
Apples round her, dun and russet,
Which the vulgar “codlings” name;
Calm amid the rush of many,
Still she watched the charcoal flame,
Never weary of the dreary,
Ever vending of the same.

But how tame and ineffective would this have been compared with the simple energy of the original! We can fancy how Wilkie would have painted the “little old woman”—how picturesque would have been her red shawl, contrasting with the grey antiquity of her bonnet, and how cheerfully the glowing embers would have shone forth in Rembrandt-like combination of light and shade beneath the piled up pyramids of Pomona! In the second line a strict grammarian might possibly object to the supplemental preposition, but it happily measures out the rhythm and indicates the conditions of the sale—

— selling of codlings hot, hot, hot.

A magnificent climax! Not a mere verbal affirmation—a single adjective to describe the amount of caloric imparted to the apples—but a double repetition of the word, to illustrate the intensity of the heat as by the three degrees of comparison—warm, warmer, warmest. “Hot, Hot, Hot!!!” The last absolutely burns itself into the memory. But to proceed:—

Now, this little old woman, as I've been told—

Mark! “As I've been told.” The writer does not affirm this as a fact that had fallen within his own personal observation, but simply as a circumstance related to him by another—

Though her codlings were hot, she was monstrously cold.

No doubt! It was in the depth of winter when such wholesome and genial edibles as those which formed the staple of her merchandise would be most in request. “She was monstrously cold,” a very happy phrase, depicting of her shivering situation, rendered doubtless more aggravating and distressing by the contrast of her own chilly condition with the warmth of her codlings. And what does the elderly lady do? Liebig, knowing the physiological consequences of such a deprivation of vital heat, would have done the same. The warmth of the system must be restored, and to effect this a stimulant seems to have been the resource, for the poet tells us—

So, to keep herself warm, she thought it no sin—

Primitive innocence and beautiful simplicity united. Had she thought it would prove a transgression of moral rectitude she would have ended her days rather than have passed the bounds—. What? The modesty of the bard shrinks from an exposition of his heroine's frailty, and leaves the hiatus to be supplied by the imagination of the hearer, contenting himself with the slight clue afforded by the rhyme. What a bold and original conception! Is there anything else like it in the language? Dante never ventured closer to the borders of the sublime. That mystic — attains a kind of Delphic grandeur. It is like the shadow of Mephistopheles falling upon the Hartz Mountains on the night of the Walpurgis. And yet a niche in Westminster Abbey still remains unclaimed for the poet who has thus elevated his art.—*The Mirror.*

THE Hornsey and Crouch End School Board takes more interest in the religious instruction of the children than most boards. But the result does not seem encouraging. At the annual examination in religious knowledge just held Mr. George Ricks, the examiner, put questions as to Moses and Aaron. He received for reply that “Moses and Aaron disobeyed God by doing good to other people, instead of to their parents, and for this act of disobedience their mother put them in an ark of bulrushes at the battle of the Nile.”

GETTING MARRIED is with some an exciting business, with some a very serious business, and with most people of both sexes one of an absorbing nature. But there are those who can take it coolly. Mr. J. C. Loudon dictated to his amanuensis while his man-servant was dressing him for church on the morning of his marriage. Mr. Hurlstone, the artist, was busy painting a portrait until the last moment, and then he asked the sitter to wait a little while. He flew to the church, was married, and returned to his studio and went on with the portrait. The world does not approve of such manners.



THE NEW ROCKERY IN THE GARDENS OF



ROYAL HORTICULTURAL SOCIETY, CHISWICK.

The Illustrations.

AULD LANG SYNE.

THE lady does not join in the song, having enough to do to supply the inspiration. With the relations of mistletoe to the scene we can have nothing to do, being seriously minded; and besides the lady's relations are present in force, and— But as beauty is but skin deep, we reserve the consideration of the complex question to a future time.

THE BLOOM OF LIFE.

A ripe woman and a ruddy child in the fullness of health and beauty, and in the midst of flowers and their fragrant breathings,—how complete is the prefiguration in the group of the bloom of life, when all that is best on this side the grave is suggestive of material happiness! Pictures of this class are ever welcome, our P. R. A. delights in painting them, and eager crowds flock to see the dainty handiwork that tells of the bloom of life in womanhood and childhood, with the aid of a rich ideality that nature amply justifies in her revealings of possible perfection.

AN EPISODE OF THE CARNIVAL.

This fine picture, full of life and character, embodies in many ways a leading sentiment, Sincerity! The dancers mean it; the time is one for abandoned joy; but indulgence in frolic will be governed by certain elegant proprieties, and will not go beyond reasonable rule. If the revellers are sincere, what shall we say of the holy fathers who have to encounter this mad scene? Of their sincerity we are not quite so sure, but "Honi soit," &c. The well-fed friar in the centre of the group of three seems to be remembering a time when he played a part in such a frolic, and with the aid of youth and liberty might be tempted again. But as Time and his profession are dead against any open carousal, he lifts his hands and aloud deplores the follies of a riotous season.

THE MARKET CART.

A rustic huckster has loaded his cart rather heavily with seasonable farc, and the picture suggests that the donkey will be in a difficulty should there be anything of a hill to encounter on the journey. In that event we may travesty Goldsmith, and sing, "Ill fares the beast to hastening hills a prey," for we see no indications in the face of the gentleman driver of a disposition to put his shoulder to the wheel. But we must do with him as with the last rough carter that we saw: we must let him drive on, and hope that he will prove a merciful man, and be merciful to his beast.

THE MAN IN POSSESSION.

This melancholy scene, so full of painful surroundings, is acceptably softened by the manner in which the story is told. The children have opened the door fearfully to look at the strange man, having but a dim idea of his duty in the house. But he is a kindly man, has children of his own, and he gladly takes the pipe from his mouth to speak a gentle reassuring word. In other parts of the house there is greater anguish than here, for the dread man is a mere watcher, and will touch nothing until the law compels.

THE CHECKMATE.

It is just a question whether the game has been played out or has been interrupted. That the curé has received an important letter and has politely requested of his friend permission to read it is sufficiently certain, but we cannot read the pieces with sufficient distinctness to determine if the game is fairly finished. It does appear, however, that the checkmate has been given by a knight, the king being blocked by queen and knight on the other side. As a study of character in a truly domestic scene, the picture is full of interest, and in every detail has the touch of artistic finish.

A SUGAR PLANTATION.

What would a painter do for the employment of his pencil in a flat, sandy, marshy country planted only with palm trees and sugar canes, if there were no camels to communicate a feature of the picturesque? This unique scene, with its suggestions of monotonous plantations, low horizons, and wearisome iteration of sand and water, is made unique by the beasts and their burdens. The whole thing is common of the commonplace, and yet full of indefinable charms to the eyes of the European who is sensitive to scenic beauty.

THE ROCKERY AT CHISWICK.

Our readers have heard much of the new rockery at Chiswick, and will, we hope, hear still further. We have selected it as a suitable subject for the present occasion, and we are bound to say that we think our esteemed friend, Mr. Alfred Slocombe, has done justice to it. The picture presents the autumnal aspect of this rockery, the drawing having been made in the later days of September last.

THE TUG OF WAR.

Man is a fighting animal, and the sparrow is justified in following the high example. When sparrows make war the object is declared, for it is visible. But when the more exalted being ventures on the pastime he carefully conceals the object by means of the cloak called diplomacy. But there should be a difference to correspond with the relative status of the parties.

CHRISTMAS TREES, RAG BUSHES, AND THE WORLD TREE.—In a paper read before the Anthropological Institute ("Journal," vol. ix., pt. i., p. 97, for August, 1879), Mr. M. J. Walhouse has suggested that possibly the custom of decking Christmas trees with lights and ornamental gifts may be a survival of the very widespread pre-Christian observance of hanging rags and clothes on bushes. The perpetuation of this ancient ceremony was traced by Mr. Walhouse, and by Mr. Hyde Clarke and others who took part in the discussion, alike in the far East and far West, among Aryans and non-Aryans, among Christian, Mussulman, and American Indian believers in the Great Spirit. But while necessarily admitting these curious and interesting facts, I am not convinced that they have not any bearing upon the origin of the Christmas tree, which I should rather affiliate upon Yggdrasil, the world tree, the ash tree of existence of Scandinavian mythology. Of the world tree De Rougemont ("Les Deux Cités") says that it is "one of the most magnificent emblems invented by the human mind." As for the presents hung upon the Christmas tree, it is sufficient, to my mind, to refer them to the gifts which German children suppose the "Christ-kind" to bring with Him at the recurrence of the Festival of his Nativity. For the symbolic significance of lights at such a season it is not necessary to say more than that they form an intelligible part of Church ritual in East and West, and find a natural place in a social custom so bound up with the pre-eminently social festival of Christmas as the decking and lighting of the Christmas tree.—*Notes and Queries.*

Exhibitions and Meetings.

ROYAL HORTICULTURAL SOCIETY.—MEETING OF FLORAL AND FRUIT COMMITTEES, DECEMBER 12.

OWING to the severity of the weather the subjects submitted to the respective committees were less numerous than usual, and there were but few miscellaneous collections. The most important contributions to the meeting were the large and attractive collections of primulas and cyclamens from Mr. B. S. Williams, the splendid stands of zonal pelargoniums from Messrs. H. Cannell and Sons, and the collection of apples from Mr. Goodacre. Additional interest was imparted to the meeting by the competition for the liberal prizes offered by Messrs. James Carter and Co. for collections of vegetables.

The primulas and cyclamens shown by Mr. B. S. Williams, Victoria and Paradise Nurseries, Upper Holloway, were sufficiently numerous to fill the greater part of one of the side tables in the council room, and made a bright display of colour. The primulas comprised white and red varieties, and admirably represented the superb strains of these flowers for which Mr. Williams enjoys a high reputation. The cyclamens included most of the colours found in these flowers, the crimson and red shades being particularly good. The award of a medal to Mr. Williams was recommended.

Messrs. H. Cannell and Sons, Swanley, contributed four magnificent stands of zonal pelargoniums, which produced a brilliant and striking effect. Double and single varieties were represented in about equal numbers, and in point of effectiveness the latter were the most attractive. Particularly noteworthy amongst the single varieties were Eureka, Mrs. Strutt, Leona Dare, F. Kauffe, Mrs. Gordon, Dr. Orton, Guinea, Eurydice, Edith George, Imogene, Zelia, P. M. Fraser, Kate Greenaway, A. Kohn, Kate Farmer, Commander-in-Chief, Merimée, Metis, Mr. Miller, Constance, Celia, and Ceres. Chief amongst the double varieties were Magenta King, Serg. Hoff, Mr. Gladstone, L. Ferchel, M. Gelein Lowagie, Henri Cannell, the finest of the purple flowers, and Nympe, one of the best of the white doubles. Messrs. Cannell and Sons also had several beautiful stands of salvias, comprising S. splendens Brunt, S. Piteheri, and S. Betheli; numerous trusses of the fine heliotropium White Lady, sent out by the firm last spring, a basket of well-bloomed plants of Bouvardia President Garfield, a beautiful double variety with flesh-pink flowers, and blooms of their excellent strains of primulas. A vote of thanks was passed to the firm for their contributions to the meeting.

Amongst the miscellaneous contributions were two beautiful odontoglossums from Mr. J. Waddell, Shenley House, Stoney Stratford, who was accorded a vote of thanks. Messrs. T. Jackson and Sons, Kingston-on-Thames, exhibited two splendid new Japanese chrysanthemums, for which they were granted first-class certificates, and Chrysanthemum La Pareté, a pure white pom-pom of immense value for decorative purposes during December. The flowers are about the same size as those of Madlle. Marthe, and retain their freshness for an exceptional length of time. Mr. Todman, Bushy Down, Tooting, exhibited chrysanthemum Mrs. Todman, a distinct sport from Leon Quex, with reflexed flowers of a rich purple colour. Azalea Mrs. Tom Corbett, a valuable variety for winter decorations, with rather small and pure white flowers; and A. President Goodheart, an equally valuable variety with medium-sized red flowers. These azaleas have the great merit of blooming very freely, and so early in the year that very little artificial heat suffices to bring them into flower in November and December. A vote of thanks was accorded.

Mr. Goodacre, Elvaston Castle Gardens, Derby, exhibited a collection of apples, comprising about sixty dishes of dessert and culinary varieties in an excellent state of preservation, and Mr. Mann, St. Vincent's, Grantham, exhibited a collection of twelve dishes of apples and two or three dishes of new apples, of which Grantonian, a late-keeping culinary fruit, was the most promising. Messrs. J. Dickson and Sons, Newton Nurseries, Chester, exhibited, under the respective designations of Masterpiece and Favourite, two new cooking apples of great promise. From the appearance and flavour of the fruit, both varieties have been raised from the Blenheim Orange, but they are perfectly distinct from that famous apple and from each other. Mr. Gilbert, Burghley, contributed several apples, and from Mr. H. Eckford came a collection of seedling potatoes, of which several were remarkable for the handsome shape of their tubers.

In competition for the prizes offered by Messrs. J. Carter and Co., High Holborn, for twelve kinds of vegetables, Mr. Marriott, Prospect House, Skirbeck, Boston, was first with a collection, comprising remarkably fine examples of Carters' Golden Queen, Carters' Golden Globe, and Carters' Silver Ball onions, three excellent varieties introduced by the firm; Carenton leek, Veitch's Autumn Giant cauliflower, Carters' Perfection beet, Carters' Maltese parsnip, Long Surrey carrot, Major Clarke's Red celery, Carters' Jersey Lily turnip, Magnum Bonum potato, and Carters' Perfection Brussels sprouts. Mr. Summers, gardener to the Earl of Scarborough, Sandbeck Park, Rotherham, was a close second with a very excellent collection, in which the three onions above-mentioned, Aigburth Brussels sprouts, Major Clarke's Red celery, Red Globe turnip, and Dell's Crinsson beet were admirably represented.

First-class Certificates were granted as under

To Messrs. Vervaeet and Co., Ghent, for

Pescatorea Vervaeetii.—A very beautiful species; the flowers large, the sepals and petals waxy white, with deep crimson tips and crimson labellum.

To the Royal Horticultural Society, for

Cosmos bipinnatus parviflorus.—A distinct and handsome subject with elegant bipinnate leaves and deep rose-coloured flowers.

To Messrs. T. Jackson and Son, Kingston-on-Thames, for the under-mentioned chrysanthemums—

Duchess of Albany.—A magnificent Japanese tasselled variety; the flowers very large, bold and full, the florets narrow, the colour deep orange-red passing into rich golden yellow.

Ceres.—A very valuable Japanese tasselled variety; the flowers extra large, very full, and of the purest white. Without question the very finest of all the white varieties for exhibition purposes, and of much value for decorations.

To Mr. J. C. Schmidt, Erfurt, Prussia, for

Acroclinium roseum fl. pl.—A fine form of this well-known annual, with large and perfectly double flowers of a deep rosy pink colour. Invaluable for summer decoration and for winter bouquets. A very fine double white variety was shown by the same exhibitor.

SELLING THE MOON.

CALLING on my friend Pickard the other night, I remarked to him that the moon was full and very bright, but was nowhere visible from any of his windows. "Oh," said he, "I have no right to the moon, for I sold it." Thinking he was letting off a small joke, I smilingly asked who had secured the advantage of such an extraordinary bargain.

"Well," he said, "I can tell you all about it in a few minutes. You remember that at my last house we used to see the moon when full right in front of us as we walked about the pretty parterre on the best side of the house? Yes; you remember that our cigars and gossips were often embellished with the silvery smiles of sweet Cynthia. Well, when Etheridge began to bargain with me for the house, and was afraid I should advertise it, and do better than by a private sale, the moon was just new and invisible. I named a price, and a very low price, for the lease, the fixtures and fittings, the plant houses, the mowing machines, the garden rollers, and all the rest of the stuff that made the snug little property at Liudenside. Very well; instead of dealing with me in the way of a man to be believed and trusted, he tried to 'best' me, as the vulgar people call it. But I am not to be bested, and I hate a humbug who beats about the bush when all that is wanted of him is a plain yea or nay. Very well; he came every evening and talked depreciatingly of the place in order to cheapen it; and I could not kick him out, as I secretly felt inclined to do, because there was a wretched shadow of friendship surrounding the business between us. At last I began to lose patience and determined that if he did not conclude and buy I would tell him never again to mention the matter, and that he should not have the concern at any price. Very well; as the shades of evening thickened the customary rat-tat was heard, and in he walked shining with a show of good temper, and still in the same cheapening humour. He soon saw that my patience was exhausted, and said he had another call to make. I walked with him to the gate, and the full moon was then shining on the garden and house in the most glorious manner. He was taken aback, and he said, 'How I wish I could close with you for this place, but you know the money is too much, too much.' I answered in a snappish way, 'Yes, too much for you,' and I withdrew the offer. 'I shall find a stranger to buy the thing, and I shall give him the moon in; and I never offered you the moon, you know.' He was beaten. He put his hand on my arm and he said, 'I think I have been a humbug over this job; give me another chance—say the old figure, and throw the moon in.' And then I was beaten, and I answered, 'If you want the thing, have it, and be sharp, for never after this shall you have the house, or the garden, or the glass, or the moon.' He almost shrieked with joy, saying, 'All right, I'll take the lot at the original figure; let us go in again and make a memorandum of the bargain, and finish it with a trial of some cigars I have in my pocket.' And we went into the house, and while I drew up a brief memorandum he wrote a cheque for a deposit, and in less than ten minutes I was smoking one of his cigars, and he was drinking some of that deliciously soft Cognac that you see there labelled 1867."

I confess I was immensely interested in a story that turned on such a trivial incident, but I did not forget the point that first aroused my attention, and I said, "Your story is pregnant with real fun, but it does not explain why it is I do not see the moon from any of your windows on such a lovely night."

He looked at me with such a sly, knowing, half-winking expression that I felt a smile spreading over my face, although I was striving to be very serious.

"Do you take me for a systematic cheat," he asked, "that I should sell the moon and allow it to follow me, like one of those fellows who sell dogs and pigeons that they know will return to them? No, no; when I laid out this place I built and planted so that the full moon should never be seen from any of the windows; and you see that windmill that stands in a gap between the tall trees?—that, you see, shuts out the full moon completely, and is astronomically determined as to position so as to be thoroughly effectual."

For the space of a few seconds I felt I was a mere butt for one of Pickard's jokes, but a flash of inspiration prompted me to say, "I should like to know what you want with a windmill, and how to obtain grist for it?"

Thereupon he took me down to the mill, and very soon the nonsense vanished, and we were in the midst of a genuine scientific study. The windmill was not a windmill; it was an astronomical observatory, in which a huge telescope was carried round to sweep the heavens by means of a revolving chamber, which my friend worked with the greatest ease. The sails of the mill were mere adornments, cleverly placed and effectual as tending to mask the real purpose of the noble tower, from which, in the revolving chamber, we now viewed the moon in her fullest glory, and saw, as Milton would have said, "Rivers and mountains in her spotty globe."

My signature will solve the riddle, "which of the letters of the alphabet have eyes?" for my proper letters are, A. B., C. D.

THE DRUNKARD'S CONCEIT.

THE following whimsical song was written in German by Herr V. Mühler, Minister of Worship at Berlin in 1862. It has been set to music, which is as whimsical as the text, but demands more than average skill in the singer.

STRAIGHT from the tavern door	Look at the lamps again;
I am come here;	See how they reel!
Old road, how odd to me	Nedding and flickering
Thou dost appear!	Round as they wheel.
Right and left, changing sides,	Not one among them all
Rising and sunk:	Steady can go;
Oh, I can plainly see	Look at the drunken lamps,
Road! thou art drunk.	All in a row.
Oh, what a twisted face	All in an uproar seem
Thou hast, O moon!	Great things and small;
One eye shut, t'other eye	I am the only one
Wide as a spoon;	Sober at all;
Who could have dreamt of this?	But there's no safety here
Shame on thee, shame!	For sober men,
Thou hast been fuddling,	So I'll turn back to
Jolly old dame!	The tavern again.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. In contact with the glands at the moment they are excited by the act of sucking, the Glycerine in these agreeable confections becomes actively healing. Sold only in boxes, 7d., thus 1s. 1d., labelled "JAMES EPPS & Co., Homoeopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice. Yours faithfully, GORDON HOLMES, M.D., Senior Physician to the Metropolitan Throat and Ear Infirmary."—[ADVT.]

The Household.

SYDNEY SMITH'S RECIPE FOR A WINTER SALAD.—

Two large potatoes, passed through kitchen sieve,
Unwonted softness to the salad give.
Of mordant mustard add a single spoon;
Distrust the condiment which bites so soon;
But deem it not, thou man of herbs, a fault
To add a double quantity of salt.
Three times the spoon with oil of Lucca crown,
And once with vinegar procured from town.
True flavour needs it, and your poet begs,
The pounded yellow of two well-boiled eggs.
Let onion atoms lurk within the bowl,
And, scarce suspected, animate the whole;
And lastly, on the flavoured compound toss
A magic teaspoon of anchovy sauce.
Then, though green turtle fail, though venison's tough,
And ham and turkey are not boiled enough,
Serenely full, the Epicure may say—
Fate cannot harm me—I have dined to-day!

SWEET OMELETS.—Break six eggs into a basin, into which put a teaspoonful of sugar, three of cream, or a few small pieces of butter; put two ounces of butter in an omelet pan; when quite hot pour in the eggs and proceed as for omelets of herbs, turn over on your dish, sift some powdered sugar over, salamander, and serve.

OMELETS OF PRESERVED FRUITS, viz., Currant Jelly, Raspberry and Strawberry Jam, Apricots, Peaches, Cherries, &c., are made the same as the last, but, just before turning on your dish put two spoonfuls of preserve in the centre, sugar over, salamander, and serve.

MACEDOINE OF OMELETS.—Instead of making one with eight eggs, make four, with two eggs each, of different kinds of preserves; serve on the same dish, sugar over, &c., as before.

OMELET WITH RUM.—The same as sweet omelet, but at the moment of going to table pour two glasses of rum round, and scit on fire.

MISTLETOE AND HOLLY.

"A CHRISTMAS DAY without a mistletoe is most unlucky." So runs the rural saying in those districts where most farm-houses are, and where "the bush" invariably hangs all the year between the hams and flitches. As the mistletoe is found chiefly on apple trees, its growth is greatest in the cider counties. Next to the apple, it grows most on the poplar, where its bunches show like the nest of some monster bird; and it also is found on the pear and the willow, as well as on the maple, the ash, the thorn, and the lime, on which—by squeezing the bruised berries within the bark—it readily can be propagated. In Scotland the mistletoe—as holly and ivy in America—is almost unknown. In France it is most abundant on the almond tree; and in Spain and about Jerusalem it infests the olive. Its use with us is confined to Christmas customs; but a few centuries ago its branches were carried on New Year's Day by young men and maidens from house to house, as a seasonable gift of friendship; and at the present day the same custom obtains in some parts of France. Birdlime is generally made from the holly, but it can also be made from the mistletoe berries, those berries so dear to blackbirds, field-fares, and thrushes; and it is the larger species of the latter bird—the missel thrush—that is credited with the cause of the increase of the growth on trees. The wood and the leaves of it have both been used in the treatment of epilepsy and convulsive diseases, but they are not so used at the present day. As the mistletoe absorbs, as a parasite, the sap of the tree it grows on, it is not liked by those dwelling in cider districts, who say of an orchard where that plant abounds, "There is too much mistletoe in it for it to do much good." In the time of the Druids, mistletoe—called "all heal"—grew on the oak, and it was from that tree they always cut it; but now, to find it growing there is a very rare thing indeed, so rare that such oaks have the name given them of "mistletoe oaks." The supply of English holly for the London markets is chiefly derived from Kent; but a good deal of it comes from Guildford, as also mistletoe; and in a profuse year a large quantity of it is obtained from the apple orchards of Worcestershire, Herefordshire, and Gloucestershire, though the greater part of what is grown there is, after supplying the home county towns, sent off to Birmingham, Liverpool, and Manchester. Holly, on the spot, is sold very cheaply, and hence the profit to the retailer well repays his trouble. The average price at market in an ordinary season is for common holly from 6d. a bundle to £5 per ton; and for variegated from 5s. to 6s. per bundle to £20 per load. Mistletoe fetches from 6d. a branch to £6 per ton, though a well-buried handsome bush will sell at 10s.—*Illustrated London News.*

Obituary.

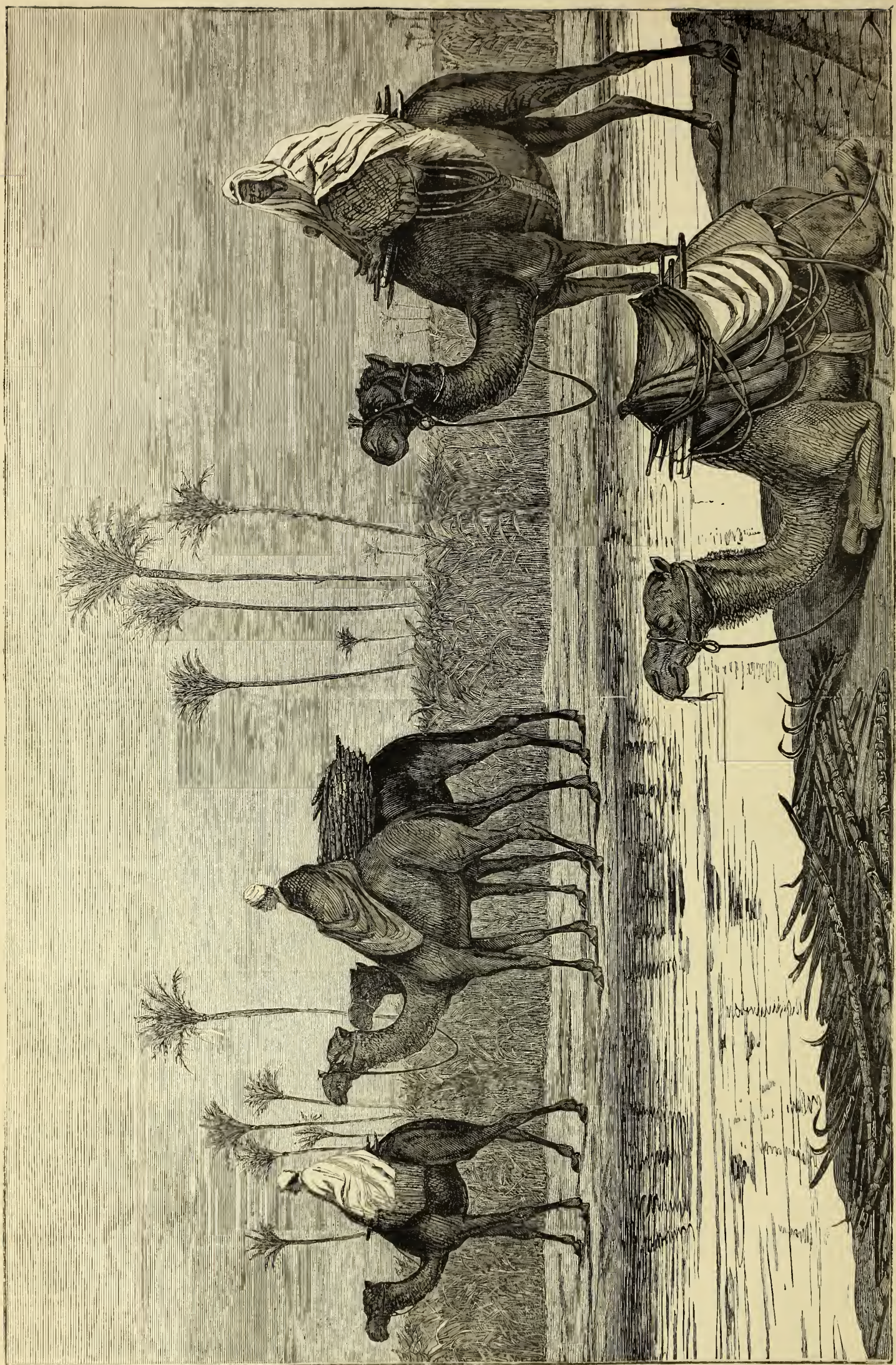
ON the 9th inst., Mr. JOHN SADLER, Curator of the Edinburgh Botanic Garden, aged 45 years.

ON the 6th inst., ELIZABETH, only daughter of Mr. JOHN SMITH, curator of the Royal Gardens, Kew, aged twenty-four years. The shock of this bereavement will be felt by many, and there will be much deep sympathy for those who feel it most.

A CORRESPONDENT wants to know "how human skin can be tanned." He must have been a remarkably good boy when he went to school not to have learned that among the other branches.

TRUST NOT IN HORSES.—Scene, a road-side inn: A carter has just purchased a horse and calls a lad to hold it while he goes for a dram. Before the dram is swallowed the boy cries, "The horse has fallen." The carter rushes out, saying, "You young rogue, you must have been leaning against it."

LAMPLOUGH'S PYRETIC SALINE. Have it in your houses, and use no other. This is the true antidote in Fevers, Eruptive Affections, Sea or Bilious Sickness, having peculiar and exclusive merits. For the protection of the public against fraudulent imitations I have again obtained a perpetual injunction, with costs, against the defendant. Observe, the genuine has my name and trade mark on a buff-coloured wrapper. 113, Holborn, London.—[ADVT.]



A SUGAR PLANTATION.

A COTTON YARN FROM COTTONOPOLIS.

THE newspapers have hitherto abstained from reporting on the English cotton crop, a fact that invalidates their supposed ubiquity, and affords us an opportunity of rushing to their aid with something new on the subject. In 1860 the supply of American cotton required by the Lancashire manufacturers began to decline, in consequence of the secession from the Union of the Southern States. In less than a year the supply had ceased, and Lancashire operatives were reduced to terrible straits. The public mind was thereby quickened on the subject of cotton cultivation and the discovery of substitutes for cotton. It may be said that as regards the proposed cultivation, as well as the desiderated substitute, we are now in precisely the same position as in the days immediately antecedent to the cotton famine. We do not feed the Lancashire mills with home grown cotton, and we have not discovered a substitute for this peculiarly cheap and useful fibre. But for all that some pretty crops of cotton have been grown in this country, and the matter is of sufficient interest to justify a brief discourse in the way of narrative.

The latest experiment in cotton cultivation was successful in every respect. The English-grown cotton was of the very finest quality, and instead of being consigned to a glass case, with a label attached, to perish amid dust and be soon forgotten, it was consigned to a manufacturer eminent in the cotton world. Thence it passed through certain needful stages of applied industry, and came forth as a manufactured article adapted for the common wants of mankind. The question will occur as a proper pendant to this statement, Did it pay? Well, we may as well say at once that it did pay; but it may be well to add a word on that part of the subject when we have told the simple story we have now in mind.

In the year 1879 Mr. Sam Mendel was enjoying rural felicity in his princely residence, Mauley Hall, near Manchester. His gardens were then as famous as any in the country, and his head gardener, Mr. J. R. Petch, being in his full confidence, and having ample horticultural resources at command, was not the man to be alarmed at a proposal to grow a crop of cotton. Through an accident that is of no consequence whatever, Mr. Mendel became possessed of a fine pod of Sea Island cotton, and he thought it a pity to lose the opportu-



MR. J. R. PETCH.

nity thus afforded for a bit of toy gardening, such as we are given to exalt by describing it as an experiment. Unfolding his views to Mr. Petch, the determination was arrived at to raise a crop of cotton from this particular pod. It was the gardener's duty to carry the proposal into practice, and it was no less his delight to embark in the "fad" and hope thereby to gratify Mr. Mendel.

The seed was sown, the plants soon appeared, and having all they needed of heat, moisture, and a kindly soil, they soon became giants of their kind, and made showy specimens in ten-inch pots. The finishing touch in the way of cultivation was given by ranging them in a span-roof melon house, and training them to the wires. The result was an abundant bloom and a fine crop, the quality of the cotton being perfect, and its total weight twelve ounces.

Then came the dread question, What will he do with it? But this question troubled the gardener much more than the proprietor, who perhaps by that time had forgotten that he was the owner of a thriving cotton plantation, and that his manager had harvested a crop that may be described the finest ever seen. What will he do with it? Petch was in the position of the artist as described by Margaret Fuller:

If he but sees the half that he must do,
Well may he shade his eyes from the far-reaching view.

But a man of business does not waste his days in dreaming because, forsooth, he has lost his sleep through restless cogitations. Mr. Petch carried his twelve ounces of home-grown cotton to Mr. Charles Ashworth, who knows all about cotton, and he said if he could have twelve tons or even twelve hundred-weight of such quality he would be able to surprise the world with something unique in the way of manufacture. But twelve ounces, ha! But the practical planter was as ready with his wit now as with his hands aforetime, and mildly muttered "pocket handkerchiefs." The manufacturer being made of inflammable stuff, and the word uttered being full of fire, there followed a moral conflagration. When the place was cleared and the watchman had

gone to sleep, Mr. Ashworth covered the floor of a sorting-room with newspapers and covered it with the precious cargo of twelve ounces of cotton. With his own hands he passed it through the centre of the machine in which cotton is first punished on its way to usefulness. It matters not about the details of this business, for it is sufficient to say that the delicate sample was put in the "cop," or, in other words, made into thread.

But cotton yarn is not a cotton cloth, and the best intentions will not pay any place with cotton handkerchiefs. There still hung in the sky where this cotton was concealed the perplexing question, What will he do with it? This question came home to Petch once more, and after another restless night a flash of inspiration directed all his thoughts to Middleton. You may not know the place that bears so ambiguous a name. There is a Middleburg in the heart of Zealand, and a Middlesex somewhere in the suburbs of London; and as for a Middleton, you may find it anywhere in some form all over the world. But this Middleton is a sort of suburb of Manchester, inhabited for the most part by a very peculiar race who live at the loom and see nothing but work, work, looming in the future. They are usually regarded as descendants of the persecuted Protestant artisans who fled to this country to save their necks from the halter and their children from infamy, in days when the kings of France and Spain were defenders of the faith under the immediate patronage of the devil. They may be of the Huguenot race, and they may not be. They are industrious, peaceable, given to fads and fancies; lovers of flowers, pigeons, dogs, rabbits, and singing birds; their sense of humour is local and exclusive: to the casual man of the world they appear bigoted and serious beyond all other example. But in Middleton the textile, as distinguished from Middleton the stony, or Middleton the muddy, there may be found talent in weaving, and to Middleton the textile did Petch, the cotton planter, go. And who should he go to but to Mr. Samuel Barlow, J.P., a



MR. WILLIAM HEAP.

master of the dialect, a master of the arts and industries, and a trusted gentleman, respected all around, a proper referee on any proper subject.

And so the cotton crop was carried to Stake Hill, and Mr. Barlow became involved in the responsibilities, and heard a voice that said, "What will he do with it?"

Then came a flash of inspiration to the new bearer of the new burden. Said Mr. Barlow, "I know of but one man in the world who can work up this twelve-ounce parcel of English-grown cotton. That man is William Heap, a silk weaver, ingenious beyond the average, and as serious and trustful as all around. We will have William here and hear what he has to say about it."

And William came; an earnest, quiet, serious man, with a touch of suppressed humour that pervaded not his face only, but his whole frame from top to toe. Said Mr. Barlow to the sweet William, "I have a job here that I think is full of difficulty. Here are twelve ounces of English-grown cotton of remarkably fine quality, and we must make something of it, William. Now, if you cannot do it, I think no man in England can; what do you say to try, William?" The serious weaver was more apt with threads than words, and he replied—

"That is right, master; I'll try my hand, but I'll know fust what arm to do."

The business was explained, and a handkerchief of a special make was procured, and the good old weaver set to work. But the job perplexed him, as it might any man who had for half a century fingered silk only, going round and round in a groove like a mill horse darkened by blinkers. Yes, he, too, had his nights of tossing and his days of woe, and the voice cried in his ears, "What will he do with it?"

But he made the handkerchiefs, and they were as like the pattern as if an inspired Chinaman had been entrusted with the job. Mr. Mendel's monogram was cleverly worked in by the weaver: not a thread was employed that did not belong to the original parcel, and the bleaching and finishing were generously superintended by Mr. Barlow.

And when all was done, there remained some small samples of the same cotton in the pod, in the cop, and in a partly manufactured state for museum purposes, while a box of tasteful design was prepared to receive the handkerchiefs. Of their production up to this time Mr. Mendel knew nothing; but when he entered his breakfast room on his birthday the box was on the table, and great was his delight to be thus presented with a gift that constituted an episode, touched with a fine poetry, in his own eventful life.

And what became of sweet William? He had become great! He had opened an imaginary floodgate in a new stream of British enterprise and industry. Mr. Mendel sent for him, and thus unto him did say: "I have to thank you for all your skill and care in working up this bit of home-grown cotton so tastefully. I cannot pay you, but I should like to make you a little gift of any kind that may be agreeable. Will you have a five pound note, or a watch, or a suit of clothes?"

William did not "beat about the bush": he gave his mind "right off the reel" for a suit of clothes, saying he and his missus would like to be married, and his idea of happiness was to be possessed for the happy day of a green plush coat, a red plush vest, corduroy trousers, and a white hat. At this point of the story we feel bound to cry "Hooray for William Heap!" better known at Middleton as Billie Yep.

The gorgeous costume was of course provided, and William wore them once as a kind of dress rehearsal preparatory to being married to his missus. And to complete his "tog out" he mounted a bright blue necktie, and finished off below with patent boots. Unlike gentlemen who wear purple and fine linen every day, William carried his old suit with him in a convenient bundle, and in due time appeared as a bird of finest feather on the railway platform of his native town. Alas! the penalties of notoriety for those who are not used to it! He was partly lionised and partly mobbed. The pressure of mingled admiration, sarcasm, and playful chaff was too much for his serious head, and he took refuge in a very hospitable public-house, hearing, to his dismay, the chorus of the mob, "Hooray for Billie Yep!"

And the truth must be told, he came forth a merrier and not a wiser man. In fact, he came forth in the careful custody of a guardian of the peace, minus his white hat, and his bright blue necktie all awry and the lustre of the new plush dimmed a little. But fate fashioned a dramatic unity of his adventures. He had to appear before Mr. Justice Barlow, and he pleaded that "them codd'n handkerchers" had done it, and the tender-hearted magistrate inflicted a fine and at the same time paid it. Thus the curtain falls on the story of the English cotton crop, and we return to the grave question: Did it pay? The story proves that it paid well, aye, a thousand-fold. All the actors in the little drama played out their parts and were satisfied with results, for even Billie was none the worse in the end for his ready refuge from the pressure of public admiration. And when fading people work out their fads they have their wages and are satisfied. And besides, to judge the case by material results, Mr. Mendel still possesses a dozen beautiful handkerchiefs manufactured from his own English-grown cotton.

THE VOICE OF SONG.

THERE'S a spell in the song we have heard long ago,
A magical charm in its strain,
That when life is o'ercast in the shadow of woe,
Will awaken its sunshine again;
No matter how heartless or simple its form,
If it breathes of our long-vanished years;
'Tis a light from the past, flashing forth through the storm—
A rainbow of joy through our tears.

There's a charm in the ballad we heard sung of yore,
That recalls happy days that have gone;
Though we ne'er see the features that gladdened them more,
Their voices are heard in its tone;
Our soul, by the spell of that melody, seems,
The dim realms of the past to have found,
Where again, like the shadows that haunt us in dreams,
Old faces will hover around.

There's a charm all have felt in the melody heard,
When the stern heart of manhood was young,
When the rush of the brook, or the trill of the bird,
Seemed entwined with the song that was sung;
And though time may unrivet in memory's chain,
Those links to the past that belong,
The spell of a strain can unite them again,
By the voice of a simple old song.

LANAN BLANCHARD.

A BIG LEAP!—The renowned robber in Bavaria, Eppelein von Gailingen, who flourished in the fourteenth century, was a rival of the celebrated Counts of Bradenburg, of Nuremberg, all of whom were fonder of stealing than working. As Americans would say, this von Gailingen was a "big Injun," and his dauntless feats are made much of. One feat in particular is especially recorded. "Nuremberg," says a correspondent writing on the legend, is a walled city, the moat being about fifty feet deep by eighty feet wide. The guide pointed out the 'exact spot' where Herr von Gailingen made his wonderful leap (A.D. 1380), and for the second time saved his life and limb from the exquisite agonies of the torture chamber. The guide informed me that, much to the joy of the Nurembergers, the great robber was recaptured, and speedily condemned to undergo the tortures of the horrible Iron Virgin. Before the day fixed for his execution the people clamoured for a public exhibition of him. This being granted, he was brought forward, dressed in his armour, just as when captured. He was the possessor of a wonderful horse, 'Black Lightning,' said to have been presented to him by his Satanic Majesty, and to be half horse and half goblin. When led forth for exhibition, he craved that he might have the pleasure of showing himself to best advantage upon the back of his favourite steed. The favour being granted, with a graceful bound von Gailingen vaulted into the saddle, gave one piercing scream to his well-trained 'Lightning,' which made three bounds over the heads of the stupid burghers, when he reached the moat. One more frightful shriek from his master, and at a single leap he cleared the moat! To this day upon the opposite wall can be seen deep and distinct indentations in the stone of a horse's two hind feet—which proof, of course, is incontestable.—*Land and Water.*

The House and Garden.

THE CHRISTMAS NUMBER.

ONCE more we need a sonnet of a sort,
Not quite too too, nor yet completely utter;
One that will suit the season like old port,
Or capon basted with the best of butter.
And for the purpose we will take this sheet,
And ask wherein a proper Christmas number
Is like a sonnet in its shape and make,
So that the likeness may cause one to wake
As with a start from out of a deep slumber?
A Christmas number to eat Christmas meat
Should count just six below a proper score,
And for a sonnet to be nice and neat
There must be fourteen lines, and not one more—
You now may go to sleep again and snore.

THE HOUSE.

THE decorations of indoor apartments during the Christmas season must not be overdone, and the formation of huge banks of palms and other things with green leafage, which are most suitable for a large concert room, are quite unfitted for the dwelling-house. Palms and a few other green-leaved plants are, however, most useful for indoor decorations, provided they are of a suitable size, and brightened up with flowering plants. Colour we must have at Christmas time to balance the dreary aspect presented by everything out of doors, and the floral decorations should be made to present as bright and elegant an appearance as possible, and care taken to avoid overdoing them; for it is not desirable the drawing or any other room should bear a resemblance, however remote, to a florist's shop. In the decoration of rooms, dinner tables, and vases with cut flowers during the Christmas festivities, a profusion of flowers is not really necessary, for, with a liberal use of fern fronds, few flowers, and a moderate quantity of richly-coloured leaves—such as those of the dracenas and the crotons—may be made to produce a most tasteful effect. Sprays of the pretty *Panicum variegatum* are also most useful for intermixing with flowers. In selecting flowers for arrangements to be seen under the influence of artificial light, reject as quite unsuitable those of the various shades of purple, blue, and yellow.

THE GARDEN.

AURICULAS must have air night and day in fine mild weather, and only have sufficient water to prevent the foliage becoming flaccid. The foliage must not be wetted on any consideration.

CAMELLIAS.—Extremes of temperature, moisture, or drought will cause the buds to fall; and it will be as well now to see that all camellias are really moist at the root, for sometimes after the roots become dry the water passes away on the outside of the ball without any benefit to the roots whatever. A dry heat is very injurious to camellias now.

CARNATIONS, PANSIES, AND PICOTEEES only require protecting from wet and frost, therefore the lights can be drawn off entirely in fine weather, and tilted at the back in mild wet weather. The stock of bedding plants must be frequently examined, and every attention paid to keep them clean and healthy.

GREENHOUSE to have as little fire heat as will be safe, and to be kept as dry as possible. On the occasion of a sudden frost there is a tendency to get up a brisk heat at night, and much harm is inflicted on plants by running the temperature up to 60 deg. or more, and then leaving the fire to go out, so that by the morning they are exposed to a temperature of 35 deg. or less. The amateur must endeavour to avoid such extremes.

FRUIT TREES to be planted must have attention at once, for if the planting is delayed much longer the next year's crop may be lost. Always trim away by a clean cut all bruised and jagged portions of the roots; place the original collar at the level of the soil, so that the tree is no deeper than it was before, and fill in with soil in a friable condition. No tree will prosper if the roots are puddled in with wet pasty earth.

Replies to Queries.

Strawberries.—M. R. W.—As you have not more than a sufficient number of plants to form two batches, we would advise you to defer starting the first batch until the end of January or the beginning of February. The second batch may be started three or four weeks later.

Fancy Pelargoniums.—B. W.—The fancy pelargoniums should have during the winter season a light position near the glass, enjoy a free circulation of air, without exposure to sharp currents, and moderate supplies of water at the root. They must not be kept so dry at the roots as the zonals, and on the other hand they suffer severely if the supply of moisture is in excess of their requirements.

Lettuce and Endive.—Young Gardener.—The frame in which the endive and lettuce has been placed must be freely ventilated in mild weather and be covered with mats or other protecting material during periods of frost. In bright weather the lights can be drawn off altogether during the day, but as damp is most injurious in its effects upon both lettuce and endive when ready for the salad bowl, care must be taken to put the lights on again before the evening, and immediately there is any prospect of rain falling. Generally, tilting the lights about six inches alternately at the back and front will ensure abundant ventilation.

Epiphyllums.—W. Wilson.—The plants that require larger pots should be shifted immediately they go out of bloom, and encouraged to make their new growth by being placed at the warmest corner of the stove. Epiphyllums must not be overpotted, and, as a rule, the pots employed at each shift should be one size larger than those previously occupied. Plants that are not in a very thrifty condition should have the balls of soil reduced by about one-third or one-half, and be returned to pots of the same size as those from which they are taken. As soon as they commence to make new growth they should be placed near the glass and receive increased supplies of moisture, but the watering must not be overdone, or injury to the roots will result.

"SAPO CARBONIS DETERGENS" is a physicians' name for a remedy prescribed for the past quarter century for every variety of skin disease. The public have also adopted the same as a preventive of small-pox, scarlet fever, and measles. Purchasers should see that the Latin brand is on every tablet, and WRIGHT'S COAL TAR SOAP on each wrapper, without which none genuine.—[ADVT.]



AND here's a hand, my trusty fere,
And gie's a hand o' thine;
And we'll tak a right guid-willie waught
For auld lang syne,

For auld lang syne, my dear,
For auld lang syne,
We'll tak a cup o' kindness yet,
For auld lang syne!

EVOLUTION, REVOLUTION, AND DEVOLUTION.

By ALAN GRANT, Esq.

ALL the problems that curiosity, doubt, and fear have propounded in respect both of the beginning of things and their ways for some time afterwards, have been completely settled by the study of evolution, and there remains nothing more to be discovered. It is an easy matter now to account for everything we see as the simple consequence of the working of natural law; and a great many things we do not see and have not yet even heard of are equally and as easily explicable. We have had revealed to us the co-ordinated autonomy of the unconscious, and the ineradicable necessity and unavoidableness of the inevitable. You take a leaf, and ask why it should be green? It is a mighty question, but a study of evolution brings forth the answer. This colour is the correlative of the centre of the solar spectrum with the inclination of the ecliptic of the earth. The green band lies between the blue and the yellow, those two portions being reflected or chipped off—the one to overspread the firmament and make a blue sky, the other to penetrate the rocks and make a yellow soil. When the sky deepens to violet, we have but an extension of the spectral lines beyond the blue; and when the earth becomes red, as in Devonshire, or brown, as in the valley of the Thames, it is but an extension beyond the yellow the other way. The colour of sand proves that the yellow band is earthy, the colour of the sky proves that the blue band is heavenly—the green of the earth is therefore intermediate, and this theoretical conclusion is justified by the fact that leaves rise above the earth into the circumambient atmosphere. When leaves were as yet undeveloped, they were absolutely colourless, and hence their present colour is evidence of their objective existence, and gives colour to the proposition that they are material, therefore tangible, and endowed with physical properties. These discoveries we owe to the evolutionists.

As leaves in general have taken their tone from the rays that penetrated them as they were evolved out of the primeval protoplasm, so particular kinds of leaves have undergone modifications corresponding to the continuous exercise upon them through countless ages of modifying local circumstances. We have an example of this in the common *drosera*; the mysterious "sun-dew" that has been so happily likened to Sawney Bean, the man-eater, whose cavern was found furnished with a patent refrigerator for the preservation of juicy joints in the hottest weather. It will have been observed by those familiar with this remarkable plant that the soil on which it grows is usually black, and it is known that the plant needs animal food; indeed, our greatest living botanist confidently describes it as a "carnivorous plant."

It will be proper to add, for the information of the unlearned, that at the present time the leaves of the *drosera* are formed in precisely the same manner as the jaws of a canine animal, and, in a similar way, are furnished with teeth. Every leaf has a joint concurrent with the midrib, as the jaws of a dog move in a plane coincident with every rib—a parallel that the evolutionist is bound to notice and to register among the data for determining things that lie beyond the region of legitimate inquiry. But the parallel does not end in the mechanism: it is completed in correspondence of colour! What is the meaning of the sanguineous tinge on the toothed margin of the gaping leaf hungering for animal food? Certes, there can be no need to explain the meaning of the correspondence in colour; it is, indeed, but too suggestive of the actual facts.

But let us again trace back these threads of analogy to their proper origin. Why is the soil black where the *drosera* grows? The question is a foolish one, because it is known to all that blood makes a lasting black stain upon everything, as upon the fatal key of Fatima, and upon every murderer's boots. The *drosera*, by its location, takes us back to the butcher's shop of the post-pliocene period, previous to the establishment of which the soil was yellow and the plant was green. It was then without jaws and toothless, and had not tasted mutton chops. But the time was approaching for a new development: a habit was to be engendered, and that habit was to become an instinct to be transmitted to the whole future of the plant, which was to learn how to catch the flakes of meat that darkened the air when the antediluvian butcher prepared his prime cuts and tender cutlets, and gave unconsciously to the *drosera* many a slice intended for his dog.

This brings us to consider the origin and history of the dog, and the secret of its attachment to man. The aboriginal hunter blowing his bugle and crying, "Tantivy," was in need of companionship in the chase. His women—for we cannot speak of wives at a time when women's rights were but in a shadowy state of incipient inception—his women, I repeat, were of such a quarrelsome nature that at some critical period in the conflict with a stag, a boar, a buffalo, or a griffin, they might have abandoned the proper game in favour of another game—that of tearing the hunter's hair and compelling him to promise them costly gifts on condition of their assistance. Therefore, in his need of an obedient, constant, and long-suffering friend, he projected into space an idea; and had he but read the "vestiges" in time, he would have done more than that. However, he had nearly done enough, for the notion of dog took shape and dogged his steps—but it was dog in the abstract, the concrete as yet needing to be developed. It will be understood, therefore, that the post-pliocene dog was destitute alike of bark and tail, for these are parts of each other, the tail being a continuation of the bark, and clothed with the same kind of hair, though longer and more curly. As a matter of course the antediluvian butcher occasionally threw a knife, a chopper, or a sheep's head and pluck at the defenceless dog, and the latter learned to dodge the missiles and afterwards came forth to eat the scraps. Being alternately engaged in dodging and catching, the hairless dog often missed some tender delicacy that his generous master threw at him, and some of these fell where the *drosera* grew. Thus the *drosera* acquired a carnivorous appetite, and, as plants have a way of their own of locating themselves in prosperous circumstances, so in this case the plant soon became established at the very threshold of every slaughterhouse of the period, its roots nourished by the trickling gore, its leaves reddened by assimilation of protein, and its structure in course of modification to catch the dainties that flew beyond the range of the defenceless dog.

Thus the plant in conforming to new conditions developed a series of new and peculiar characters. The midrib, being in want of employment, volunteered to act as a joint to the leaf blades on either side that were changing into hungry jaws armed with formidable teeth. These teeth were the outgrowths of the original serrated edges of the innocent green leaf that had never tasted flesh. It was the effort of the plant to use the soft serrations in the way of gums to press the tasty gravy from the morsels that reached it, that caused them to elongate and become voracious teeth, both to aid in catching as well as in masticating the welcome dainties that darkened the air when the butcher was in business.

But the dog no longer sits fearing, hoping, and sleeping on the domestic doormat of the post-pliocene. The butcher has advanced in his art, and fills the flesh pots of Egypt by the aid of cannon balls and sabres instead of sling stones and flint implements. The dog has acquired a bark without and a bark within; his tail has grown and become waggish; he has forgotten the Flying Send, and has become the enemy of cats, the companion of boys, and serves the high purpose in the household, by barking, howling, and rushing up and down stairs, of keeping the people next door awake all night. As for the *drosera*, it tells us that the doctrine of evolution is but a part of a general plan by which we are enabled to make mighty declarations in respect of matters of which we know nothing at all. Look at it! No longer does it advance in the scale of being. Having learned to catch, and digest, and enjoy tender cuts from under the sirloin, and slices from saddles made high by hanging, it now lives on miserable flies, and has become despicable. And yet, as giving us a key to the past, how precious is it! The redness of its leaves is the record of its diet, and its degraded hunger for insect food is a melancholy memorial of a once vigorous appetite that foreshadowed the proper ultimate uses of missionaries.

It has been seen that evolution teaches the history, in the past, of everything. And there should be no missing link, because invention, imagination, and declaration can be brought to aid in any inquiry when the facts are deficient or they happen to be adverse to the argument. Very well, the wonders of evolution are demonstrated; but alas! it deals only with the past! We want to know the future. We want to know where, after pursuing a certain line for a certain length of time, the thing, whatever it is, turns round and takes another direction altogether. At what epoch—that of the diluvian, doubtless?—did the *drosera* alter its ways, ceasing to be a sensitive save-all, and becoming an insensitive fly-trap? It is evident that evolution leads to revolution, and it devolves upon us to study devolution, for it is in the history of every organism there is a time when it ceases to go the way it has been sent, when it turns round and perhaps flops over. For everything therefore there are the proverbial three courses—to evolve, to revolve, and to devolve; and those correspond to the past, the present, and the future.

At this point it becomes necessary to devote a brief space to the consideration of a group of events the results of which reach through modified organic forms to the present day, and will indeed demand attention in the remote future. In the course of a cycle of æons antecedent to the occurrences immediately before us, a great commotion had taken place in that nebulous group which forms a soft halo near the left shoulder of Orion. This was caused by a conjunction of comets, and the immediate result was a variation of parabolic orbits four degrees to the west of the elements of the nebula. These elements, it is well known, comprise one hundred and twenty-three thousand suns, each one hundred and twenty-three thousand times larger than the solar system. It will easily be understood, therefore, that the star-dust, of which there is a superfluity in the constellation of Orion, was much scattered, and in consequence the circumpolar and interspace ether became saturated with eventualities. This occurred just in time to demonstrate the dependance of terrestrial phenomena on cosmical causes. In the sphere of our present observations, we have therefore to notice that the weather being wet, and the antediluvian butcher without an umbrella, outdoor exercise—which he needed so much on account of his highly nitrogenous diet—was rendered impossible. His favourite female—the only one now remaining—was not slow to perceive that the storm in the heavens would soon bring forth a storm on the earth, and therefore she prudently withdrew herself out of his arm's way. But the unhappy dog remained upon the door-mat, not objecting to be kicked, but hoping to escape with his life. In an instant, as by a flash of inspiration, the savage master began to hurl at the helpless brute any kind of missile he could quickly seize, and the air became suddenly thickened like soup with flying flint implements, meat hooks, shell soup-ladles, eocene fossils, unbaked earthen pots, carved deers' horns, bone marrow-scrappers, and finally a heap of mincemeat that lay temptingly on the shop board, and that, being badly aimed by agitated hands, flew in all directions. The terrified woman heard the clatter, and, thinking of her Sunday gown, made of a very superior kind of fig leaves, made a bold dash to save some remnant of the household goods. But when she arrived on the scene the dog had fled, and the warrior had sunk into a sweet slumber on a bed of fragrant leaves with his martial cloak around him.

The woman seized the cinder sifter, and began to sift the thickened atmosphere to get back some of the things, and while so employed the dog came back, but he had undergone a change! Having so often experienced the need of a system of self-defence, he had evolved out of his inner consciousness a tough hide of protective bark, and in conjunction therewith a curly tail, and at the other end a vocal bark or audible bow-wow; and saying within himself "I shall now go to Barking," he returned to the threshold quite converted and a new creature. The woman screamed, thinking another woman better dressed than herself had come upon the scene. The scream awoke the man, and he, seeing the four-footed beast in a new guise, thought one of his dead ancestors had got out of the grave in a state of hunger, and that he himself therefore was in danger. As a matter of course he at once sent forth a shower of bad words, and was about to kill his lady to appease his hungry forefather, when the dog flew at him, barking furiously, and causing his tail to revolve—the dog, in fact, had then entered upon the stage of revolution, and thought murder better than meat. The man was alarmed; his authority was defied; his heavy hand was arrested; he cowered before the dog and made an apology to the woman; he then proposed a drink, a dinner, a supper, and a song. By an impulse of simultaneity, they rushed to seize the mincemeat from the board, but it was gone! This drew from the grim warrior some philosophical remarks on the mischief that may result when missiles are distributed without discretion, the vision being distorted by temper, and the hand made unsteady by rage. It was not long ere they discovered that the *drosera* on the hillside, having acquired a practical knowledge of the value of nitrogenous food, had caught the flying fragments and was exercising its new teeth upon them. And so they were fain, like Lucio, of whose history but little has reached us, to dine and sup with water and bran; for they could not indulge even in a meat tea, for the meat was gone, and the tea was not invented.

Then came, for the first time, a sense of humour into this breathing world: then was first established the sweet and reciprocal relations between humanity and the animal and vegetable worlds: then was the beginning of the concord that does not yet entirely prevail. Yes! the *drosera* blossomed, the dog wagged his tail, the man smiled, and the woman sang Lullalies! The golden age had indeed not dawned, but it was dawning, and it is still dawning, and hope springs eternal in the human breast.

It was in that sublime conjunction of circumstances the shooting stars became conspicuous in the artillery of heaven. Then it was there appeared the

first phosphoric gleams upon the crest of the salt sea waves. Then was heard a gurgling and rumbling in the caverns of the earth, and the volcanoes shot forth their fiery fountains to fill with glory the moonless sky. Then the vegetable world began to be conscious of its power to fill the earth with food and beauty, and the gladsome flower was followed by the serious seed, and the hill-top became a coronal of colour and a storehouse of bread. It was the jubilee of nature, for man had smiled, and woman had warbled a word of wisdom out of the depths of her susceptible soul! Yes, it was the Jubilee of Nature, the Triumph of Evolution—Hooray!

From that time the dog has been the faithful follower of man, but possessing still a trace of the original instinct that was nursed by the persuasions of the Flying Scud. The drosera flowers annually in commemoration of the event, but retains its carnivorous habits; for although the antediluvian butcher no longer hides behind the rock to listen for the footsteps of a brother sinner that he may fill the air with flying meat, there are flying fragments of another kind that a degenerate age, mindful of the teachings of the past, calls flies, and these constitute the breakfast and dinner and supper of the highly instinctive plant which yet keeps its feet moist in the channels of the once sanguinary current.

If any further illustration is required I name the Strawberry, which is now in the revolving stage. In another and lower sense of the term all climbing plants are in this stage, as the late Mr. Darwin's observations on circumnavigation testify. But let us take the high example of the strawberry. In the pro-pleistocene, when probably this fruit was not much grown for market—say twenty-two million fourteen thousand and three and a-half years antecedent to the Greek Kalends—the seeds of the strawberry were in the centre of the fruit. No reasonable person will question this, because it is known that the centre of the fruit is the proper place for the seeds. But the central or placental disk was acted on by a comet, the elements of which have been reduced by a reductio ad absurdum, and this, combined with the unequal fluctuations of spectroscopic lines, caused a rapid revolution of the axis, and centrifugal force drove the seeds to the outside. Our friends the beekeepers and the dairymaids have lately come under similar influences, and the honey and the cream are now commonly collected by revolution, which is the proper consequential outcome of the evolution that produces them. Many other things have advanced into the revolutionary stage, and in some cases, as it appears, not for the better.

But the inevitable working of natural law is for the best in the end no doubt. When it is for the worst, we may suspect that philosophers and politicians, and editors and town councils have been meddling and muddling with it. The state of the argument at this point may be illustrated by the proceedings of a cook, who must be regarded as a child of nature subjected to peculiar deglutitious circumstances. From the conscious summit of concentrated protoplasm, which for convenience sake we will designate the brain of the cook, there is evolved, after much pleasant cogitation, the idea of a tart. Then flour, fat, and figs are flung upon the floor. The rolling-pin is the visible sign of the transmission of evolution into revolution, and after a healthy effort, bracing to the chest, the paste is rolled out. Revolution, thus far, has done its work, without the aid of fire or sword. But at a given moment, according to the time-table, the figs being fixed and the furnace fired, and the mistress calling angrily down the stairs, devolution asserts its power, the stages of a tart are consummated, the cook loses temper, the outlying latitude of paste is flopped; there is an end of the hypothetical tart, and the result is an actual Turnover. How true it is that philosophy is history teaching by example!

The operation of these laws in the future will bring about some strange things. Observe how admirably the gardeners are educating the early peas to come before their time, so as to be a full year in advance of human necessity! Even now we may have them at Christmas floating in flavoured water in closely-sealed tins! In the turnover times they will come in cans. But as society cannot keep pace with peas, there are people to be found who prefer them in pods. Take the case of raspberry jam: how unpleasant are the woody pips that get jammed between middle-class teeth, and that only cease to be troublesome when the teeth do the same! But the future of raspberry jam is clearly demonstrated by the doctrine of Devolution. Continual steeping in vinous juice, the mollifying effect of sugar, the solvent power of heat—these agencies will in time soften the pips of the cool-tasting raspberry, and people in their dotage will take to their jam once more.

And, as we rise with our theme, we ask, What will be the Future of Man? From nature we learn different things, as to the properties of eggs, and the superior flavour of margarine butter. When man was evolved he fed on herbage, as the poets have proved mathematically. Then, in the sweet society of his dog, he took to revolution, and established a slaughterhouse. But he saw the effect upon the drosera, which robbed him of his meat, and as quickly as possible entered upon the devolving stage, showing especial favour to banter and burlesque. But what will man do next? He will, in the hands of party politicians, be like the tart in the hands of the cook: he will become a mere turnover, a flipper, a flapper, a flopper! Writhing in distress, he will look to the æsthetes for help, and they will make all his surroundings so bilious that his liver will become a dyer, and his face thereby will assume the hue of the dying leaf. He will then go forth in a bad temper and destroy all the forests and make the world uninhabitable, so that there will be none left but himself, and he will be the Last Man, who was seen by the poet in vision:

I saw the last of human mould
That shall creation's death behold.

Then the curtain will fall upon the stage of men; there will be no more revivals of Shakesperian comedies; the sacred home of burlesque will become the mausoleum of the Brothers Grinn, the horticultural papers will simultaneously publish their ten thousandth number; and the mending of Old Jones's copper will be of no consequence, because Jones himself will be neither here nor there. Yes; the Negative will be known, and Silence only will be heard to Speak!

TELLING A HORSE'S AGE.—A man who wanted to buy a horse asked a friend how to tell the horse's age. "By his teeth," was the reply. The next day the man went to the horse-dealer, who showed him a splendid black horse. The horse-hunter opened the animal's mouth, and gave one glance, and turned on his heel. "I don't want him," said he; "he's thirty-two years old." He had counted his teeth.

A wag tells a funny story, albeit slightly tinged with hyperbole, of a case recently brought before the Recorder. A fellow was charged with stealing a piece of cloth from a dry-goods store, when the lawyer put in as a plea that his client did not see it. "Not see it?" said the Recorder. "He did not see it," responded the lawyer. "What do you mean?" said the Recorder. "Why, I mean, sir, that the individual charged with stealing the cloth did not see it, sir—he could not see it—it's an invisible green."

THE THREE NOBLE DONKEYS.

THE castle yard opened on a piece of common land, to which all the beasts of the village had access, and there occasionally a stray cow would converse with a pony that had lost its way, or a motherly pig not well acquainted with the locality. On a sunny afternoon a very trim donkey, named Jack, whose proper place for the time was the castle yard, had found the gate open and had stalked out on to the common, without saying with your leave or by your leave. This was donkey No. 1, and, as remarked above, his name was Jack.

From another corner of the common, where the tail end of a great garden opened on a cart road, came Donkey No. 2, named Jenny. She was not so trim as No. 1, whose name was Jack, and he thought her uncommonly odd-looking about the feet, as though she had been making a swop in the matter of hoofs with some jolly old elephant. And so, having shaken his head in the way of a bow and said, "Hee-haw" in a musical manner to win favourable attention, he said, "How are your poor feet? Why don't you wear bright steel shoes like mine?" Saying this, he curveted round and threw up his heels to show his neat steel shoes glistened like silver, while his hoofs were not only kept very trim, but were seven times a day rubbed with an oiled rag by the boy that attended him, for he was a show donkey, and had to look nice from twelve to four every day in case of company coming.

"Why don't I wear shoes like you?" said No. 2, whose name was Jenny. "Well, what I want to know is, not how I am about the feet, for I am comfortable enough. The question is, Why don't you wear leather boots like mine? What holes you must make in the ground sometimes when you are mowing!"

At this question Jack was completely staggered, but he pretended not to be surprised at all. "Mowing," he muttered to himself. "What does the lady mean by mowing?" Then a thought struck him, and he said, "Well, you see, when I come out of the wheel I get beans, but you have to browse on the gorse, and I dare say the boots are useful when you go amongst such prickly stuff."

"Browse on the gorse!" repeated Jenny disdainfully. "I don't browse on gorse. I also get beans when I come out of the mowing machine, but I only pull; I don't go in the wheel, as you say, or I should be cut to pieces."

And then they stared at each other for five minutes without moving or speaking a word. Then Jack heard a bell strike, and he became at once an animated donkey. "I must go," said he, "for when the bell sounds I have to go into the wheel and turn it a few times to draw water from the well, and then I come out of the wheel, and the ladies give me apples and cakes, and pat me on the shoulder, and sometimes they kiss me, and they look at my neat feet and say, 'What lovely hoofs he has, to be sure!' Farewell, sweet Jenny, I must go; but I must say in parting you would do much better with polished hoofs and steel shoes. Why don't you have them?"

Then he went seriously back to the yard, and then into the well-house, and then into the wheel, and carefully counted thirty steps and heard the water splash, and then stepped jauntily out of the wheel to be coaxed and pampered.

The lady in the boots stood still, with her head down, and might have remained so until now, so seriously did she consider the final question of the neat-footed Jackass, "Why don't you?"

But her reverie was interrupted by the appearance on the scene of donkey No. 3, whose name was Eunichus. This donkey had neither steel shoes nor leather boots, but rough hoofs, much spread out, and, as Jack would have said, in want of trimming.

Having surveyed each other seriously, they approached and rubbed their noses together, which, in the language of donkeys, means, "How do you do, and is there any mildew in the beans up at your place?"

Then the sweet Jenny said, "How wretched you look about the feet! Why don't you wear comfortable boots, so that you can go over the lawn with the machine and make no holes in it? Now tell me, why don't you?"

The third donkey, whose name was Eunichus, looked up, and in a very grave voice said, "Why don't I? Well, that is a donkey's question; I have nothing to do with lawns and machines, and know not what they are. My daily business is to carry panniers up the mountain; and just look now at that winding zigzag track, do you think I could do it if my feet were crippled with the rubbish that makes you look so ridiculous?"

"Well," said Jenny, "you are not very polite I must say, but why don't you explain yourself when you first speak to a party. How was I to know that you carried panniers up the zigzag path? And besides, what do I care about you or your panniers? Why don't you learn manners? That's what I say."

Then they both looked at the ground, as if expecting to see a beanfeast come out of the thin turf, and as they stood motionless like clay models, except for a twitch now and then when a fly tickled one of their noses, Mr. Jack, the No. 1 donkey, came out from the yard, and was rather astonished to find two of his relations waiting for him. Having been much coaxed and pampered, he said to Jenny—

"Why don't you give up that machine thing and those leather boots, and go into a wheel and get apples, and have your hoofs polished?"

"Ah," said Jenny, "you know nothing about it. Look at this nondescript with feet spread out like the sails of a windmill. If you don't like my boots, why don't you go bootless and shoeless, and leave your wheel and carry panniers?"

Then donkey No. 3 struck in, and said, "Why don't you make allowances for one another? I see more of the world than either of you, and I know that if people go different ways, some must go barefooted, and some in boots, and some in shoes. Why don't you talk of things you understand, instead of trying to regulate people whose affairs you know nothing of? I must go to business now, and bear heavy weights up the mountain. If I had such ridiculous feet as yours I could not earn my living, poor as it is."

Then they stood still and silent for a few seconds, when Jack woke up slowly, and began to say—

"Why don't you?"

But he was interrupted by Jenny, who began—

"Why don't you?"

And then No. 3 struck in again, saying—

"Why don't you?"

At which the trio were simultaneously struck with the absurdity of each beginning a speech in the same way, and they said in a sort of husky chorus—

"We three noble donkeys are three contemptible asses, and we won't say 'Why don't you?' any more."

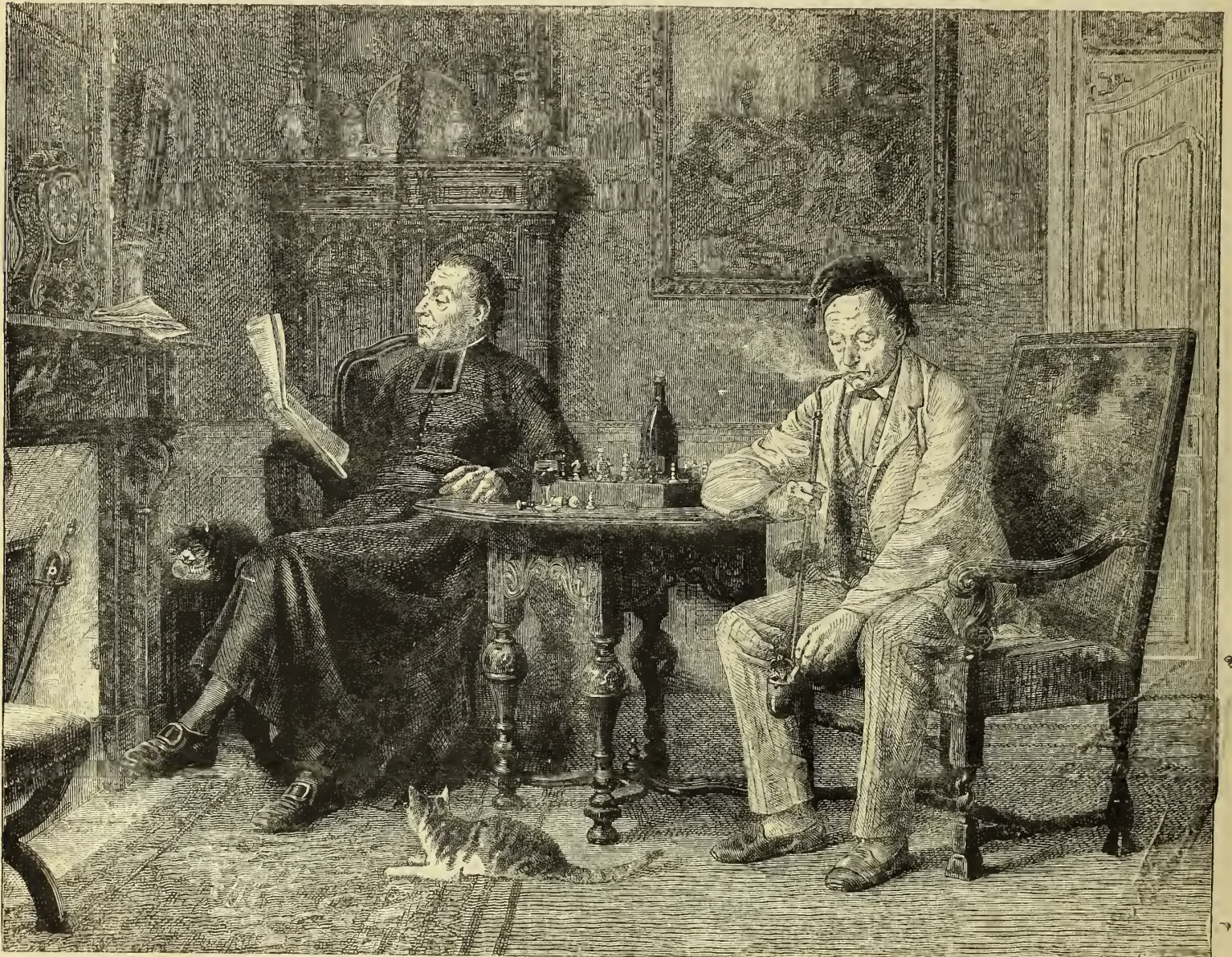
Then they went their several ways. Jack to the wheel, Jenny to the mowing machine, Eunichus to the mountain.

FABLES OMITTED FROM ÆSOP.

THE PICTURE OF THE WHITE COW.

AN old farmer went to an artist and said, "I want you to paint a picture of my white cow." The artist professed himself greatly pleased to receive the commission, and when the farmer said, "Mind you make the picture like the cow," replied that it should be a perfect portrait, aye, the very life itself. So the artist went to the farm and made his sketches, and painted the picture and sent it home. Then the farmer called upon him, and the artist thought he had come to pay for the picture, but in that he was mistaken, for the old farmer said, "It is not like my cow; it is a very bad picture; you have not kept your word with me." The artist stared for a moment, and then he said, "You must take my word that it is an excellent picture, and in the course of a few years will be worth more than you have to pay for it, for my works are becoming famous. You must not trust to your own judgment, because you know nothing about painting. You might as well attempt to judge a piece of sculpture as one of my pictures. You ask an artist to look at it and decide for you that it is a good picture." The old farmer was struck all of a heap; and

kind of speech he expected. But he said, in a kindly way, "It is plain to me that, however world-wide your fame may be, you have yet your business to learn. You thought a white cow out of your own head would do for me, but it will not; and if this matter is seriously disputed, the result will be worse for you than for me. My white cow has a black tail, one eye, and one crumpled horn. These peculiarities you never noticed when you made your sketches, because you did not know how to look at a cow, much less how to paint one. Moreover, on her flanks the white colour is tinged with pink, and on the back it is tinged with saffron. Your picture is not a portrait of my cow; it is only suitable for a signboard to hang out at a milk shop. When you tell me to ask an artist for an opinion, you ignore your own blundering and try to crush me with words. If men of the world who do not profess to paint are not to be judges of pictures, where is the final judgment to come from? When artists paint for artists will be time enough for your nonsense, but until that comes to pass the buyers of pictures will insist on determining if the pictures they would have are worth the money asked for them. I want no artist's opinion. I don't even want a farmer's opinion; and if you compel me to pay for this picture you shall have a world-wide fame for your ignorance of your business."



THE CHECKMATE.

(From the Picture by B. VAUTIER.)

for a few moments he said nothing. Then he said, "Young man, you presume too much on your talents, which I can testify are by no means great. You promised a picture like the life, and this that you demand a large price for is not like the life. I know nothing of painting, and now I discover that you know nothing about the features of a cow; for you have painted some other man's cow, not mine." It was the artist's turn now to be struck all of a heap, but he quickly recovered, and asked, "In what particular is the picture wrong? You know I went over to your farm to see the cow and make sketches, and I never make mistakes; my pictures are renowned throughout the world." To this the farmer replied that he cared nothing for the artist's fame; all he wanted was a proper picture; then, becoming somewhat warm, he said, "You have painted my white cow with two eyes and a white tail, and I will not hang up the picture to be laughed at." The artist was again struck all of a heap, and said, "Your cow may have half a dozen eyes for all I know or care; if I paint her I must paint her with two, according to the rule of nature; and as to her tail, what can it matter, a white cow ought to have a white tail. Why, if I sue you for the money, I can bring a hundred witnesses to swear that I have painted your cow in strict accordance with the highest rules of art." The old farmer was not struck all of a heap this time, for this was the

The artist now changed his tone and agreed to paint another picture, and they parted in a friendly manner, the old farmer saying, in a quite kindly way, "You know, I thought you wouldn't be able to do it the first time, and I knew you would try to talk me down because I am a plain man. But when you deny to plain men the right to judge pictures, it will be time for you and the others to leave off painting them."

MORAL.—Before assuming superior knowledge, consider if you possess it, or you may meet your match at an awkward moment.

THE DULCET DOLPHIN AND THE GRAMPUS OF THE DEEP.

There was a Dulcet Dolphin swimming past a dark cave, out of which came a Grampus, and said, "Mr. Dolphin, have you any knowledge? Can you sing, whistle, and dance, blow a trumpet, appropriate ideas, look wiser than you are a thousand times, and do the plausible in any dilemma?" To this the Dulcet Dolphin replied, "I know everything, and I can do anything, and I can look wise because I am so; and as to the plausible, that is my line exactly." The Grampus smiled with his mouth while he scowled with his eyes, and said, "You shall be my man of all work. Look, I am monarch of all I survey when I am in my cave; but I am monarch of nothing when I am out



THE BLOOM OF LIFE.

(From the Picture by W. MENZLER.)

of it. Come in with me and write letters, and placards, and essays, and histories, all about everything, and stick them all over the walls, so that we shall look very learned." The Dolphin assented and went to work at once, but he had not proceeded far when the Grampus said, "This is all very well, but you miss one point of your duty. We stand at the door of the cave and praise any fish that passes by in the hope of gaining something by it. We have offended some of the biggest, but generally speaking they like it; and the smaller ones are delighted. Now, you must learn to do this. See! see! there is a whale and there is a manatee—both noble fishes; go and flatter them; lay it on thick; praise them to their faces, and remember that dolphins do not blush until they die, and then they blush all over." So the Dolphin went out and smiled, and toyed about in the deep to attract the attention of the whale and the manatee, but these indeed took no notice of him. Then he went towards them and spoke loudly in their praise, and made himself extremely offensive. After bearing with this for some little while, the whale said to the Manatee, "Let us devour this silly hypocrite; he means well, perhaps, but we must make an example of him and have a meal at the same time." Thereupon they seized him, one by the head, the other by the tail, and at the first slight tug he parted between them, and great was their disappointment to find that instead of being full of meat he was but an empty wind bag, not worth the little trouble they had taken to expose his emptiness. And they were careful not to sail near the cave again.

MORAL.—Those who are most worthy of praise are the least likely to be patient with the empty flatterer.

THE WISE FELLOW THAT LOVED PUMPKINS.

There was a wise fellow that loved pumpkins, and grew a great many on hillocks and banks and other places. But being a wise fellow, he said, "How absurd it is of Nature to put these great fruits on frail vines that can not support them, so that vines and pumpkins all sprawl on the ground together.

she remembered she had asked Jane, the parlour maid, to put a blue sash on the doll, for that was too great a task for Annie. So she crept down stairs hoping to find the doll in the clothes basket in the kitchen, but before she looked in the basket she caught sight of some rosy apples on the table that the cook had put out for dinner. She forgot the doll, and bit a piece out of the rosy apple, and oh, it was so sour. "You nasty sour thing," she said, and threw it back angrily, and took the piece from her mouth and threw it in the fire. Then she went up stairs and forgot all about the doll. Such is the way of children. Now the apple was a very touchy sort of party, and his anger caused him to spread a brown colour over the part that had been bitten, so that he now looked a very ill-tempered and ugly apple. The cook returned to her work, and said, "Miss Annie has bitten a piece out of that apple, but it don't matter, there's not much of him lost; if they were as good for eating as they are for cooking those children would not leave me one of them." So she cut out the brown bitten part and sliced up the remainder with the other apples, and put them all in the pie, saying, "Better apples for cooking I never did see." It was too late for the bitten apple to rejoice, because he was cut into twenty pieces, but he might have said, "Our virtues generally meet with approbation; and we must bear to be told of our faults, for none of us are perfect."

THE TOAD THAT WAS A TOADY.

There was a big toad that a philosopher fed with woodlice and butterflies, and whenever the philosopher walked in the garden the toad followed him closely, hopping along in the most ludicrous manner. One day the philosopher had a garden party, and the toad hopped along at his heels in the usual manner. One of the friends who knew not of the intimacy that existed between the philosopher and the toad, took offence at the toad for its close-following of its master, and at the first opportunity put his heavy foot on it and crushed it to death. Then the philosopher bethought him of his pet toad, and said, "I will show you something very interesting." Turning round he beheld the



THE DULCET DOLPHIN AND THE GRAMPUS OF THE DEEP.

There is a great cherry tree, with boughs strong enough to bear men suspended on them, and yet it produces only cherries that are not so large as the top of my thumb. Now, I cannot change the course of Nature, but I can show how things ought to be done, and I'll grow pumpkins in a sensible way in future." So he planted pumpkins under the cherry tree, and trained the vines to run over the great branches, and as the summer advanced the cherry tree became laden with great pumpkins bigger than a man's head, and all shining like great apples of gold. Now, thought he, I will invite my friends, that they may be taught to appreciate my idea of how things ought to be in this world of imperfections. So he invited a large party to dinner, and told his servants to spread the dessert under the cherry tree that was laden with pumpkins. Therefore, when they had eaten the meats, the guests went forth, as they were invited, to the dessert under the cherry tree, and they were amazed at the wondrous sight, all of them declaring that common sense had come to light at last. "Yes," said the wise fellow; "a strong tree is better fitted to carry these pumpkins than a poor puny vine crawling on the ground. If I could rearrange the universe I would." At that moment a great pumpkin fell on his head and killed him, and the guests fled in terror. When they recovered from their fright, they hastily carried the dead man within doors, and then put a fence round the tree to prevent any further mischief.

MORAL.—It is not an easy matter to rearrange the universe, even for the advantage of pumpkins.

THE SOUR APPLE.

Little Annie had lost her doll, and she sat wondering what had become of it. Then she hunted in her mamma's work box and the drawer the cottons and tapes were kept in, but it was not to be found. After much sad thought

dead toad, and said, "Alas! my poor friend. You have followed me too closely, and I have trodden on you." But the guest who had killed him, said, "No; it was my foot that made an end of him. I was offended at his pretentiousness in following you so closely." The philosopher was angry, and said, "You have been cruel to a creature whose only crime was its close attachment to me. Now you please to keep at a safe distance, or I will kill you." And the guest was frightened and ran away home.

MORAL.—When you are in another man's garden do not meddle with anything without a good reason. Even a toad may be precious to somebody.

SOME verses on "Cabin Philosophy," stowed away at the end of *Scribner's Magazine*, are well worth abundant quotation. I have not of late seen simple philosophy better put than in the following:—

Dar's heap o' dreardful music in de very fines' fiddle;
A ripe and meller apple may be rotten in de middle;
The wises' lookin' traveller may be de bigges' fool;
Dar's a lot of solid kickin' in de humbles' kind o' mule;
Do preacher aint de holies' dat w'ars de meekes' look,
An' does de loudes' bargin' on de River ob de Book!

I hope that this will not be thought irreverent, for it is evidently not meant to be so.

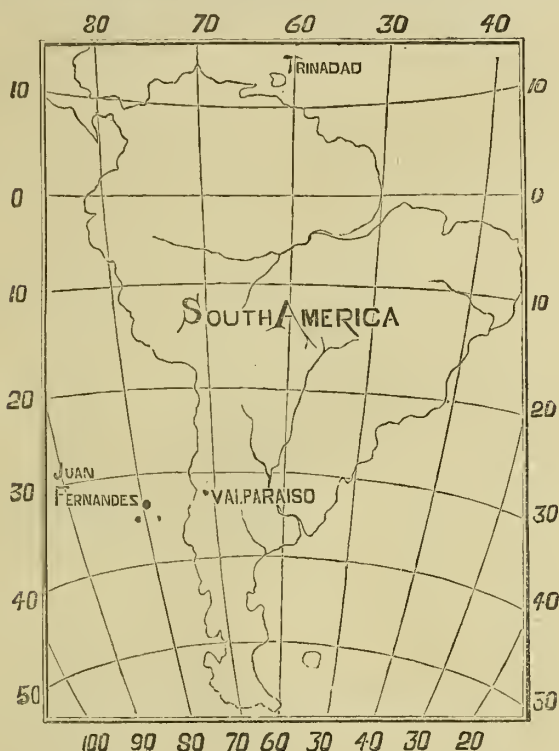
Well, you think dat doin' nuffin' 't all is mighty sof' an' nice,
But it busted up de renters in lubly Paradise!
You see, dey bofe was human bein's, jes like me an' you,
An' dey couldn't reggerlate deivselvs wid nothin' to do;
Wid plenty wuk befo' 'em, an' a cotton crop to make,
Dey'd nebber thought o' loafin' 'round an' chattin' wid de snake!

THE TRUE STORY OF ROBINSON CRUSOE.

THE "Life and Adventures of Robinson Crusoe," as told by Daniel Defoe with minute circumstantiality, will fill men's minds with surprise and delight even to the end of time. It has been read by everybody, and it will be read by everybody, and it has, and will be the subject of some curious misconceptions. Conversing with some young people on the wonderful man to whom we owe this wonderful work, I unfolded to them the true story of its origin, its progress, and its purpose, and these things were new to them, as might be expected. It was natural for them to say that the story of the book would equal the story in the book if told in print. To that I at once agreed, provided only, I said, that the immortal genius that produced the one could now produce the other. That being impossible, I would tell the story in my poor way, for of the dead it is said they cease from their labours, and their works do follow them.

The true story of Robinson Crusoe exists in the shape of scattered fragments of many kinds, to very few of which will special reference be made, because while it will be sufficient to tell the simple truth, it will not be necessary to burden it with many references. So, to begin at the beginning, we go to Largo, in Fifeshire, where was born, in the year 1676, one Alexander Selkirk. The humble cottage in which this prototype of Robinson Crusoe first saw the light, was situated about a mile from the kirk, but, as it was destroyed some years ago, it is not worth while to say anything more about it. The history of Selkirk and his wanderings will be found at length in a work entitled "Providence Displayed," by Isaac James, published at Bristol, in the year 1800.

Alexander Selkirk was the seventh son of John Selcraig and Euphan Mackie. At the age of nineteen (1695) he went to sea, entering his name in the ship's register as "Selkirk." He was unheard of until 1703, when he returned to Largo. In May of the same year he sailed in the Cinque Ports galley, under Captain Charles Pickering, in the capacity of sailing master. On November 24 they reached a port in Brazil, where Captain Pickering died, and was succeeded by Lieutenant Stradling. On December 8 they left, and



SKELETON MAP TO ILLUSTRATE THE STORY OF ROBINSON CRUSOE.

rounding Cape Horn reached the island of Juan Fernandez on February 10, 1704. The galley left the island in pursuit of a French ship, but returned to it. Then Stradling and Selkirk began to quarrel, and the latter determined to leave the ship. Accordingly he and his effects were landed, and the ship sailed in September, leaving him all alone in the beautiful island. It should be mentioned here that Selkirk had no such adventures with savages as are recorded in the story of Robinson Crusoe, and for the present we have nothing to do with that story whatever.

On February 2, 1709, the Duke and Duchess privateers anchored at Juan Fernandez. Selkirk engaged himself on board the Duke as mate, under Captain Woodes Rogers, and on the 12th of the same month sailed in her, and saw smart naval service on the way home. The Duke, with Selkirk on board, arrived at Frith, October 14, 1711, with a prize worth £170,000, of which Selkirk received as his share the sum of £800, and at once left for Largo. He was at his native place from the spring of 1712 to the year 1717. He died on board H.M.S. Weymouth some time in the year 1723, aged 47 years. In the *Panama Star* of October 6, 1868, is an account of the placing of a memorial tablet on the island of Juan Fernandez, near Selkirk's look-out, by Commodore Powell and the officers of H.M.S. Topaze, in that same year. In *Notes and Queries* of November 28, 1868, will be found the text of the memorial, and some valuable notes on the bibliography of the subject.

The birthplace of Selkirk was long ago destroyed, as above stated, but a few relics remain to give material interest to his romantic adventures. In the year 1792 John Selkirk, weaver, of Largo, a grand nephew of Alexander, possessed the gun he had with him during his solitary life for four years and four months on the island. Probably also in the same hands were his cup and chest, which in the year 1863 passed into the possession of Mr. James Hutchinson, of London. The cup had been put upon a staff, and mounted with silver by Sir Walter Scott. Finally, to finish this part of the story, it has to be recorded that in the year 1868 there were lineal descendants of Alexander living, and one of these, Mr. Thomas Selcraig, of 2, Glenorchy

Place, Edinburgh, possessed the flip can that he had with him on the island. This was a brown stoneware jug holding about a pint, and it bore an inscription, as follows—

"Alexr. Selkirk, this is my one.
When you take me on board of ship,
Pray fill me full with punch or flip."

The island of Juan Fernandez is situated on the western coast of South America, distant 360 miles from Valparaiso, in S. lat. 34° 28', and W. long. 79° 5'. It is eighteen miles long by six miles wide, and consists of trap and basaltic rocks furrowed with pleasant valleys, which are often richly wooded. The southern part is rocky and barren, the northern fruitful and beautiful, and possessing a safe anchorage for ships of any size at Cumberland Bay. In 1848 there were only eight inhabitants on the island. In December, 1863, the island was ceded by the Chilean Government to a society of Germans, under the guidance of Robert Wehrhan, an engineer of Saxony, for the purpose of colonization. He and his society, numbering sixty to seventy persons in all, took possession peaceably, and established themselves as an agricultural and industrious community. The beauty of the place, no less than its suitability for their sustenance, attracted them, and they found on the island countless herds of goats, and many half-wild horses and donkeys. They brought with them cattle, swine, poultry, implements, seeds, and fishing apparatus. To the swineherd of the party was assigned as his head-quarters the grotto of Selkirk, where the ground was found to be covered with wild turnips, the result of former cultivation. A cutting from the *San Francisco News*, affording these and other particulars, will be found in *Notes and Queries* for September 11, 1869, and in the *Times* of July 11, 1859, a full description of the island will be found. It is not needful to this narrative to enter further into this part of the subject, but it is proper to say that Juan Fernandez is not, and was not, Robinson Crusoe's island. To whatever extent Defoe might have been indebted to the story of Selkirk, it was not here that he laid the scene of his extraordinary fiction—for fiction it is, although the magical pen of the great master makes it look so like a fact. There were no savages within reach of Selkirk, and he saw none. From time immemorial the natives of the Chilean coast have been renowned for their high civilization. Their conquest by the Spaniards did not exalt them from a debased condition; it rather tended to degrade them from a refined and delicate habit of life some degrees towards a state of savagery.

Let us now turn to Defoe and his immortal book. The first volume of "Robinson Crusoe" appeared in April, 1719. At that time he was living in a substantial house of red brick in Church Street, Stoke Newington, not a trace of which remains, except in the name "Defoe Road," of the buildings which cover its site. It is scarcely an exaggeration of the truth to say that Defoe, then only in his 45th year, was well-nigh worn out with political conflicts and the harsh penalties consequent on his belligerent championship of the weaker side in the war then waging between freedom of speech and a grossly-corrupted Church and State. He had borne arms under the Duke of Monmouth; he had suffered in the pillory; he had been fined and imprisoned; he had been ruined in trade; and it cannot be doubted that his restless nature found a restful kind of work in picturing the career of a forlorn man in an isolated desert, remote from human sympathy and environed with dangers. You may enjoy the book while knowing absolutely nothing of the author; but the author's life is in it in more senses than one, and when the glamour of the glorious tale becomes dimmed in our memories it may be replaced by the glamour of the man whose great character shines through it as we see the sun shine gloriously through the richly-pictured glass of some old cathedral window.

And now for the island. You will find that Robinson Crusoe was wrecked on an island in the Atlantic ten degrees north of the Line, off the coast of Venezuela, in the estuary of the Orinoco. If a spot is to be selected as the site of the island, it must be by a careful study of the paragraph commencing "With this Design we changed our Course and steered away N.W. by W., in order to reach some of our English Islands, where I hoped for Relief," &c. The paragraph beginning "In this Distress" gives the situation of the ship in N. lat. 11° and 22' long. west of Cape Augustine. Now "With this Design" they are in lat. 12° 18', and by a second storm carried westward "out of the way of all humane Commerce," after which there are no more measurements of their whereabouts. The ship strikes, the boat is put off with all in her, and is soon after "swallowed up in a moment," and Crusoe finds himself, after a terrible struggle with the waves and death, the sole survivor of the wreck, "upon the Grass, free from Danger, and quite out of reach of the Water."

Between the Indians of Chili and the Caribs of Trinidad there was all the difference between a people noted for gentleness and patience and a race of desperate savages, whose highest ideal of enjoyment was a banquet of human flesh. It was in proximity to the Caribs that Defoe planted his recluse. The island itself existed only in Defoe's brain, but the details of the picture are consistent with its geography, and once again, as always before, Defoe displays an immensity of knowledge, not only of generalities, but of minute particulars, very much indeed of the charm of the story being the result of his delicate style of "pre-Raphaelite" painting, or, in other words, his well-studied realism as the basis of his bold imaginings. The Caribbees are a great group of islands extending from the Virgin Islands (N. lat. 18°) to Trinidad (N. lat. 10°), and Crusoe's island was probably (in Defoe's imaginary map) in the Gulf of Paria, in the estuary of the great river. In any case it is distant from Juan Fernandez nearly 3,000 miles as the crow flies, and the scenery described is altogether different.

That Defoe had heard of Alexander Selkirk is not to be doubted, and it may as well be granted, as scarcely worth discussion, that from the facts he derived the idea and some of the materials of his fiction. The greatest works of imagination the world can boast of rest upon facts in some way or other. The "Iliad" is an imaginative work, but Troy was a fact. The poet who ranks equal in fame with Homer, our own Shakespeare, had a few facts at command even for such a wondrous effort of the imagination as the *Midsummer Night's Dream*, for Theseus lived and married Hippolytus. Archbishop Whately gave his mind to the question of Defoe's alleged indebtedness, and came to the conclusion that "Robinson Crusoe" is a pure fiction, and not in any sense a paraphrase of facts. But all this, we repeat, matters little; everybody has read "Robinson Crusoe," and there is but one opinion current as to its freshness of incident, its reality of painting, its accuracy of detail, and its pure purpose and high morality. To discourse on the several features of the narrative is no necessary part of this paper, and we now hasten to the conclusion of our pleasant labours.

The last word to be said here in closing the True Story of Robinson Crusoe is by no means new, but it is curious, and will be new to many. This grand fiction is to be regarded as in part a psychological study, for it enters more fully into the workings of the human mind in the case of Crusoe than





does Hawthorne's "Scarlet Letter" in the case of the chief figure in that masterpiece of fiction. And it is not only a systematic analysis of the process of introspection, but it is an allegory of Defoe's life, which was all ups and downs, minglings of hope and fear and joy and anguish, "life's fitful fever" being to him as frequent in trying incident as he made it for his Crusoe. A close allegory it is not. He was too great a master of the art to establish an exact parallel between the much-suffering pamphleteer and nonconformist and the lonely man he had planted in proximity to the Cannibal Islands, for the edification and delight of all future ages. He was himself Crusoe, the Tories were the cannibals, and the first savage he killed was Sacheverell, the Tory divine, against whom Defoe had quarrelled enough. But we do not find in his chequered career the prototype of the man Friday, whose description is correct enough for a Carib of that time, but should have a counterpart at home to sustain the idea of an allegory.

I shall conclude this sketch with an extract from Henry Kingsley's biographical introduction to the Globe Edition of "Crusoe." Having referred to the theory of an allegory, he says, "Mark Crusoe bringing well-ordered decorous Protestantism out of the disorder of nature, until he has got himself into a (may I say it?) somewhat self-righteous—nay, even priggish—state of mind. Mark how the whole of his religious castle tumbles into the dust at the first sight of the footprint on the sand. Pass through his phases of blind fury and anger, and once more of his dog-like cowardice, when he at one time determines to murder these cannibals like dogs; and again goes about with God in his solitude, as to whether or no he would not be a murderer for killing any of them, seeing that their sin was gregarious and national, not individual. Pass on until the time when the footprint in the sand, with what came after, brought on him a dull terror of the solitude he had endured so long, and with it a craving for one human companion: 'Only one, O, Lord! only one!' to quote his own words, when his self-contained orderly Protestantism fell to pieces around him, and the fierce craving for human society came on him in his solitude and his 'preternatural suspicion!' Mark all this, and say that Defoe was not a genius, such a one as does not appear once in a century."

THE DISAPPEARANCE OF DURHAM.

A SEQUEL TO "YORK, YOU'RE WANTED."

MORE than once I have heard a philosopher say that the surest way to be miserable is to endeavour to renew the joys of youth. I begin to believe it. Being now in the sere and yellow leaf, and wishing to renew some early impressions, I lately visited the place of my birth, and there I found things so changed that I quickly fled in a state of mental and moral prostration, so that to say I was disappointed would be to use a term quite inadequate to the horrible occasion. Strange to say, this shock did not make a lasting impression, or I should not have spent my brief holiday in a dingy town to be cheated of the only pleasure I had anticipated. Yes, instead of betaking myself to the seaside, or to the green hills, I returned to the town in which I had passed some of the more active years of my life, in order to renew acquaintances and revive old memories. Things were not so much changed there as in the place of my birth, but they were changed, and the changes came home to me. The streets were the same, and many names over shops were the same; and the old wooden post at the corner of a street on which, many years before, with great labour and danger to my fingers, I had cut my initials, was still standing a little out of the perpendicular, and I could trace where my letters had been, though they were now almost obliterated by the cutting of other letters over them. However, as the evening was darkening, I thought of the smoking room at the Blue Lion where we used to have such lively talk and occasionally such boisterous fun, and now and then a little serious philosophy. So I turned in, ordered refreshments, lighted a cigar, and looked around me. Well, there was nothing to look at. I had come too early; the few faces in the room appeared to be those of strangers to the place—travellers, probably, who are here to-day and gone to-morrow. After a few melancholy puffs at a bad cigar, I took out my pocket book and wrote in it, under the proper date, "Blue Lion, misery No. 1." Then I puffed and reflected.

When I had several times freely cursed my own impatience, the state of things began to improve. A few unmistakable townsmen began to drop in, but none that I knew. At last, becoming desperate, I made some frivolous inquiries about the restoration of St. Ann's Church, and the person to whom I appealed referred me to a broad-faced, good-tempered looking man who was silently smoking a long pipe and looking very intent at the ceiling. Now I was in for it and so was he, for he asked in a very kindly way if I was interested in the matter, and if he might enrol me as a subscriber to the restoration fund. There was but one way possible to meet that question, and so I took my place beside him, gave him my name and a piece of gold, and sat silent, hoping for the best.

The policy prospered. He became talkative, and, without appearing too curious, I now and then asked him about this or that old friend. He had never known me, and he was unacquainted with several of the persons I inquired about, but he could tell me of them, for he was a busy local official, and apparently a man of universal information. He satisfied my curiosity on many points, but he gave me no pleasure, for A had died, or B had become bankrupt, or C had married badly, and D had gone to a hospital, &c. Now I must tell you that my one great hope in visiting this dull town was to renew my old friendship with one whose name I must not put in print, but as it begins with the letter B, I will call him Edmunds. I asked my new friend about him, and he startled me by saying, "There he sits, under the clock; I wonder he comes here; it is scarcely decent, for he casts a gloom on the whole room." To be sure, there he sat, looking as wretched as if he had heard his death-warrant read, his once merry face now seamed with dark lines, and his fingers nervously employed in pulling to pieces the spills provided for the smokers. "He is much altered," I said, in a low tone. "Altered!" said the other, "he is crushed; he ought to leave the place and begin life again in a larger place, and he might then manage to forget the Disappearance of Durham."

For a few moments I must have looked abstractedly towards Edmunds, for when I turned my head there was a vacancy where my communicative neighbour had sat; he had quietly disappeared, leaving me to brood upon the Disappearance of Durham.

Instead of introducing myself to Edmunds, I rose and went away. Within an hour afterwards, in unpacking a few trifles I had purchased in the town, and waiting for my supper, I found one of these wrapped in a piece of a local newspaper long out of date, and, running my eye down the ill-looking sheet, I saw in large letters, "The Disappearance of Durham," and thereafter followed a paragraph from which I gathered that since the disappearance of Durham

no clue had been obtained to his whereabouts, and that consequently the many in the town who had suffered by his disappearance had no means of remedy or revenge for their wrongs.

As a matter of course, I began to dive into the depths of my memory to find some trace of Durham. I might find the name on the map—and indeed I was then almost within the hearing of the cathedral bells; but the disappearance of Durham was evidently a matter of personal importance, and bore no relation to earthquakes or cathedral cities. I did not want my supper, and I did not care to sleep—I could but ask myself again and again, "What do they mean by the Disappearance of Durham?"

There was one course clearly before me in respect of the painful curiosity that had been aroused in my breast. When evening returned I again made my way to the smoking-room of the Blue Lion. My pleasant friend of the night before came to the seat he had previously occupied, and appeared glad to see me again; for, as he said, "Years ago we didn't much care to see strangers here, for they sometimes spoiled our fun; but now a new face is a god-send, for we've had no fun since the Disappearance of Durham."

I was about to damn Durham, but, supposing him to be sufficiently damned already, I kept a thin smile on my face, and very mildly asked if Edmunds had suffered much by Durham's dereliction.

"Suffered much?" replied the large-faced man; "he suffered so much that no one can understand why he stops in this town where he has been robbed, and made a fool of, and laughed at, and has now no prospect whatever, except to end his days as an imbecile in the workhouse. You will remember perhaps what a busy man he was, and, though poor as a church-mouse, was always respected and trusted in everything, because of his ability and public spirit, and thorough uprightness of character. He might have been well off by this time with a little prudence, but he subscribed to all sorts of causes much beyond his means, and worked beyond his strength in committees and as secretary to this and that. As to getting up a flower show, he was great at that, and no one knows what it cost him. Well, you see, the time arrived to make Edmunds the subject of a testimonial. It always does arrive to a man who goes a few steps out of the beaten track, and he, poor fellow, had made more steps than were prudent. However, the movement prospered; the money came in well, and a happy thought occurred to Edmunds. Mind you, if all had gone well, we should never have heard of this happy thought, but things went ill, and the truth leaked out. He heard from his friends that he might expect a purse of a thousand pounds, and he said to himself, 'I can make two thousand of it by a little dodge, and I have but to keep my own counsel.' Then he began to pay in sham subscriptions. He would send, say, twenty pounds of money, out of his own pocket, with a letter signed W. B., or in some other way that had a genuine appearance. By the time the committee were ready to wind up he had paid into the fund, *out of his own pocket*, mind, every shilling that he possessed, amounting to twelve hundred pounds. How much the other part of the fund consisted of no one knows, but it was proved by books and papers in possession of members of the committee that there had been eight hundred pounds subscribed by the town some days before the Disappearance of Durham."

At this juncture I felt as if I could heartily knock the large-faced man on the head, and send him after Durham, for how should I know what he had to do with this melancholy story? But I did manage to keep my hands still, and to force another ghastly smile upon my face while I asked, "Was there no final account, then, of the fund?"

"Final account?" asked the other, "that was the final account. Durham disappeared; Durham robbed everybody right and left, including Edmunds, who had surreptitiously, to gratify his own vanity by swelling the total of the testimonial, paid over to him every shilling he possessed, so that Durham, as we know, robbed Edmunds of two thousand pounds in all; and being the treasurer to the testimonial, no one could ascertain the exact total, for as a matter of course he did not leave his books behind him. So, you see Edmunds was pitted in the first instance because Durham had carried off the eight hundred with many other people's hundreds and thousands. But when it leaked out that Edmunds had certainly played into his hands to give a false *clôture* to the testimonial, then they called him a fool; then they laughed at him; then they abused him; and now the wonder of the town is that he still hovers about here, and actually comes to this room, which has been a sort of mortuary since the Disappearance of Durham."

At this juncture I rose to light a cigar at the gas jet over the table, and looking round I saw an empty place where my large-faced friend had sat, and almost at the same moment the melancholy Edmunds came in and sat as before under the clock, and began pulling the spills to pieces. Taking a casual glance at him, I put on my hat and went away, a wiser man, perhaps, certainly a sadder man, for having heard so much of the Disappearance of Durham.

SUMMER-THOUGHTS IN WINTER-TIME.

(Dorsetshire Dialect.)

WELL, aye, last evenin', as I shook
My looks ov hay by Leccombe brook,
The yellow sun did weakly glance,
Upon the winter mead aslant,
A'-casten out my narrow shade
Athirt the brook an' on the mead.
The while, again my lonesome ears,
Did rattle weather-beaten spears
Below the withy's leafless head,
That overhung the river's bed.
I ther' did think o' days that dried
The new-mown grass o' zummer-tide,
When white-sleeved mowers whetted blades
Run sh'll along the green-boughed gleades,

An' maidens gay,
Wi' playsome chaps,
A'-zot wi' dinners in their laps,
Did talk with merry words that rung
Around the ring from tongue to tongue.
An' welcome when the leaves ha' did
Aro zummer-thoughts in Winter-tide.

Barnes' Poems.

A SWEET way of dealing with a difficult subject was hit upon the other day by a parson in Devonshire. In speaking of "Dives," he said, "He was not a bad-hearted man, not a cruel man; on the contrary, we might infer that he was a kindly-disposed man, for we learn that he deprecated the introduction of his brethren into that unpleasant locality where it was his own unhappy doom to abide."

BEANS WITHOUT BACON.

A PYTHAGOREAN ROMANCE.

THE last time we chatted together you made me promise I would tell the story of my Pythagorean experiences. To laugh at them now might be an easy matter, and yet the latent humor of the affair never comes home to me as I am sure it would were the story another man's instead of being my own. In the hopeful time when I came to London to work up for my degree, and took the genteel lodgings in Lattingham Square, it was my boast amongst the "fellows" that I could laugh at my own expense if the joke went against me; but I have since learned that there comes a time when feeling interposes a barrier between ourselves and the ridiculous side of our experiences, and then, failing to see where the fun comes in, we dwell upon the smart, and leave to lookers-on the lighter task of laughing at our folly and misfortune. The very first little assembly for social purposes in which I took a part, by the invitation of a fellow-student, brought me into contact with a man who made a great impression on me. Before the introduction took place I was told to look for a genuine revelation of originality, and I was desired to be a little cautious, because the interesting person held extreme views, and could not endure the slightest word of sarcasm. And so I put myself on the best possible behaviour, and conversed for an hour with a strange-looking man, who professed himself a strict disciple of Pythagoras. His name was Jedihah Alger; he would not willingly be addressed as "Mr.," and to attach the customary "Esq." to his name gave him great offence. He was a man of means and leisure, devoting the whole of his time to an indefinable cause called "Progress," and mixed up one way or another with an infinity of "movements." A more picturesque example of man I have not met in real life, nor has the stage, with its manifold presentments, ever yet suggested to me the shadow of such a man. He was grand to look at, with his refused features, lofty brow, and rich brown hair piled upon his head in curly masses, as if there was a lot of the best to spare when he was fashioned. He was patronising to me, but pleasant, and very communicative in respect of his views, which appeared to be, without any exception, the very opposite of those generally entertained by the mass of mankind. The very first remark he made after the small ceremony of introduction was over was to tell me something about myself that I was then not aware of, but some time subsequently discovered to be true. He saw in my face an indication of Jewish blood, and then he confided to me that the English people were the undoubted descendants of the lost tribes of Israel. This point I argued with him, but he soon proved that the Welsh language is derived from the Chaldee, and this being but a dialect of Hebrew, places the old British race in the line of the lost tribes at once. Then I argued that the British and the English are, as regards their several beginnings, widely separated; and he met me by proving that the English people came from Holstein, and that Holstein was peopled direct from the places where the lost tribes were last heard of. Then he discoursed on the ruin that impends over all the nations that eat flesh or make any use of salt, saying that for many years no flesh meat and no salt had been permitted in his house. He had a ready-made panacea for everything evil, including war, disease, poverty, crime, superstition, and discontent. I was not long in making the discovery that this man exercised a great influence within a certain circle, but beyond that circle was regarded as a very picturesque and entertaining fanatic—one who could not be answered, but could not be followed, for of compromise he was incapable, and was reported to live up to the high (or low) level of his very extreme opinions.

It is somewhat singular that I should be brought into the closest intimacy in a certain way with Mr. Alger, and yet should remain to a great extent ignorant of his character. And the facts would be as well forgotten, except as to the one point on which you were interested when we had the little talk that made occasion for this narrative. Through his persuasion I joined the Pythagorean Society, the first conditions of membership being complete abstinence from animal food, alcoholic drinks, and salt, a general repudiation of all doctors and all drugs, and the use, as far as possible, of clothing derived exclusively from the vegetable kingdom. In attending the meetings of this body I made acquaintance with many strange characters. There were some who professed themselves utterly unable to touch money, but I have often suspected they would touch it with some degree of energy if they had but the chance. Occasionally we were treated to learned discourses on the doctrines of Pythagoras, and the preparations of the novitiates for the mysteries of the faith, including the Silence and the Regimen, and the true theory of Mathematical proportion. But much of the time of this sublime body was consumed in the discussion of extravagant trifles, in the midst of which one night I involved myself in unspeakable difficulties by introducing the subject of Beans. Why did Pythagoras prohibit the eating of beans? I had a notion of my own on the subject long before I heard of this society, but, of course, I was wholly in the wrong. It is not for any physical reason whatever that the great philosopher prohibited nourishing pulse, but for reasons moral, metaphysical, and symbolical; but time has taken the force from his objections, and we may eat beans, but we may not eat bacon with them or without them. It seems that the temptation to eat bacon with beans is a sufficient reason for the prohibition of beans altogether. In the first place, the pig is the vilest of all possible food, and the eating of it the cause of all contagious diseases. In the next place, as all the Gentiles have descended from the house of Israel, there is in the common conscience a tradition of antipathy to the unclean food. But when the nature has been purified of its fleshly lusts it gains freedom, and beans cease to act on the imagination and the appetite as an incentive to eat bacon. Therefore, in the third stage of Pythagorean perfection (after the Silence) the disciple may eat beans, and I discovered that the disciple always took advantage of the opportunity and made himself ill with them.

That I was drawn into the net and made a full novitiate will not surprise you, for you know how pliable and impressionable I am. I could smile, I could even ridicule the absurdities that surrounded me, and yet I had a secret liking for all the singularities of the sect to which many plausible persuasions had attached me. Perhaps vanity aids us in putting ourselves apart from our fellow men, and thus we are enabled to set common sense at defiance. But it matters not now. I was irresistibly attracted to Mr. Alger; he was as good as Pythagoras himself to me; I thought I could see through him, and in moments of meditation felt that I had put myself in training for fanaticism

and folly, and yet I could not turn aside; I could not trifle with myself so much as to doubt a faith to which I had professed adherence.

But how to live? My means were sufficient, and my friends at home had faith in me, although it was observed that in working up for my degree I made but slow progress. I say, how to live was the question, for my new notions of food were fatal to all common sense cookery, and my excellent landlady, Mrs. Warner, mingled pity and contempt in the most delicate manner when I instructed her as to the preparation of my meals. By steps not slow, but sure, the question of daily food became a burden to me, and this at a time when appetite was keen and the frame needed generous support. I endeavoured to get over the difficulty by dining at a place of public resort. But this was a grave mistake. The waiters avoided me, and when I insisted on having attention they treated me badly, and my miserable meal of vegetables was absolutely uneatable, and was not in the least aided in attractiveness by the glass of ill-tasted water with which I endeavoured to wash the rubbish down. But this was not the only agony of the public dining room. Resorting to the same table regularly, that the waiters might become accustomed to me, and understand my curious orders for potatoes without gravy, and pudding without snout, and bread without butter or cheese—for none of these animal products are admissible in the Pythagorean dietary—I attracted the attention of other diners, and they made bold to question me. The result was that the instant I took my seat I was involved in discussions, and very soon began to feel that I was a nuisance. One man would coolly tell me I might eat fish without breaking my pledge. Another would insist upon it that oysters were not animals, and if I might not eat beef without violating my faith I might get fat on oysters, and lobsters, and cray fish. And a third would charge me with gross hypocrisy, and slyly ask what deep purpose I had in view in coming there to injure the house and make people uncomfortable? I protest here that if I had been quietly served with what I asked for, and had been left unmolested to eat it, I should never have uttered a word upon the subject of my peculiarities. But I was forced into it; the moment it was seen that I could banquet on sprouts and carrots for the first course, and bread and raisins for the second, every man within view of my dinner protested against it, the cynics asking ridiculous questions or making still more ridiculous propositions, the more fatherly sort saying kindly, "If you don't soon give up that nonsense you had better order your funeral, for you will soon be ready for it."

Now I must do Pythagoras—I mean Mr. Alger—justice. He was generous hearted. His curious views prompted him to strange deeds, but he possessed a touch of true humanity, and when I told him of my difficulties he responded heartily by saying he would make room in his house for me if I could conform to his severe habits of life. To this I agreed, and I am sure Mrs. Warner was delighted to get rid of me, for she plainly said, "You are looking very ill, sir; and I don't wonder at it, but I don't want a death in my house."

And so I took up my abode with Mr. Alger, and there, of course, I met with Mrs. Alger, and Miss Alger, who in the family circle was called "Arabella," and it was not long before I was also permitted to call her by her first name, for "Christian" name it was said not to be. But these people were Christian, of a sort. They managed to make the New Testament conformable to the doctrines of Pythagoras, and they said the mystical number 666 afforded proof beyond all question that the scheme of Christianity was a great ethical development of mathematical proportion. It was the custom, I learned, for each member of the household to begin the day with a cold shower bath, followed by rapidly walking round the garden thirty-two times, this being the total of some Pythagorean measurement which I have forgotten. I took my part in the programme, and in walking round I noticed that the neighbours were at their windows watching, and more or less admiring the proceeding. Some laughed aloud, some applauded by clapping their hands, and on the morning of my first appearance I was hailed as the "new fanatic" by some lewd fellows who disgraced the respectable looking windows from which they shouted their unwelcome greeting. Then we sat down to breakfast; there were no newspapers allowed in the house, and letters addressed "Mr." or "Esq." were refused and returned to the postman. I had to be pretty smart in writing to my friends to instruct them how to address me, but I did not dare to explain fully or I should have been summoned home in a summary manner. The dietary consisted chiefly of whole-meal bread made without yeast or salt. The objection to yeast (from the Pythagorean point of view) is that it causes fermentation and the production of alcohol, which of course is all dissipated by the heat of the oven. We had cakes made of oatmeal, but no butter; in fact, there was no shadow of animal food, not an egg or a drop of milk allowed. I made this discovery bearing upon beans—that the dietary was so tame and insufficient that they could not do without beans, and strange to say the white haricot beans that were slowly stewed until they were almost melted into a kind of cream, which was enriched with a little olive oil and sugar, was the only satisfying food on the table.

But I was very happy, and for two reasons. The severe domestic system did not prevent me having an occasional small gossip with Arabella, and this soon acquired a tender character, and ended with a squeezing of hands, &c., &c. I often think now that our little interviews were the only passages of genuine healthy human nature that were known to that house. Mrs. Alger was silent and submissive, the very model of a crushed woman. The daughter was silent and apparently submissive, but she would insist on occasionally translating a bit of Latin law for me, and she did it well, and it was not known to the elders that her wages were kisses, or that we could manage to get off a whole bookful of conversation by occasional looks across the table.

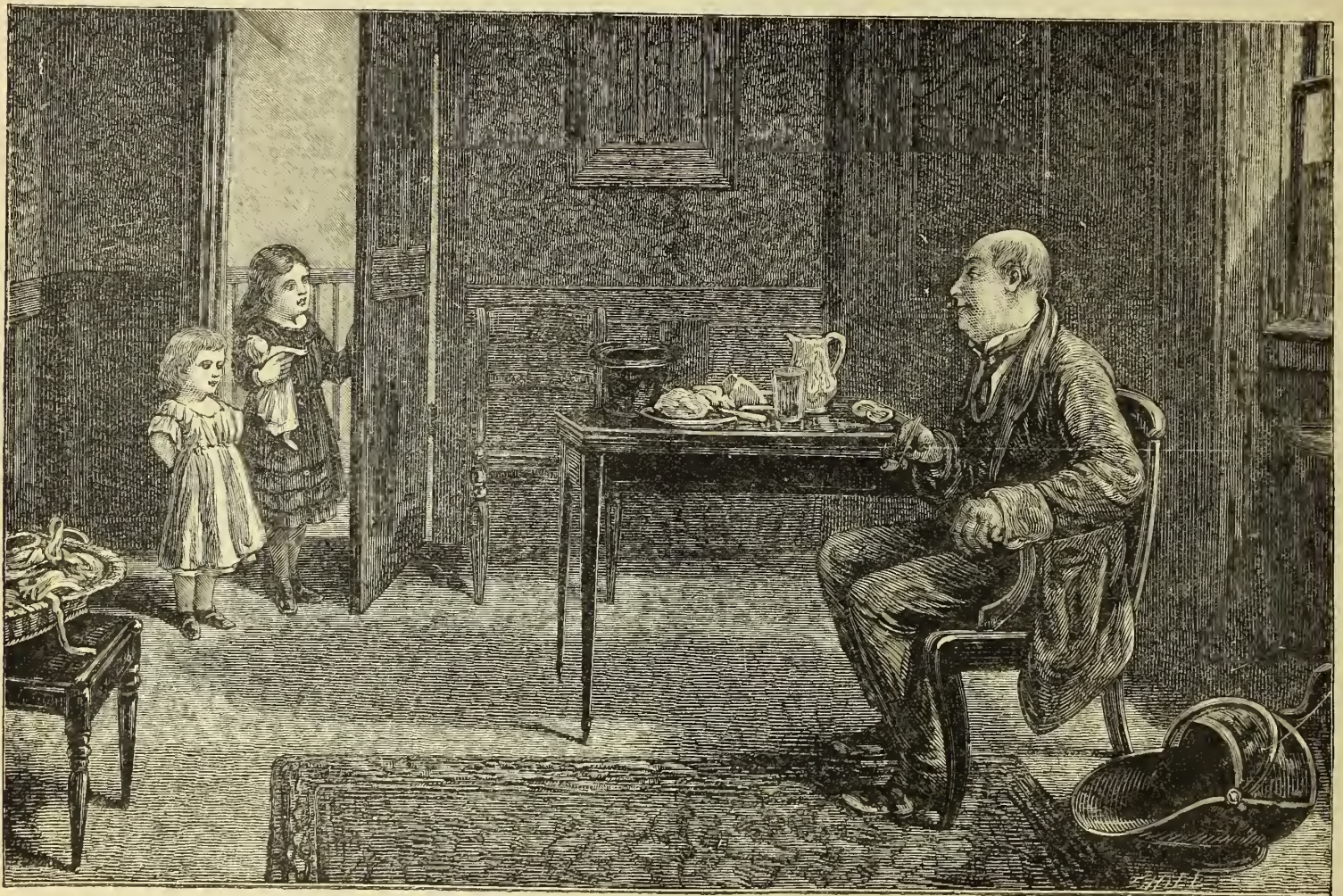
So much for one cause of my happiness. The other was of a less satisfactory kind, although I knew not then its exact nature. But hear the truth, my friend, and turn Pythagorean if it suits you. From the moment of accepting this doctrine I felt myself in some way exalted, and the sense of exaltation was ever on the increase. I cared little for food, for I had learned to live on ideas, and my dietary seemed to require some sort of seasoning. I was conscious of undoubted superiority to the rest of mankind; I breathed as one who had taken an overdose of ether, and the sense of exaltation affected my limbs, so that occasionally I felt persuaded I could walk above the earth without touching it, and this I accomplished on several occasions, always finding myself in bed after the performance, and being quite ignorant how I found my way there. As I was not allowed a feather bed (that being forbidden by Pythagoras), I never slept soundly, for at home I had been a spoiled child, and now in working up for my degree I had changed into some sort of an angel, so I felt, but was half ashamed to own it even to myself. But I got beyond this, for I learned to walk in the air, and in the great space above the earth, not only at night, when the feat was in some way associated with my dreams, but in the full day, and my chief distress in regard thereto was the tremendous shock that resulted from my first touch of the earth when I came down suddenly, as I was wont to do, from the altitude of a comet, and once from the

pole star, to which I had ascended at one bound, and only lost my hold of the star through clutching at the villainous smoke that came from a man's pipe in Regent Street, where I happened to be walking on the way to the London University, when the delightful exaltation occurred. I composed great oratorios, but did not trouble to write them out, because of my tenacious memory. Odes and sonnets I made by the thousand. All the great literary mysteries, such as Who was Junius? Who were the Parents of the Man in the Iron Mask? and Where is the original manuscript of Shakespeare's plays? (to name only these out of a thousand), I discovered answers to, and when I had gathered up a great body of wisdom that exactly fitted the dome of St. Paul's, and a pair of gigantic wings had sprouted from my shoulders, I was conscious of some one saying, "This is a case of del. trem.," and the world went round slowly and life itself melted away in the music of Euclid's thirty-seventh problem.

The seven days of unconsciousness I can give no account of, but I can tell you something of the eighth. I surveyed the scene with some degree of collectedness, and presently discovered that I was in my own bed in my own room. It was my clock that first, as I may say, struck the proper note of consciousness for me. It was a great effort for me to turn my head and look around; but oh! how tremendous for me at that moment was the discovery

in Germany, to lay the foundation stone of a new centre of Pythagorean fanaticism, comprising a gymnasium and water cure and anti-salt, and beans without bacon society, and might not return for some months, there being in the programme an infinity of meetings and speeches, and festivals of brown bread and water-cresses.

If the beef tea alarmed me, what was my condition, do you suppose, when I learned that there was a chicken at the fire in my interest, and I should be expected to eat a little of it? I recovered at a most rapid rate; in two days I was able to sit up and talk for an hour, and I agreed that if all was well I would rise the next day and sit at the open window, for the time of high summer was near at hand. A curious kind of prudence kept me from answering questions, but now I learned much more than I had any desire for. In the first place, Mrs. Alger, in her own kind motherly way, told me that she saw I was dying through insufficiency of nourishment, and when the delirium came she knew its meaning, and dismissed the doctor, and determined there must be an end of the dissimulation that had so nearly cost me my life. Above all things, she begged me not to disclose to my friends what had happened, or what I had discovered of the secrets of the house, for in a few days I should be well and engaged as usual in my studies. I was much perplexed at the words "Dissimulation," "Secrets of the House." She referred to the change of dietary of course, but of that I thought nothing, for a teetotaler may take brandy if it is needful to save his life. My dullness prompted her to speak



THE MAN IN POSSESSION.

(From the Picture by ALFRED DIXON, in the Winter Exhibition of the Dudley Gallery.)

that Arabella was sitting beside me with a cup in her hand, and any amount of anxious tenderness in her features, including, of course, a little tear in each of her eyes! Without a word she rose and put the cup to my lips, and I drank, but I knew not what it was, for I drew down into the bed again and went to sleep. It is to me a marvel that I remember so well that little event, because, as I came out of unconsciousness and returned quickly to the same negative condition I might have forgotten the interlude. But Arabella remembered it, and we conversed of it afterwards, and thus I became satisfied that at the moment of waking I was at least in some degree sane, and the experience, therefore, was worthy of remembrance.

The next awakening was of a less transient character. The good girl was there still, and the cup was there, and by the taste of it I knew it to be beef-tea! Then I learned (but the telling was tenderly done) that I had fallen, and a doctor had been called in by the ladies, and he had pronounced me a secret drunkard suffering from delirium tremens, but they knew that I had become delirious by exhaustion, and that my case was one of simple starvation, needing just such treatment as that of a man who had been for eight or ten days immured in the rubbish of a coal mine as the consequence of an explosion, and who has to be restored to life from a state of collapse. Yes; I was being restored by the aid of beef tea, and as soon as I was able to reflect I felt a fear of being detected by the living Pythagoras.

Then, to my inexpressible relief, I heard that he had gone to Heistenberg,

more plainly, and she declared that her husband sustained his health by taking nourishments in secret, whereof raw eggs were found to be particularly convenient; and for herself and Arabella, there were many things available that were never seen upon the table, for the open profession of abstinence had been made by them all, and must be adhered to, or there might be danger. I confess I was afraid to ask wherein the danger might lurk, but some inward monitor checked me. However, a touch of humour changed the current of talk, for I proposed that I would rise and dress next day, and have a walk round my room, and that it would be a capital opportunity for a little dinner of beans and bacon. This matter was quickly concluded in my favour, and in a few minutes afterwards I was enjoying another sweet sleep.

All went well, and when morning came it was arranged that we should all dine together on beans and bacon in my sitting-room adjoining my bed-room. I was dressed in good time, and felt stronger and fresher than I had expected. It strangely happened that my brother Tom had come to London unexpectedly, and having occasion to see me had posted on, and I heard his wheels rattle up to the door. How glad I was he did not find me in bed! but he saw that I had been ill, and I told him just enough to satisfy an ordinary curiosity. Naturally Mrs. Alger invited him to dine with us, and very shortly, therefore, the humble meal was served. A good soup led the way, and this, as it happened, carried me through an unexpected trial. We had entered fairly on the principal dish of beans and bacon, for which, having partaken of

soup and a little fancy dish of kidneys, I had no appetite whatever, but was putting a good face on the matter, when the door opened with a sort of crash, and there entered and stood before us, aghast at our impiety, Pythagoras. To attempt to describe the scene would be to speculate on an impossibility. He looked from one to the other as we all rose together, knowing not what to say, and the strange theatrical pause that ensued gave me just time enough to gather up all the hate and scorn in my nature to hurl it in some concen-

to pursue my studies once more, and to vary my work with an occasional groan for my knowledge of the family and the "dissimulation." It was a happy circumstance for me that the spell was broken, although I shall never forgive myself for my behaviour in a moment of passionate scorn and hatred when physical weakness had well-nigh destroyed all self-control. But I was not long in learning what Mrs. Alger meant when she spoke of the possibility of danger; for it transpired that Pythagoras had been familiar with the interior



THE MARKET CART.

(Drawn by FITZGERALD.)

trated form upon him. But he first spoke in words that implied that I had instituted a defilement of his house and a degradation of his principles. Not knowing what to do, and being utterly tongue-tied, I seized my platter of beans and bacon, and sent it flying in his face. What next ensued I know not, for in that effort I paid out my remaining strength, and when I recovered consciousness I found myself in Tom's room at his hotel, where I needed another short spell of nursing to restore me to my former state of convalescence.

From being on the high way to marry Arabella Alger, I was now on the way

of a madhouse, and had to renew that familiarity on his return from Germany. In fact, he had hurried home to evade the law, having been pronounced unfit for the enjoyment of liberty by two German doctors, and when I treated him to beans and bacon he was meditating my destruction, for he was fully persuaded that in me he saw the Evil One commissioned to expose his hypocrisy, and hunt him as a scoundrel through the world. Poor Pythagoras, he was, perhaps, scarcely blameable under the circumstances, for his double dealing and his nearly complete success in killing me.

HOMER'S GARDEN.

THE exceeding scarcity of information on the subject of the gardens of antiquity is a constant trouble to all who make inquiries as to the beginnings of things. The wars, migration of races, and changes of dynasties that constitute the chief features of all early history, are often sufficiently circumstantial to furnish subjects for the modern historian, the painter, and the critic, who may severally work upon them with little fear of error as to matters of primary importance. But when we ask the old books to tell us about the gardens of the people who fought here, migrated there, and were interested in various dynastic factions, the old books are generally silent. And it appears to be a proper conclusion of a first superficial consideration of the subject that the reason of our learning so little from ancient authors on the subject of gardens is that there were no gardens to report upon, or at all events so few, and those so unimportant in character, that they afford no proper subject for discourse. Exceptions to the rule will at once occur to the reader. He will perhaps, in the very first instance, bestow a thought upon the Garden of Eden, and next perhaps on the Hanging Gardens of Babylon. In a certain broad sense of the term, therefore, it must be granted that gardens were formed and planted in very early times, but they were very different to the enclosures that now bear the name. This view of the case is illustrated in the paper on the Hanging Gardens that will be found in the issue of this Magazine for December 20, 1879. Of the garden in which our first parents were located it would be out of place now to discourse, for the main object of this paper is to direct attention to two passages in Homer's "Odyssey," in which gardens and gardeners have a conspicuous place. The allusions to gardens in the Old Testament prepare us in some way to the understanding of the general subject, the gardens of ancient Palestine having been enclosures in which melons and cucumbers and fragrant plants were grown, the object of enclosing being to protect the crops from thieves and wild beasts, as also to localize the irrigation which was one of the principal matters to be considered in the practical management of the garden.

The best known of Greek gardens, such as that of Alcinoüs and the Hesperides, although they probably existed only in the imagination of poets, yet they suggest to us that the idea of a garden was not greatly different to that now prevailing, for they were filled with fruits and flowers, and adorned with fountains, and separated from the corn land and the vineyard to render them secure. But we have after all to deal with facts at some point in the story, and then the garden is found to be not much else than a little farm, for very few flowers were grown, and landscape effects were not thought of, and utility appears always to have had the preference over what we should term beauty. But Aristophanes in "The Birds" (v. 1,066) speaks of flower gardens, and flowers were as much needed then as now in the service of religion, the decorations of altars and of the persons officiating thereat causing a constant demand for them.

As regards the time of Homer's appearance, the authorities are not agreed; but on the other hand they do not differ in any degree that would affect an argument drawn from his writings as applicable in a history of ancient gardening. We may assume that he lived 1000 B.C., say about the time of the accession of Rehoboam. From the "Iliad" we gather no information about gardens, but in the "Odyssey" the matter comes directly before us, and quotations of Cowper's translation—the best doubtless for the present purpose, because so nearly literal—will probably prove interesting.

In the fourth book of the "Odyssey" Telemachus goes forth to Pylus in the ship lent by Nöemon to seek his father. When informed of his departure Penelope is overcome with grief, and reproaches her servants for keeping the secret of his departure from her—

Ah, treacherous servants! conscious as you were
Of his design, not one of you the thought
Conceived to wake me when he went on board.
For had but the report once reach'd my ear,
He either had not gone (how much soe'er
He wish'd to leave me) or had left me dead.
But haste ye—bid my ancient servant come,
Dolion (whom when I left my father's home
He gave me, and whose office is to attend
My numerous garden plants) that he may seek
At once Laertes, and may tell him all,
Who may contrive some remedy, perchance,
Or fit expedient, and shall come abroad,
To weep before the men who wish to slay
Even the prince, godlike Ulysses' son.

Here the gardener Dolion is selected as the one alone to be trusted in a time of trouble, and he is sent to seek Laertes, the father of Ulysses, whose wise counsel is now needed. In the 24th book Ulysses has returned, and (in book 22) has slain the suitors, and now seeks his aged father, who appears in the scene as a gardener woefully clad, but with a dignity proper to age and wisdom, representing the house encumbered with troubles and alarms. Ulysses dismisses his attendants with instructions to make preparations for a feast, and then—

Gave into his servants' care
His arms; they swift proceeded to the house,
And to the fruitful grove himself as swift
To prove his father. Down he went at once
Into the spacious garden plot, but found
Nor Dolion there, nor any of his sons,
Or servants; they were occupied elsewhere,
And with the ancient hind himself, employ'd
Collecting thorns with which to fence the grove.
In that unbragous spot he found alone
Laertes, with his hoe, clearing a plant;
Sordid his tunic was, with many a patch
Mended unseemly; leathern were his greaves,
Thong-tied and also patched, a frail defence
Against sharp thorns, while gloves secured his hands
From brier-points, and on his head he bore
A goat-skin casque, nourishing hopeless woe.
No sooner then the hero toil inured
Saw him age-worn and wretched, than he paused
Beneath a lofty pear-tree's shade to weep,
There standing much he mused, whether, at once,
Kissing and clasping in his arms, his sire,
To tell him all, by what means he had reach'd
His native country, or to prove him first.
At length he chose as his best course, with words
Of seeming strangeness to accost his ear,
And with that purpose, moved direct toward him.
He, stooping low, loosen'd the earth around
A garden plant, when his illustrious son
Now standing close beside him thus began—

Old sir, thou art novice in these toils
Of culture, but thy garden thrives; I mark
In all thy ground no plant, fig, olive, vine,
Pear tree, or flower bed suffering through neglect.
But let it not offend thee if I say
That thou neglect'st thyself; at the same time
Oppress'd with age, sun-parch'd, and ill-attired.
Not for thy inactivity, methinks,
Thy master slight's thee thus, nor speaks thy form
Or thy surpassing stature servile aught
In thee, but thou resemblest more a king.
Yes—thou resemblest one who bathed and clothed,
Should softly sleep; such is the claim of age.
But tell me true—for whom labour'st thou,
And whose this garden is?

That they become acquainted follows as a matter of course, and it is in the old roundabout way of lengthening out a scene by means of harmless prevarications. But Ulysses has to give proofs of his identity, and having shown his father a scar he had received in his youth from a wild boar, he next proceeds to a catalogue of his garden plants, and this perhaps is the earliest document of the kind extant—

I will enumerate all the trees
Which, walking with thee in this cultured spot,
(Boy then) I begg'd, and thou confirm'dst my own.
We paced between them, and thou madest me learn
The name of each. Thou gavest me thirteen pears,
Ten apples, thirty figs, and fifty ranks
Didst promise me of vines, their alleys all
Corn-cropp'd between. There oft as sent from Jove
The influences of the year descend,
Grapes of all hues and flavours clustering harg.

Laertes, the old King, working as a gardener, Dolion or Dolius (as suits the verse) being the one most trusted of servants, are points of some importance in this casual peep into Homer's garden. Nor can we part from the subject without one more quotation, which again brings the gardener of Ithaca before us in the most honourable manner as the friend of the god-like Ulysses no less than the confidant of the much-suffering Penelope. The feast of conciliation was ready and the preliminary talk was done—

Such was their conference; and now the task
Of preparation ended, and the feast
Set forth, on couches and on thrones they sat,
And rang'd in order due, took each his share.
Then ancient Dolius, and with him his sons,
Arriv'd toil-worn, by the Sicilian dame
Summoned, their caterers, and their father's kind
Attendant ever in his eye of life.
They seeing and recalling soon to mind
Ulysses, in the middle mansion stood
Wondering, when thus Ulysses with a voice
Of some reproof, but gentle, them bespake.
Old servant, sit and eat, banishing fear
And mute amazement; for, although provoked
By appetite, we have long time abstain'd,
Expecting every moment thy return.
He said; then Dolius with expanded arms
Sprang right toward Ulysses, seized his hand,
Kiss'd it, and in wing'd accents thus replied.
Oh, master ever dear! since thee the gods
Themselves, in answer to our warm desires,
Have, unexpectedly, at length restored,
Hail, and be happy, and heaven make thee such!
But say, and truly; knows the prudent queen
Already thy return, or shall we send
Ourselves an herald with the joyful news?
To whom Ulysses, ever wise, replied.
My ancient friend, thou mayst release thy mind
From that solicitude; she knows it well.
So he; then Dolius to his glossy seat
Return'd, and all his sons gathering around
Ulysses, welcomed him, and grasp'd his hand,
Then sat beside their father; thus beneath
Laertes' roof they joyful took repast.

To the head line, "Homer's Garden," an objection may be raised on the point of chronology. We may for the present purpose reckon the date of the events to which the passages quoted from the "Odyssey" refer to be 1190 B.C. If Homer described the Garden of Ulysses, we are carried back one hundred and ninety years before Homer's time. But it is safer to assume that Homer described such a garden as may have existed in his own day; and, perhaps, when we go so far back, the question of one or two hundred years is not of great consequence.

COSTLY CELEBRATION.—Among the claims in a bankruptcy case lately was a charge of £75 "for roasting a bullock on the nuptials of her Majesty," and a further sum of "£10 for salt and pepper." The claimant was heard to remark, that he should not forget the laying of the cloths and knives and forks for the spread on that occasion.

A PARTY of gentlemen sought to make a display of their wealth. The first lighted his cigar with a ten-dollar greenback. The second "went him ten better," and consumed a twenty-dollar note in the same way. The third, not to be outdone, sacrificed a cool fifty. Then the fourth and last, declaring he'd beat the crowd, took a blank cheque from his pocket, filled it out for a round thousand, signed it, and then lighted his pipe with it. And the joke of it was, the other three "caved" at once at his reckless extravagance. A clear case of "fiat" money.

JOSE BILLINGS'S "TRUMP CARDS."—I have never known a second wife but what was boss of the situation. After a man gets to be thirty-eight years old he can't form any new habits much; the best he can do is to steer his old ones. Emmy man who can swap horses or ketch fish, and not lie about it, is just as plus as men over git to be in this world. The sassiest man I ever met is a hen-pecked husband when he is away from home. An enthusiast is an individual who believes about four times as much as he can prove, and he can prove about four times as much as anybody believes. The dog that will follow anybody ain't worth a cent. Thoz people who are trying to get to Heaven on their knees will find out at last they didn't have a thru ticket. Too long courtships are not always judicious; the parties often tire out skoreing fore the trot begins. One quart of cheap whisky (the cheaper the better) judiciously applied will do more business for Satan than the smartest deacon he has got. I don't rekoleet doing emny thing that I was just a little ashamed of but what somebody remembered it, and was sure, once in a while, to put me in mind of it. Young man, learn to wait; if you undertake to sett a hen before she is ready you will lose your time and confuse the hen besides. Nature seldom makes a phool; she simply furnishes the raw materials, and lets the fellow finish the job to suit himself.

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &c.	SUN.			MOON.		HIGH WATER AT				M. temp. avg. of 40 yrs. Uide wick	USEFUL PLANTS IN FLOWER. H, Hardy; G, Greenhouse; S, Stove.	Day of Yr.
			Rises.	Sets.	Souths before Noon.	Rises. Aftern.	Sets. Morn.	London Bridge.	Liverpool Dock.	Morn.	After.			
1882														
24	M	4th Sunday in Advent.	H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DEG	Azalea Mrs. Gerard Leigh, G.	1882
25	S	CHRISTMAS DAY.	8 7	0 9	3 52	4 18	7 28	1 13	1 40	10 38	11 5	38-7	Rose.	358
26	Tu	Boxing Day. Bank Holiday.	8 7	Aftern.	3 53	5 22	8 14	2 3	2 25	11 28	11 50	34-4	Amaryllis la Beauté, S.	359
27	W	St. John the Evangelist.	8 8	0 21	3 53	6 29	8 51	2 45	3 8	—	0 10	38-1	White-crimson.	360
28	Th	Innocent's Day.	8 8	0 50	3 54	7 37	9 21	3 25	3 48	0 33	0 50	37-8	Scarlet.	361
29	F	J. Wickliffe died, 1381.	8 9	1 20	3 55	8 44	9 46	4 8	4 27	1 13	1 33	37-6	Yellow.	362
30	S	Pegu annexed, 1852.	8 9	1 49	3 56	9 50	10 9	4 45	5 3	1 52	2 10	37-5	Prinula sinensis, G.	363
			8 9	2 19	3 57	10 53	10 32	5 20	5 40	2 23	2 45	37-3	Various.	364
													Orange.	394

The Gardeners' Magazine.
SATURDAY, DECEMBER 23, 1882.

THE GARDEN ORACLE AND FLORICULTURAL YEAR BOOK FOR 1883 is Now Ready, and may be obtained of all Booksellers, price 1s., or direct from the "Gardeners' Magazine" Office, 4, Ave Maria Lane, London, E.C.

THE GARDEN ORACLE FOR 1883 contains complete Business Calendars, Garden Calendars, and all the astronomical, fiscal, and statistical information proper to an almanac; and in addition references to figures and descriptions of New Plants, copious Catalogues of New Flowers and Fruits, a Directory for Purchasers of Garden Requirements, comprising Selections of the best varieties of Seeds, Flowers, &c., and a general review of the inventions and achievements in horticulture during the past year.

THE CHRISTMAS REJOICINGS are likely to be unalloyed with any special cares or painful speculations, for the world appears to be at peace, and a seasonable somnolency has fallen upon the agencies that oftentimes make a bustle in the world of politics. The pleasant prospect must be in some degree discounted by the fact that whatever is possible may come to pass, even to the sudden blighting of our most confident expectations. But making all due allowance for the uncertainties of the future, even of the next day or hour, there does appear some reason for content in the general state of affairs at the present time. We shall find enough to make us sad if we search for the sins and sorrows of humanity; but we are not called upon to mar the happy moments by too anxious an inquiry, and there are sufficient evidences of general prosperity to afford satisfaction, at least in a general view. The produce of the past season must be regarded upon the whole as under a fair average. The year now closing was not a fruitful year, but, on the other hand, it compares favourably with the four years preceding, and the total of wealth taken from the land exceeds any similar total in the run of bad seasons that have so seriously distressed us. Happily, as the seasons have improved by small degrees, trade has improved by large degrees; for some time past there has been employment in plenty for most kinds of skilled industry; pauperism has decreased, and the public health has been good. As we look around now on the markets we see evidences of the prevalence of prosperity; if all things are not as we would wish them, if there is still much distress, demanding tender consideration, there is also much happiness, and the present need not for any proper reason be described as a melancholy Christmas.

Apart from the accidents of flood and field, and the agencies of evil over which we have no control, Christmas will prove to most people just what they choose to make it. Mere profusion does not beget or indicate contentment; the dinner of herbs where love is has its fine old charm, the sources of joy being more sure within than without. But the sight of plenty, the sound of mirth, the conviction that material comforts abound,—these things delight us all, and it is not unlikely that many of the would-be ascetics find some pleasure in them. It is a happy circumstance that generosity is stimulated by a sense of satisfaction, and hence it is that in this season of plenty there are not many who are unwilling to bear their part in ministering in some degree to the necessities of the poor, and the aged, and the suffering. With all the frolic and fun of Christmas there mingles a sweet human tenderness that condones, in some degree at least, what there may be of folly in our festivities. And it should be so in the interest of consistency with the holy record on which the feast is founded. The recognition of the proper spirit of the time has rarely been wanting, and surely it rarely will be while private life and public profession bear some reasonable relationship to the vital truths of Christianity. We may be, and surely are, far from the standard of perfection that is set before us and accepted by us; but we are not to be dispirited for that reason; for the final tribunal will make large allowance for extenuating circumstances. "He knoweth our frame, that we are dust." There is enough to occupy us all in the work proper to this season, and if we do the work well we shall have no time to think overmuch about

ourselves: it is possible that abnegation of self is one of the first conditions of true usefulness and genuine happiness.

The social advantages of this season are beyond all price. They seem to testify to the reality of our civilization. The meetings of families, the reconciliations, the peculiar interest felt in the fortunes of the young—these considerations justify us in giving welcome to Christmas once more, and wishing our readers the fullest enjoyment of its blessings. The horticultural world takes a holiday now with other "worlds" that are temporarily swamped out by the tide of festivity. But the activities of the horticulturists will be resumed ere long. The programme for 1883 is fairly full of appointments that are likely to prove interesting, and perhaps important.

CHRISTMAS COMES BUT ONCE A YEAR, but it makes two Sundays in one week. That is the very thing the children are taught to regard as impossible, and now, at a season which is theirs by blessed prescription, they are avenged and the old folks are undone. The reason that Christmas belongs so exclusively to the young people is that it is a joyous season, and custom has made it somewhat material both as regards its emblems and its usages. So long as man remains a little lower than the angels his appetite will lead him captive and colour all his observances, whether of faith or ceremony, and every endeavour to separate him from the hunger of the senses will tend more or less towards hypocrisy. There have been sincere ascetics, and they will appear again on the chequered field of human life. But they have not often been of any use, except to serve as warnings that whoever attempts to rise superior to the highest range of genuine human nature will be ridiculous and obnoxious in exact proportion to the ardour of the endeavour. The greatest that have lived, whether as teachers or exemplars, have confessed their humanity and manifested their sympathy with the sum-total that we call Man, or to use a larger term, we will say Humanity. Many good people who do not rise quickly to general views of things are in trouble at this time because of the signs of feasting that are apparent. Everything appears to be needlessly sweet and greasy. The shops are all freshly arranged with appeals to the "lust of the eye," or to the love of eating and drinking that keeps man in the place Divine Providence has assigned to him. The "tidings of comfort and joy" that Christmas brings could be in no way better received by the world at large than by a general feast. It is no peculiar feature either of the Christian dispensation or these material times that gladness should tend to festivity, for it was always so, and so long as "every human heart is human" it will be so, and they who preach against it will but beat the air. The Old Testament records tell of feasts that were prompted by spiritual emotions, and to which angels were invited; and yet the noblest dish on the table was such as we might eat at this season—a nicely-cooked kid, perhaps, or a lamb fattened on fragrant herbage.

If we are to be taught by books, let us grasp all the teaching, for a part only will be likely to lead us astray. There is much preaching of abstinence just now, and the land swarms with "armies" bearing ribbons of many colours. Whatever is false to human nature in the teaching of the new order of militant saints will prove terribly mischievous in the end. Those who tell us that humanity is all on the wrong track, and can only be put on the right track by flocking to this or that standard, do in effect say that the Maker has made a mistake, and they are themselves divinely appointed to rectify it! There is no other logical view possible of the teachings that now prevail, and that tend—if they tend to anything—to a vulgar asceticism that must result in a reaction that at this moment it is painful to contemplate. Our Lord commenced His ministry by providing wine for a wedding feast, and the wine was good. It may be that the new order of Christian zealots do not read the New Testament; in which case, of course, they must be forgiven, for ignorance, however mistaken, can never be intentionally wrong. If they will but teach moderation, and cheerfulness, and content, and charity, they may be found in harmony with this cheerful season; but a doctrine of extremes, and all spasmodic and emotional teaching of any and every kind, is mischievous, and should be discouraged by true friends of the people. There is much to be done to reduce the sum-total of sin and folly, but those who attempt too much cut the ground from under their own feet, and become, not benefactors, but blighters of humanity.

If we take man as we find him, a creature of many moods and very constant in his appetites, we shall be on safe ground for any good object we may have in view. And if we regard man as requiring just now a feast of fat things, and wine on the lees, we can the better appeal to him in behalf of the waifs and strays who happen not to be blest with tickets of admission to the general feast. For whatever may be the peculiar doctrine prevailing here or there, the broad teaching of Christmas is the importance of material enjoyment. We make feasts for the destitute poor, and renew our attentions to the unfortunate and decrepit. We encourage reconciliations, and the new bonds are sealed at the dinner

table. We put aside for the moment our own peculiar interests and tastes and prejudices, to be liberal to those around us; and we all know that if we cannot do this we are quite unworthy of the happy world in which true Christmas thoughts and sympathies find objective utterance. The glutton and the drunkard should be rebuked by the decent gladness of the truly wise. The preachers of extreme doctrines may serve some useful purpose, but they appear to be best adapted, generally speaking, to illustrate the vanity of human wishes.

THE NEW PARCELS POST is to be in full action by the end of February or early in March.

ROYAL CALEDONIAN HORTICULTURAL SOCIETY will hold three exhibitions in 1883. The spring show on April 4 and 5, the summer show on July 11, and the autumn show on September 12 and 13.

THE PRIMULAS AT SWANLEY are very gay, if we may judge them by a boxful of blooms forwarded by Mr. Cannell. They comprise some fine shades of red and crimson and a very pleasing lavender-blue.

BETHNAL GREEN MUSEUM should be in high favour now with lovers of good pictures, the Marquis of Bute having lent for display there his fine collection. The event revives recollections of the delightful exhibition of the collection of Sir R. Wallace.

THE WORKS OF DANTE G. ROSSETTI will constitute the main feature of the winter exhibition of the Royal Academy, and there will be a supplementary exhibition of pictures by the same master by the Burlington Fine Art Club.

THE WEATHER threatens to become unpleasant again, for fog set in and became general on Tuesday, and on Wednesday the darkness increased, London being, as a matter of course, in a worse plight than any other place.

THE "ERRORS OF THE PRESS" afford much amusement to critical readers, who, for the most part, know that it is at the desk and not at the compositor's case where the errors are concocted. In an advertisement in the *Athenæum* of December 16 we are informed of the existence of a work on the native "grapes" of Great Britain. The compositor evidently mistook the word "grasses" for grapes, owing to the absurd custom of giving two distinct forms to the letter S.

BOROUGH OF LAMBETH CHRYSANTHEMUM SOCIETY held its annual dinner at the Bridge House Hotel, London Bridge, the other evening, and the large muster of members and their friends afforded the best possible proof of the steadily increasing popularity of the society. The chair was occupied by Mr. W. Earley, and in the course of the after-dinner proceedings it was stated that the progress made during the year had been most satisfactory, and that the number of both honorary and ordinary members had been considerably augmented.

"THE LIVE STOCK JOURNAL" ALMANAC FOR 1883 is rich in attractions for those who take any special interest in cattle, horses, poultry, field sports, and agriculture in its higher aspects. Amongst the contributors of original articles we find Sir J. B. Lawes, Captain Mayne Reid, Messrs. Euren, R. D. Garratt, J. Chesney, Edward Brown, John Thornton, and others of high fame in their several departments. Messrs. Cassell have spared no pains to render this the best almanac of its class.

THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE will meet in Montreal in the year 1884. This determination we announced some time since. But it acquires interest as time advances, for in the first instance there were grave objections to the proposal, and these have acquired such force that it is now beginning to be thought necessary to hold a meeting *pro forma* in this country and then adjourn to Canada. The Government of the Dominion and the city of Montreal will not be wanting in effort to ensure the success of what many regard as a most erratic proceeding.

IN THE WAY OF CHRISTMAS CARDS, which are being rained upon us now, we are much pleased with those of Messrs. Goodall and Son, London, because of their usefulness. One now before us, called "Time's Footsteps for 1883" forms a pretty almanac for the pocket or the purse, with all the essentials in the way of astronomical, postal, and other business information, decorated with excellent little pictures of beaux and belles in admirable taste and drawing. It is the fashion now for publishers to conceal their local whereabouts, and Messrs. Goodall take care not to inform us where they hang out their flag.

Kew GARDENS.—At the suggestion of the Kew Gardens Public Rights Association, the Chiswick Improvement Commissioners have resolved to memorialize the First Commissioner of Works in favour of the opening of Kew Gardens at 10 o'clock in the morning, with the exception of such portions as may be devoted to purely scientific purposes. The Commissioners have also resolved to ask the county members (Lord George Hamilton and Mr. Coope) to support the question when next brought before Parliament. It is reported that several other local authorities are about to move in the same direction.

A MAN WAS sitting for his photograph. The operator said, "Now, sir, look kind o' pleasant—smile a little." Tho man smiled, and then the operator exclaimed, "Oh, that will never do! It is too wide for the instrument."

PITY THE POOR LANDLORD.—"The English law is in so many ways on the side of the landlord and against the tenant, that any landlord whom it does not thus favour is a proper object for surprise and pity."—*Times* newspaper, April 30, 1877.

THE DUCK'S REJOINDER.—At dinner she had a doctor on either hand, one of whom remarked they were well served, since they had a duck between them. "Yes," she broke in—her wit is of the sort that comes in flashes—"and I am between two quacks." Then silence fell.

CALANTHES.

SINCE the first week in November the calanthes have contributed so largely to the attractions of our intermediate houses, and furnished such liberal supplies of choice flowers for bouquets, that for one section of the genus a very high position may be claimed amongst orchids flowering during the autumn and winter. They are not only exceedingly beautiful when in bloom, but they are very cheap, and of the easiest possible culture. In the latter respect they are not overpassed by any of the other orchids, and any one with a fair knowledge of plant-growing may engage in their culture with the full assurance of success, provided they have at hand a few trustworthy directions for their guidance. The calanthes must for cultural purposes be broken up into two distinct groups; the first to comprise those flowering during the autumn and winter, and the other the kinds that usually bloom in the summer, for not only do they differ in the time of flowering, but they require a quite distinct course of management.

The most important of the two sections is unquestionably that comprising the winter-flowering kinds, of which *Calanthe Veitchi* is a well-known type, for they are the most attractive, and have the great advantage of blooming at a season of the year when flowers are justly appreciated. To ensure success in the cultivation of the winter-flowering kinds a thorough season of rest, a light and comparatively rich compost, and a brisk temperature, and liberal supplies of water during the time the plants are making their growth, are essential. They are occasionally classed with the cool orchids, but those who so class them make a serious mistake, and show that they are but imperfectly acquainted with the requirements of the plants. They can, it is true, be rested in a cool house without much risk, and they can be placed in a warm conservatory for a week or ten days when fully in bloom without suffering, but when making their growth and producing their flower spikes they must have a temperature equal to that of an intermediate house. To speak plainly, they require a temperature ranging from 70 deg. to 80 deg. from the commencement to the completion of the growth, and one of from 60 deg. to 65 deg. when they are being produced, and the flowers in course of expansion. A thorough season of rest is necessary to the plants after they go out of bloom, and my practice is to cut away the spikes as soon as the flowers have faded, and then place them in a cool part of the intermediate house, where they remain without water until the end of the March following. It will not much matter if they are allowed to remain in a state of rest until the middle of April, but starting them must not be delayed long after the last-mentioned period, or the time will not be sufficient for the completion of the growth before the end of the summer. That the growth should be completed by the end of the season mentioned is very important, for unless the pseudo-bulbs are well matured it is impossible to obtain fully-developed flower spikes.

In repotting the winter-flowering calanthes the cultivator must in some degree shape his course according to his requirements, and if he requires small examples he must pot the pseudo-bulbs singly, but if he is desirous of producing large specimens he will have to put three or four in each pot. It must be understood that all the kinds will require plenty of pot room. For example, single pseudo-bulbs of *C. Veitchi* should have seven-inch pots, and when three pseudo-bulbs of that splendid hybrid are grown together the pots must be nine inches in diameter. *C. vestita* and its varieties should have six-inch pots for single pseudo-bulbs, eight-inch for three, and nine-inch for four or five. In potting the soil should be shaken away from the roots, and the pseudo-bulbs of the respective kinds be assorted according to size, so that all that are in the same pot may be equal, or nearly so, in size. The finest spikes are undoubtedly produced when the pseudo-bulbs are grown singly, more particularly in the case of *C. Veitchi*, and when large specimens of that form are not required for any special purpose all the largest pseudo-bulbs should be potted singly. The small pseudo-bulbs required for the increase of stock should be put in five or six inch pots, three in each. The pots, whether small or large, must be clean and well drained, and to secure efficient drainage a layer of crocks, ranging from two to four inches in thickness, according to the size of the pots, will be required. The compost must be light and rich, and of the various mixtures I have submitted to a careful trial in the course of a rather lengthy experience, I have not found any to prove more satisfactory than one consisting of loam, peat, well-rotted hotbed manure, and small crocks. Peat and loam rich in fibrous matter are selected and broken up roughly, and of each we have two parts to every one part of the manure and crocks: silver sand is not required unless the loam is rather close in texture. The pseudo-bulbs must stand well above the surface, the base almost resting on the surface, for both the young growth and the flower spike are produced from the base of the old pseudo-bulb, and it has not been found beneficial to either to compel them to push through more than a very thin layer of soil.

After they are potted the whole stock should be placed at the warm end of the intermediate house or in the East India house, with the vandas, aerides, and other heat-loving subjects as may be most convenient. They do remarkably well at the commencement of the growing season with the melons, and if a position in the melon house can be found for them, where they can have a fair share of light without being exposed to the direct action of the sun, they can be placed in it without doubt or misgiving. They must not be placed under a dense canopy of melon leaves, for although they will grow freely the pseudo-bulbs will not attain to that degree of solidity necessary to the production of good spikes of bloom. Until new growth commences very little water will be required at the roots; but when the plants are well established and making vigorous progress the water supply must be liberal without being excessive. From the commencement to the end of the growing season they should enjoy a rather liberal amount

of atmospheric humidity, and in all but dull moist weather they should be syringed lightly once or twice a day. As soon as the plants have made their season's growth the supply of water to the roots must be gradually lessened, and the syringing discontinued; and from the time the pseudo-bulbs have attained to their full size till the last of the flowers have lost their freshness and beauty sufficient water to maintain the soil in a moderately moist state will be ample.

The summer-flowering kinds, if not quite so useful as those blooming in winter, are not by any means without value, and two or three make exhibition specimens of the most striking character. They are all evergreen, and must not have such a thorough season of rest as advised for the winter-blooming kinds, which are all deciduous. Instead of a rich compost good fibrous peat must be provided, and used without the addition of sand or crocks. The peat should be broken up roughly, and any of the finer portion that may be shaken out put on one side for use in the preparation of mixtures for other subjects, as an open soil through which the roots can run freely is essential to success. The pots need hardly be so large in proportion to the size of the plants as for the deciduous kinds, but they must be clean, and filled to about one-third of their depth with crocks of medium size. In potting the several kinds belonging to the section, they should not be divided unless an increase of stock is desired; but have the crocks removed from the bottom of the ball, and a little of the peat picked away from the sides, if it can be done without injury to the roots. It is a good rule to use for each shift pots one size larger than those previously occupied, and to reduce the ball sufficiently to allow of about two inches of fresh peat all round. When they are making their growth they must have a fairly abundant supply of water at the roots, and a moderate degree of atmospheric humidity, and when at rest they should have enough water to maintain the soil about the roots in a nice moist state. They must not at any stage be kept quite dry.

The winter kinds deserving of special attention are: *Calanthe Veitchi*, a grand hybrid, producing bright pink flowers, which are borne on spikes ranging from two to four feet in height, according to the strength of the plant; *C. vestita nivalis*, a beautiful variety, the flowers pure white, large, and produced in long gracefully-arching spikes, and *C. vestita rubro-oculata* and *C. vestita luteo-oculata*, which have white flowers, the labellums respectively marked with crimson and yellow blotches. The finest of the summer-flowering kinds are: *C. furcata*, a fine species with cream-white flowers borne on erect spikes; *C. masuca*, a handsome species, with erect spikes of purple flowers; and *C. veratrifolia*, an exquisitely beautiful species bearing large spikes of flowers of the purest white; valuable as an exhibition specimen and to furnish cut flowers.

ORCHIDOPHILIST.

The Household.

A CHRISTMAS PUDDING.

In the issue of the Magazine for December 11, 1880, appeared a recipe for a Christmas pudding regarded as "perfect." A late adviser on the subject declares the plan proposed to be imperfect in one particular—that instead of using Valentin raisins muscatels are to be preferred. It seems to be agreed all round that milk is a mere mischief to a Christmas pudding, and should never be used. And yet it will be seen that M. Soyer recommends the use of milk, which seems to suggest that he could not rise to the sublime height of the British notion on this important subject. The following are M. Soyer's directions.

Pick and stone one pound of the best Malaga raisins, which put in a basin, with one pound of currants (well washed, dried, and picked), a pound and a half of good beef suet (chopped, but not too fine), three-quarters of a pound of white or brown sugar, two ounces of candied lemon and orange peel, two ounces of candied citron, six ounces of flour, and a quarter of a pound of bread-crumbs, with a little grated nutmeg; mix the whole well together, with eight whole eggs and a little milk; have ready a plain or ornamented pudding mould, well butter the interior, pour the above mixture into it, cover a sheet of paper over, tie the mould in a cloth, put the pudding into a large stewpan containing boiling water, and let it boil quite fast for four hours and a half (or it may be boiled by merely tying it in a pudding-cloth previously well floured, forming the shape by laying the cloth in a round-bottomed basin and pouring the mixture in, it will make no difference in the time required for boiling); when done, take out of the cloth, turn from the mould upon your dish, sprinkle a little powdered sugar over, and serve with the following sauce in a boat:—Put the yolks of three eggs in a stewpan, with a spoonful of powdered sugar, and a gill of milk; mix well together, add a little lemon-peel and stir over the fire until becoming thickish (but do not let it boil), when add two glasses of brandy, and serve separate.

The above sauce may be served poured over the pudding if approved of.

An excellent improvement to a plum pudding is to use half a pound of beef marrow cut into small dice, omitting the same quantity of suet.

TRADE CATALOGUES.

CARTER AND CO., 237, HIGH HOLBORN.—*Vade Mecum* for 1883.

SUTTON AND SONS, READING.—*Pocket Garden Calendar*, 1883.

WAITE, NASH, HUGGINS, AND CO., 79, SOUTHWARK STREET.—*Wholesale Price Current of Seeds*, &c.

ELLWANGER AND BARRY, MOUNT HOPE NURSERIES, ROCHESTER, NEW YORK.—*Descriptive Catalogue of Ornamental Trees, Perennial Plants*, &c.

EPPS'S COCOA.—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected Cocoa, Mr. Epps has provided our breakfast tables with a delicately-flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly-nourished frame."—*Civil Service Gazette*.—Made simply with boiling water or milk. Sold only in packets, labelled "JAMES EPPS & CO., Homoeopathic Chemists, London."—Also makers of Epps's Chocolate essence.—[Advt.]

HISTORY OF THE CHRYSANTHEMUM.

By WILLIAM GREENAWAY, Oxford.

ON November 29 Mr. William Greenaway, secretary to the Royal Oxfordshire Horticultural Society and the Oxford Rose and Chrysanthemum Societies, delivered a lecture on the History of the Chrysanthemum before the Young Men's Union, Oxford. The Mayor of Oxford (A. Wheeler, Esq.) presided, and there was a large and influential audience, which included the majority of the cultivators of the chrysanthemum in the city and neighbourhood.

The frequent reference in the sacred Scriptures to flowers demands that we should just notice that they are introduced to convey to our minds lessons of the deepest importance. Solomon notes "the flowers appear on the earth," in his nuptial poem, and One greater than Solomon condescended to mention the "lilies of the field" in order to teach us a lesson of dependence and divine care. That Solomon was a botanist we may gather from the fact that "He spake of trees, from the cedar tree that is in Lebanon even unto the hyssop that springeth out of the wall." Descending a note lower we find Longfellow thus singing:

Were I, oh God, in churchless lands remaining
Far from all voice of teachers or divines,
My soul would find in flowers of Thy ordaining
Priests, sermons, shrines.

Shakespeare says there are

Tongues in trees, books in the living brooks,
Sermons in stones, and good in everything.

And, another:

There is not a tree, or plant, or leaf,
But contains a folio volume;
And we may read, and read, and read again,
And still find something new;
Something to amuse, something to instruct,
Even in the humble weed.

As a matter of fact, every flower, whether wild or cultivated, may be appealed to for some revelation of its own history, and perhaps for some prediction as to its future. If its organs of reproduction are closely sealed up against the intrusion of insects we may expect it to be but little given to variation. This happens with many papilionaceous plants, such as the pea, which are very constant to their ancient types. On the other hand, when the stamens and pistils are displayed, we may expect a perpetual tendency to variation. Just note how the families of wallflowers, rockets, stocks, and cabbages seem inclined to depart from their original types.

That the chrysanthemum carries with it much history none can doubt, but its evolution has been influenced, no one knows how long, by a factor the evolutionist does not often recognize, and in respect of which recognition is but one step toward the acquisition of knowledge. Nature would probably train the flower to show a yellow disc, or centre, but the true florist cultivates it so as to conceal or obliterate the disc, and even in this course he is not constant, and may change his mind at any time. Florists, as a rule, are like the men of Athens, ever on the look-out for some new thing, even if it be only a new shade of colour. Florists' flowers are in a certain sense works of art. In their production the insect agencies provided by nature are carefully prohibited, and the florist not only fertilizes his flowers by hand, but also protects them by muslin and fine network, and thus excludes the bees from the sweetmeats they seek for and love. True, some flowers are allowed to produce their seeds naturally, but then the florist comes in with his notion of selection, and destroys every seedling which fails to come up to his standard, or his notion of what a flower should be—a kind of rascally intruder between Flora and Dame Nature.

But there is a commercial side to "flower-making," if so be you will allow the expression; and cultivators and raisers have to be on the alert to meet the requirements of Fashion. Latterly, in the estimation of æsthetics, nothing short of "too utterly too too" will please; and so we have at the present time a rage for single dahlias, single sunflowers, and the wildest and most natural forms of the chrysanthemum. In the case of the dahlia, by discarding the fine globular double form for the single, society has retrograded, or gone back just seventy-three years; for the first double dahlia was seen in Berlin in 1809. With regard to the chrysanthemum, while we possess so many very beautiful incurved varieties—once the ambition of John Salter, Sam Broome, and other eminent raisers—there appears to be a kind of halt made in order to admire the Japanese tasselled or fringed forms, which, however weird and fantastic, are probably not far removed from the condition of wildings. The chrysanthemum as we know it is strictly herbaceous, and some of its near relatives have their uses in connexion with medical science; so that regarded as "herbs for the service of man" we may claim to them an affinity; for, as the poet sings:

Herbs gladly heal our flesh, because that they
Find their acquaintance there.

The chrysanthemum is a remarkable flower in many ways. It will thrive in the midst of houses and adulterated daylight and bloom fairly well when its roots are starved, so to speak, in soil which may be described as the "riddlings o' creation;" and, yet for all proper care it makes as generous a return as any flower in cultivation. Those of you who looked upon the display recently produced in the Oxford Corn Exchange may have wondered how those plants and blooms had been brought to such perfection. Let me tell you that in creating so lovely a display no man was ruined; no cultivator broke his heart; nor has any one's health been injured in the process. On the other hand, these displays are beneficial to all concerned, for they aid us materially in driving dull care away in what is known as the dreary month of November.

The subject for consideration is the "History of the Chrysanthemum," and some may perhaps ask, what use or purpose can be gained by the recital of mere historical details? Our answer is, that the pursuit of horticulture must ever be regarded as an important branch of botany, and therefore of great scientific bearing in the education of the human race. In the contemplation of the vegetable kingdom there is something sweet to the feelings of man which nothing else possesses around us, the animals having too much, and the minerals too little life. Horticulture has always exercised a great moral influence in the world, and that for good; for in the study of flowers we are brought into very close connexion with Mother Nature; we become observant, and are led to believe in and worship the God of nature, that great intelligent first cause, more fervently than any catechism, however perfect, can teach us; for, in watching the "phenomena of life," how before our eyes the seeds spring up into plants, the plants to bear flowers and fruit, we associate ourselves with Nature. Any stranger who loves flowers gains our sympathy. Flowers are

the first love of the child, who hopes everything, and the last loved of the aged, whose hopes for this life have come to an end—flowers and blossoms are the last gift he takes with him to the grave, and “when numbered with the clouds of the valley,” weeping friends cover his last resting place with the children of Flora, which bring forth every year new flowers and blossoms—fitting emblem of the Resurrection. Our religious, social, and domestic festivities would lose some of their charms were they deprived of their floral adornments.

In proceeding at once to our subject we remark that the manifold changes the chrysanthemum has undergone, and the great strides taken towards perfection, of later years, are verified by our own experience, and the written testimonies of those who have preceded us. Our purpose on the present occasion is to refer to its origin and progress, leaving its cultivation to be dealt with by those who have achieved great successes at the exhibitions. There are but few persons among the lovers of flowers who have not admired the chrysanthemum, for when the “last rose of summer is faded and gone,” then it shines forth in all its glory, and becomes the “queen of autumn and early winter.” Scarcely any other plant is so easy of cultivation, or possesses such immense variety of colour and form. The chrysanthemum family is an extensive and widely-scattered one. Some species are found in the icy regions of Siberia and Kamtschatka, while others inhabit the burning plains of Barbary. In more temperate regions many interesting species are met with; this “right little, tight little island” of ours can only boast of two, viz., *C. leucanthemum*, the Ox-eye Daisy, which brightens our roadsides and meadows in the “merrie month of May,” and *C. segetum*, the Corn Marigold. It is not to these we shall refer at length, but to the Japanese and Chinese chrysanthemums, which have been described by nine eminent botanists under as many names.

The Chinese species is very far superior, in a floricultural point of view, to any of the others; for by perseverance and skill it has been brought to a state of perfection which none others have attained: so much so, that it is now acknowledged to be the most beautiful and attractive window flower we possess. The chrysanthemum of 1882 differs so widely from the chrysanthemum of 1761 (the date of its introduction into England) that few persons would recognize it as the same species, for at that period all, or nearly so, of the varieties were semi-double, with quilled, or long, narrow, ragged florets. This brings us to notice, *en passant*, the marvellous changes that have taken place in animal as well as vegetable life, the wonders that man has achieved by long years of diligent and persevering effort in improving the breed of domestic animals, or how the sour wild crab apple has been metamorphosed into Ribston and Blenheim Pippins; and how the Savoy cabbage, Brussels sprouts, and other members of the Brassica family have been evolved from the wild Brassica of the sea-shore. When we consider and understand these and other startling transformations, then, and not until then, may we cease to wonder at the altered character of the chrysanthemum. Every florist can tell of the pleasure experienced upon the discovery of a first sport or variation from a wild flower; to what a height his hopes immediately rose, and what care and labour he bestowed on that which he fondly hoped or expected would, sooner or later, become a perfectly double flower, as exemplified in the rose, the dahlia, or the carnation!

The earliest botanists speak of the chrysanthemum in its wild state as being a single yellow flower, but how and when the first varieties were obtained remains a mystery; it appears, however, to have been cultivated in Japan and China for ages before its introduction to Europe. (I may be permitted here to remark that the Siamese have adopted the chrysanthemum as their national emblem.)

It is generally believed that the great botanist Breynius was the first to describe it, for in a work on “Rare Plants,” published by him in 1689, he named it “*Matricaria japonica maxima*,” and mentions white, blush, rose, yellow, purple, and crimson varieties. That it was a favourite plant with the Japanese appears certain, and from the fact of its being called “*maxima*,” it is possible smaller varieties then existed. The Dutch were the first to cultivate the small-flowering variety, and by them taken to their establishments in Amboyna and Malabar, it being figured by Reed in 1699, in a work named “*Hortus Malabaricus*.” By the Chinese it was known as “*Kikf*, or *Kikku*,” and was described by the eminent botanist Kämpfer, in 1712, under the name of *Matricaria*. Linnæus, in 1753, noticed two species—*C. sinense*, with large white flowers, and *C. indicum*, with very small yellow flowers; of this latter kind there are both double and single forms. In 1764 a plant of the small yellow variety was growing in the Apothecaries’ Botanic Garden at Chelsea, but was so little prized that in a few years it was lost sight of altogether. This was, no doubt, the typical *C. indicum*. It was represented as being a dwarf branching plant, about eighteen inches high, with small flowers the size of a feverfew, and found growing wild in several parts of India and China. In 1784, Thunberg, another botanist of note, published the “*Flora Japonica*,” he described it as being the true *Matricaria*.

Nothing further was heard of the chrysanthemum until 1789, when an enterprising French merchant, M. Blanchard, of Marseilles, imported three varieties from China—the white, the purple, and the violet; only one, however, the purple, reached France alive; to him, therefore, belongs the honour of introducing the large-flowering variety into Europe. In the following year (1790) a plant of the purple variety found its way into England, and was the first large-flowering chrysanthemum known (at least in modern times) in this country. It was procured from M. Cels, a celebrated nurseryman in Paris, and it was treated as a greenhouse plant. In November, 1795, it bloomed in the nursery of Mr. Colville, in the King’s Road, Chelsea, and was regarded as a decided acquisition. The flowers were about the size of a carnation, semi-double, of a purple colour. The success which attended the introduction of this flower, added to its perfectly novel character, induced some of our own countrymen to procure other varieties from China; and their endeavours were crowned with success; so that from 1798 to 1822 some 36 colours or varieties were introduced, there being in 1826 no less than 48 varieties cultivated in the Royal Horticultural Society’s Gardens at Chiswick, the largest collection in Europe; only fifteen varieties were known in France in 1822. Until this time it does not appear that any attempt had been made to save seed either in France or England, but in 1830 seed was saved in the south of France, and the varieties raised from it were of a totally different character from the original forms.

It remained doubtful for a long period whether as early as 1830 any trial had been made to save seed in England, in consequence of the cold sunless winter climate being regarded as unfavourable to the operation; but I am proud to make it known that in or about 1830 Mr. Isaac Wheeler, gardener and porter at Magdalen Hall (now Hertford College), Oxford, was successful in saving seed, and in raising seedlings. These were grown at No. 4, Beaumont Buildings, in this city, and on December 2, 1832, he exhibited the same at South

Kensington, London, where he received the “Silver Banksian Medal for seedling chrysanthemums,” supposed to be the first seedlings raised in Europe, but certainly in England. The medal and a drawing of one of the plants is still in the possession of a member of the Wheeler family, and can be seen on application at 8, Illey Road, Oxford. Thus it happens that the Oxford chrysanthemum growers have a prestige to support and keep up, and right heartily is it done. English seedlings were raised by Mr. Short and Mr. Freestone, in Norfolk, in 1835, about which period an amateur in Jersey turned his attention to the chrysanthemum. He raised about 500 seedlings, which were purchased by Mr. Chandler, of the Vauxhall Nursery, and their blooming caused much excitement. In 1838, Mr. John Salter (of chrysanthemum memory) took up his residence at Versailles, near Paris, and finding the climate of that city suited to the chrysanthemum, he imported from England all the Chinese varieties, and all the Norfolk and Jersey seedlings. Shortly afterwards about 250 French kinds were added, so that in 1840 his collection numbered 400 varieties. In 1843, seedlings began to be raised at the Versailles nursery, and the first fruits of many succeeded years of labour were Annie Salter, Fleur de Marie, and Queen of England. Time would fail to repeat the varieties raised about this and a few subsequent years. Suffice it to observe that Prince of Wales was one of the pioneers of the incurved section, and still continues a useful variety.

In 1846 the first public exhibition of chrysanthemums was held at Stoke Newington, London (whose society is the oldest in England), and a show was also held at Portsmouth in 1849; since which date nearly every town of importance has its exhibition; our Oxford shows dating from 1863.

Returning to 1846, a new era commenced in the history of the chrysanthemum, for at that time Mr. Fortune brought from China two small-flowering sorts known as the “Chusan Daisy” and “Chinese Minimum.” These were similar in size and appearance to the *Indicum* of Linnæus, or the *Matricaria* of Kämpfer. These would probably have shared the fate of their predecessors had they remained in England, being too small to suit the taste of the English. At the Versailles Nursery the little Chusan daisy became a favourite; and from these two last named have sprung all the pompones now in cultivation. In 1860, Mr. Salter’s collection numbered 750 distinct varieties comprising 500 large flowers, of which 150 were raised in England, and 250 pompones of French origin. In 1862, Mr. Fortune introduced several Japanese varieties, and these in twenty years have increased to nearly 200 named kinds, some growers’ collections numbering nearly 800 varieties.

From 1860 to the present time, the development of new forms and colours has been very rapid; and in addition a goodly number of “summer-flowering” varieties have been introduced. Having a dwarf free-flowering habit, they prove most useful for beds or borders or even window boxes, and often commence blooming in July or early in August. Their flowers are scarcely as compact as the later kinds, still they are useful additions to the family. Then, again, we have the Marguerites, or Paris daisies: these are single-flowered varieties, with yellow or white florets with a yellow disc. They grow well under a cool greenhouse treatment, and are nearly perpetual flowering.

Although a high state of perfection has been obtained, it must not be supposed that no further progress can be made; on the contrary, we have to endeavour to secure larger flowers of the same degree of form and finish as Mrs. George Rundle, and other finely-incurved forms; besides which something may be done in the matter of colour. Time was when we had more incurved flowers, raised from seed, but of late several varieties of importance have come to us as “sports.” What we want among incurved flowers are violet and scarlet, and we have but few striped, mottled, or tipped varieties, and it may be feared that a blue one would send cultivators off their heads. What has been done in the past only goes to show what may be accomplished in the future; and no florist should rest satisfied until he sees combined with perfection of form a diversity of colour which exists at present only in his imagination.

We referred just now to additions being made to our list of novelties in the form of “sports.” A sport, then, is an accidental change in the stem or branch, either in the colour of the leaves or flower, but more generally in the flower, and which, if secured, seldom goes back to the original, although cases have been known where high cultivation has caused it to change back again. Botanists appear at a loss to account for these changes; some attribute them to dry seasons, others to wet seasons, and some to chemical agencies in the soil; but it is certain that some varieties are more mutable than others. A reference to the catalogues will show how largely we are indebted to the “sports” for new colours, the bulk having a tendency to golden or bronzy shades. Time would fail to mention all the varieties, but we may notice that Queen of England produced five or six distinct shades of colour; Cedo Nulli three, Dr. Brock three, Bob three, Beverley two, Trevena two, and Rose d’Amour gave me Miss Wheeler (named after our chairman’s eldest daughter), and Miss Wheeler in turn presented me with Mrs. Bateman, all of which are largely grown, and have retained their colours intact.

The forms we generally cultivate and exhibit are large-flowered Incurved, Reflexed, Anemone, and Japanese; small-flowered Pompon or rosette, Pompon Anemone, and quilled. As a “hardy” plant the chrysanthemum will bear our climate fairly well, although it blooms some three weeks too late to prove as useful for garden decoration as could be desired; but we think it our duty to say that all the specimen plants and blooms exhibited receive the shelter of a cool greenhouse in their earliest and also in their blooming period of life. It may be mentioned that the training of the plants in convex, or watch-glass style, is one which enables the eye to rest on the entire mass of bloom at once; and the pyramid form when well done is also very attractive. The standard, or umbrella-shaped plants, are always regarded as desirable in the greenhouse, as smaller subjects can be ranged round and near them.

There is one form of standard which is very attractive, and that is the “grafted,” a number of varieties being worked on one stem, and forming a “living bouquet.” Grafting the chrysanthemum is not a very ancient mode, as we lay claim to having introduced the subject and practice as recently as within the last twelve years, although the first plant exhibited in Oxford, or perhaps England, was grown by Mr. Howlett, at the County Hall. To prove our claim, we may say that twelve years back we had Mr. Adam Forsyth at the Oxford Show, and he declared that he had never heard or read of “grafted chrysanthemums;” and taking all things into consideration we feel that we are fully justified in having asked your kind attention and patience in listening to the history of the chrysanthemum so imperfectly set before you to-night.

We may add that the lecture was illustrated by a number of plain and coloured drawings, and very fine specimen blooms representing the various types; and at the close these were distributed among the ladies in the audience. Votes of thanks were given to the lecturer and chairman.

AMONGST THE ROSES.

By J. C. CLARKE.

FROM many quarters complaints reach us that owing to the saturated condition of the ground the planting of hardy subjects, and roses in particular, has been much delayed. Although this delay is much to be regretted, it is very plain that it could not be avoided.

The matter now for consideration, so far as roses are concerned, is whether the planting should be deferred until the spring or be done during the first fine weather we have. I am prepared to admit that this matter cannot be disposed of in an offhand manner, as it involves some very important considerations. If I were to be pressed for an answer at once I should unhesitatingly reply that the planting of roses had, under the circumstances, be better delayed until late in February or early in March, according to the weather and the condition of the soil. But having admitted that the question cannot be so easily disposed of, it is necessary to dwell on a few points that influence my decision in favour of delay in planting.

The most important argument in favour of further delay is the present condition of the roses. To use a common expression, they are "as green as grass," many of the plants are not only in active growth, but they are flowering freely. I could pick to-day many well-developed blooms, and there are innumerable buds and young leaves upon the same plants. This is not the condition of a plant here and there, but it applies to a large number. The absence of frost and the constantly moist state of the atmosphere sustained them in a growing state far beyond the usual period, and I think no practical man can say that roses in this condition are in a fit state to be planted thus late in the year. If any further argument for delay were wanted I would refer to the saturated state of the ground, and the difficulty in consequence in making the necessary preparations. We all know that soil prepared under such conditions is not likely to be favourable to a very healthy root action, and that it will undoubtedly settle down into a compact mass through which the roots will find a difficulty in extending. If the soil is of the description usually recommended for roses it should certainly not be moved about when it is wet. Further than this, intending planters of roses should not only take into consideration the present state of the wood, but what the effect of a severe frost may be on the plants if it should occur immediately after they are moved. It must be remembered that there is no comparison in regard to the hardiness of the roses of to-day and those of thirty years ago. Many of our best roses of the present time are extremely tender in constitution, and therefore they must be dealt with accordingly. Cultivators will remember how great was the loss amongst roses after the bitter frost that followed the wet cold summer and autumn of 1860, and if we were to be shortly visited by a frost equal in intensity to that which occurred on Christmas Day in the year mentioned our established plants would in all probability suffer severely, whilst its effect upon those recently removed would be disastrous.

Having thus pointed out the possibility of serious harm occurring where late planting is persisted in, I may be expected to advise as to the best means of affording protection to roses. Choice collections of standard roses in heavy badly-drained soils and in exposed situations should be at once taken up and laid in by their heels in a sheltered border to make the roots secure. Then, if severe frost should occur, it will be an easy matter to protect them with dry bracken or dry litter, the protecting materials to remain as long as the frost lasts, and not a day longer. Where there are large numbers of plants this may appear to be a prohibitive measure, but I think under the circumstances few will question the soundness of the advice. In dry soils and sheltered situations this plan may not be absolutely necessary, but whether the number of plants be large or small, taking all points into consideration, it is a question whether it will not be a wise policy to lift them, to enforce a season of rest. Seeing that roses generally have not thoroughly rested since the winter of 1880-81, and that they were not any the better for not having had a rest last winter, it is evident that a proper season of rest would be most beneficial. I am now speaking of my experience in the West of England, and from what I can see of the roses at the time of writing a general lifting would be the best thing to do for them. If I were a cultivator of standard roses I would certainly lift them and deal with them in the way I advise. Our roses are mostly grown as dwarfs, and the most vigorous have been partially lifted with a spade and then trodden in again. In November I did this with a view to check late growth and in some measure enforce them to rest. We also cultivate a considerable number of pegged-down roses, and these we are obliged to leave untouched, and I tremble for the safety of the large sappy shoots which they have made, should a severe frost suddenly set in.

Where the positions admit of its being done, the easiest way of protecting dwarf roses is to press in between them some dry bracken on the first approach of frost. It may be mentioned that as a general rule the spineless roses are more susceptible of injury from frost than the others. Of the old hybrid perpetuals that may be regarded as spineless may be mentioned John Hopper, Maréchal Vaillant, Madame Charles Wood, and Jules Margottin, on the other hand, have a large number of spines, and they generally come through a severe winter better than the others. This information may perhaps be of some service in showing which sorts require the most protection.

Rose growers might, I think, do a little winter pruning with advantage. Of course I do not advocate regular pruning now instead of in the spring; but some of the longest shoots may be shortened in to prevent high winds beating them about. As these long shoots must be cut back pretty close in the spring, it cannot possibly do any harm to shorten them by one-half now.

Although I have advised that spring planting will be better under the circumstances than planting in the dead of winter, it does not follow that those who intend purchasing plants should defer doing so until the time arrives for planting them. On the contrary, the selection may be made at once, and the plants brought home and carefully laid in by the roots in some sheltered spot where the stems and branches can be protected if necessary. This will be far preferable to leaving them in the nursery quarters, where there is a possibility of their receiving a serious injury from the frost—an injury perhaps that will not be detected until some time after they have been purchased and planted.

NEW NOTES ON TREE CARNATIONS.

By W. KEMP.

AT no time perhaps in their history have the tree carnations enjoyed so high a degree of popularity as now, and great must be the gratification of those who have persistently urged upon cultivators their value for supplying winter flowers. A few years ago it was gravely stated that these beautiful flowers were steadily declining in public favour, and that the blooms grown for commercial purposes would become a drug on the market. But instead of their declining in popularity they have steadily increased, and now they are very extensively grown in most gardens in which a demand for cut flowers has to be met during the winter season, and in nurseries large stocks may be met with where a few years since hardly a plant was to be seen. The attention they are receiving at the hands of trade growers is one of the best proofs of the esteem in which they are generally held that could possibly be had, for the English nurserymen are as a rule too shrewd to grow plants for which there is practically no demand. Moreover, I have heard more than one nurseryman complain of the demand for choice varieties outstripping the supply. With the full knowledge that the tree carnation is receiving from trade and private growers alike the attention it so well merits, there is no occasion to dwell upon its beauty and usefulness. The fact must not, however, be overlooked that as well-grown examples bloom freely and continuously from early in the autumn until late in the spring, the tree carnations are well able to afford immense assistance to those who require flowers in abundance during the two periods mentioned. Nor should it be forgotten that they have an attractive appearance whether grown in a small structure by themselves or arranged in the conservatory with the general collection of plants; or that the flowers are admirably adapted for hand and buttonhole bouquets and for dressing épergnes and filling vases of every description. The value of these flowers has been materially increased of late by the large number of very beautiful varieties that have been introduced. Cultivators should become acquainted with the recent introductions, for they not only produce flowers larger, richer in colour, and finer in form than those of the old favourites, but they have a stronger constitution. The last mentioned is an important point in their favour, for without a robust growth it is impossible to obtain an abundant supply of flowers, as many cultivators have found in dealing with the old sorts. It would probably be well for private as well as trade growers to devote more attention to the raising of seedlings, and in making selections to be careful to give a preference to those robust in growth, provided of course they are in other respects worth keeping. The raising of a hundred plants from seed annually would not impose a very heavy tax upon either time or space, as they could be bloomed in five-inch pots, and the most inferior flowers could be used in some way or other for indoor decorations. But provided care is taken to save seed from the finest varieties the greater portion of the seedlings will be decidedly good, even if they do not surpass the parents.

The winter is not usually considered the best season of the year in which to purchase tree carnations, but those who are desirous of adding to their collection any particular kinds, and are able to propagate and grow on a stock from cuttings, will find a great advantage in buying now. By obtaining at the present moment examples established in five-inch pots and fairly well furnished with growths, they will have at their command a supply of cuttings when propagation is commenced two months hence. In the case of the newer sorts it will not perhaps be possible to procure strong flowering plants, but it will be advantageous to purchase them at the present moment, as during the summer the examples can be grown into specimens large enough to yield a heavy crop of cuttings from them in the year following. The matter of primary importance is to select the finest varieties in the several lines of colour that can be had, and of those now in commerce the following are unquestionably the best. Of the newer introductions may be specially recommended: *Andalusia*, primrose, the petals beautifully fringed; *Coomassie*, buff, striped and edged with red; *Gloire de Nancy*, pure white, very large and of beautiful shape; *Mrs. George Hawtry*, a beautiful yellow self, valuable for its distinct colour and splendid quality; *Mrs. Maclaren*, a crimson bizarre of splendid shape; *Rubens*, deep rich maroon, a valuable acquisition in its line of colour; *Rosalind*, buff, edged with scarlet; *Worthington G. Smith*, brilliant scarlet, flowers very large and of splendid shape, and *The Queen*, pure white, the flowers large and freely produced. The above-mentioned will form a collection sufficient for any one garden, as all the colours afforded by the tree carnations are represented. Those who require varieties that can be purchased at the usual rates may be advised to purchase *A. Aléatière*, bright red-scarlet, flowers of medium size, but very freely produced; *Brunette*, deep maroon; *Cassandra*, buff, edged with red; *Clovis*, rich purple; *La Belle*, pure white, a free-flowering variety of wiry growth; *Miss Jolliffe*, delicate pink, a dwarf-growing and free-blooming variety; *M. Baldwin*, deep red, flowers

large and fine; *Osman Pacha*, bright scarlet, free and fine; *Proserpine*, rich scarlet, flowers large and of fine form; *Rose Perfection*, rich rose, very free; *Volunteer*, a handsome flower, striped with maroon on a scarlet ground, and *Zouave*, deep red, one of the best of its colour.

A period of eight or nine months is required for growing the tree carnations to a flowering size, and therefore to have plants strong enough to commence flowering freely in October or early in November, a beginning must be made in February or March. Plants to bloom in the spring may be raised from cuttings in April, but the propagation cannot be delayed until after that month without a risk of the plants not acquiring sufficient strength to bloom satisfactorily. As the cuttings are not, as a rule, much in excess of requirements every endeavour must be made to strike as large a proportion as possible. An important aid is a rather soft state of the shoots, and this can be readily obtained by placing the plants where they will have the assistance of a temperature of about 60 deg. and a moderate degree of atmospheric humidity three or four weeks before the cuttings are taken. Hence it follows that plants flowering during autumn and the early part of the winter will afford most assistance in the renewal of stock. In the selection and preparation of the cuttings take shoots with two or three joints each, and cut them close under the lower one, from which the pair of leaves must be deftly removed close to the stem. Unless the numbers of cuttings of the several varieties are very large five or six inch pots should be employed, and in preparing them fill the lower half with crocks of moderate size, and the upper half with a mixture of peat, loam, and sand in equal parts. A layer of moss, cocoanut-fibre refuse, or some other light material should, as a matter of course, be placed over the crocks, and a layer of sand over the soil. Soil and sand must be pressed firm, and the sand should have a sprinkling of water with a pot to which a rather fine rose is attached. Insert the cuttings about an inch apart and with the base touching the side, to obviate as far as practicable the danger of damping off, to which the carnations are especially liable. On the insertion of the cuttings, partially plunge the pots in a brisk hotbed, for bottom heat is a prime factor in striking the cuttings early in the year. Very little shade will be required excepting by the last batch, and the supplies of water must be moderate, an occasional sprinkling being sufficient until the cuttings are struck.

The cuttings should be potted off separately immediately they are struck, and care should be taken to have the soil and pots of the same temperature as the house, by putting them in a warm corner of the structure twenty-four hours before they are wanted. The compost most suitable is one consisting of mellow fibrous loam three parts, and powdery manure and silver sand a part each. Small sixties should be used, and due care taken to avoid injury to the delicate roots in pressing the new soil about them. They should remain in the pit or house for about ten days to enable them to start freely into growth, and be then removed to a warm pit, where they can stay for three weeks. They can then be removed to a cold frame and be gradually hardened off by a cautious increase of the ventilation. The tree carnations may be bloomed very satisfactorily in six-inch pots, but the most suitable pots in which to flower all but the smallest examples are those eight inches in diameter. From the small sixties shift into five-inch pots and from those transfer to the pots in which they are to flower. No times can be given for the several shifts, as everything will depend upon the progress made; but it may be stated that they should as far as possible receive each shift when the pots are well filled with roots and before they become potbound, and be put into the flowering pots by the third week of July. The soil used at each shift should be the same as advised when referring to the potting off.

Until they are transferred to the pots in which they are to remain during the time they are in bloom, a freely-ventilated frame with the lights withdrawn during periods of genial weather will be the most suitable place for them. After the final repotting, stand them upon a bed of coal-ashes made up in an open position, and so arrange them that all needful attention can be readily afforded. Careful watering is at all times necessary, and every effort must be made to supply them with sufficient moisture without keeping the soil in a constant state of saturation. It is a good rule to allow the soil to become rather dry before each watering, and then to give sufficient to well moisten the whole of the ball of soil. As soon as the pots into which they are put at the last shift are well filled with roots weak liquid manure will afford material assistance, and may be applied once or twice a week from that time until the plants are taken indoors for the winter. The middle of September is in most seasons a very good time for removing the stock from the ash-bed to the greenhouse. The cultivator must, however, be guided by the weather on this point, and should it be wet and cold the plants must be taken indoors at the beginning of the month, or even in August. Many cases have come under my notice in which the collections have been seriously injured by leaving the plants out of doors too long, and I am most anxious to impress upon inexperienced cultivators how important it is to have them under cover in good time. During the first three weeks of their being under glass a cool airy greenhouse or pit will be the best place for them, and at the end of that period they should be removed to a structure in which they can have a place near the glass and receive the assistance of a temperature of about 55 deg., and here they should remain throughout the winter.

It may be added that the points of the plants should be nipped out as soon as they are established in the small sixties, which will be the only stopping they will require. They should have stakes put to them as support becomes necessary, and be kept free from green fly by the aid of tobacco smoke or tobacco water, according as they may happen to be in or out of doors when attacked.

VENUS'S FLY-TRAP.

(*Dionæa muscipula*.)

THIS is the most interesting species of the curious natural order Droseraceæ, or Sun-dews, the British representatives of which are generally known, and found growing plentifully in moist boggy ground where the pretty sphagnum moss finds a genial home. The *dionæa* comes from Carolina, and has been long known to cultivators, but until comparatively recent times was seldom met with except in the hands of those who study and realize the wonderful adaptability of nature's handiwork in even the miniature forms of vegetable life. However, since plants remarkable for beauty in the form or colour of their leaves have received a fair share of attention, the *dionæa*, and others of a like character, have come more under notice. The Venus's fly-trap is an evergreen herb forming a low tuft, the leaves, even in a vigorous example, not usually growing to a length of more than five or six inches, oftener less. It is the singular construction of the extremities, or terminal appendages of the leaves, and their marvellous use, that give so much interest to the plant, forming as they do perfect traps that in the case of healthy growing examples go off, when touched as suddenly as an ordinary spring rat-trap, to the jaws of which the leaf appendages have a close resemblance, baited as they are with the sweet honey-like secretion produced within the plant, and which lays in dew-like drops on the hairs with which the inside of the traps are furnished, alluring the insects to feed upon it to their certain capture. Not only are flies, woodlice, and the small garlic-smelling snail, caught and killed, but I have had strong plants that have closed upon a slug from two to three inches long and held it until death resulted, and retained its grip for weeks afterwards, until the putrid body might have been expected to have communicated rot and destruction to the leaf which held it. But, not so; after a time the trap opened uninjured by the slimy mass, yet, as invariably the case after being closed for a time upon any living object, much less sensitive, and more sluggish in closing when the hair-like glands were touched than before the capture, and never after so sensitive, or closing with the instantaneous snap that a young trap that has not been so exercised will do. I may here remark that the leaves, either young or old, are much more sensitive during the summer, when the plant is in an active growing state, than in the dormant season.

There has frequently been some mistake in the way the action of this plant has been described by representing that the traps simply clung to an insect so long as it struggled, relaxing their hold and allowing it to escape when it was still. After closely observing the plant for many years and trying very many experiments, which space here will not permit of my giving in detail, I never saw a single instance in which anything once caught was not held for a considerable time after its death, often several weeks. It blooms freely, and if allowed, will sometimes produce fertile seed, which will germinate if sown on the surface of a small pot filled with fine chopped sphagnum, a little peat, and some sand, kept constantly damp and slightly shaded in an intermediate temperature; but as the *dionæa* frequently flowers and does not produce mature seeds, and is so far weakened by the flowering process, I should always advise the flower stem being pinched off as soon as it has emerged sufficiently from the crown to be got at: by this means the plants will make more than double the growth than if left to bloom. Producing a flower-spike, either when taken out as described or allowed to mature the flowers, almost invariably has the effect of splitting up and dividing the bulb-like root in the way that most lilies do, and in this manner doubling the number of plants, which at potting time will nearly always be found to have come detached from each other. This, for the ordinary purposes of cultivation, will generally be found a sufficient way of increase, especially now that it is very much cheaper to buy than at one time. It requires porous material to grow in, thriving well in a mixture of sphagnum and leaves chopped fine, with a little peat and a sprinkling of sand and small potsherds. The plants do best when put singly in very small pots, and these plunged as close as they will stand in a pan filled with sphagnum, proportionate in size with the number of pots to be so plunged. As to the use of a bell-glass over them, the necessity for this will depend on the atmosphere of the house in which they are grown. If in a fern-house kept at a temperature a little above that of a greenhouse, and as ferneries usually are, with less air and more moisture than ordinary plant structures, there will not be any need for a bell-glass, but if in a greenhouse with more air and less atmospheric moisture a bell-glass will be necessary, tilting it up half an inch or so all round.

One thing must be kept well in view with this as with other swamp plants: it never must be allowed to get dry. Assuming that the pots are well drained and there is full egress for the water to get away, consequent on the nature of the potting material, the plants may be watered freely overhead every day during the growing season, and once or twice a week during the winter. Through the winter season most of the leaves die off, leaving two or three small ones attached to each crown. The crowns should be turned out and repotted in wholly new material every spring, about the beginning of March, giving them a good watering to moisten the soil sufficiently immediately they are potted. The *dionæa* is often killed by too much heat; it will exist for a time in a hot plant stove, but under such conditions it usually gets drawn up weakly and ultimately dwindles away. It will live in a cold frame in the summer time kept comparatively close and moist, or in an ordinary greenhouse all the year; but the temperature of an intermediate house suits it the best: in such the whole plant, including leaves and traps, attains double the size. It requires shading from the sun, and there is some difficulty in arriving at the exact amount of light which suits it; where the happy medium can just be hit upon

the traps assume a beautiful bronzy red colour. I once had a very large pan of it, which in the rearrangement of the house was accidentally stood nearer the roof than it had hitherto been—say, within three to four feet—which gave additional strength and the high colour named to the traps, some of the strongest leaves attaining a length of eight inches. Thinking to still further improve upon this, I raised it a foot or so nearer the roof, which was fully under the influence of the sun but always thinly shaded when it was on the house; the additional elevation had the effect of all but destroying the plant. When placed in a position where the sun does not come in full force on the glass its proximity to the roof will have little influence. But the incident I have just named will show the advisability of not exposing it too much to the sun in a house that stands with the roof facing fully southwards. Insects do not much affect the diomea, excepting aphides, which sometimes make their appearance, and if not quickly destroyed soon kill the leaves and very much weaken the plant; but there is no difficulty in getting rid of them, as it will bear without injury enough tobacco smoke to kill the insects. R. Q.

BERRY-BEARING PLANTS FOR THE CONSERVATORY.

THE prizes annually offered for berry-bearing plants by the leading societies holding exhibitions in the autumn have done much to improve their cultivation and increase their popularity, and I trust they may still meet with liberal encouragement, for in my opinion they are highly useful for all descriptions of indoor decorations. In compliance with the wishes of my employers, I have for some years past grown berry-bearing and ornamental-fruited plants very extensively, and have subjected to careful trial nearly, if not all, the kinds suitable for the embellishment of the conservatory, the vestibule, and indoor apartments generally. I am therefore able to speak of the various subjects with more confidence than the majority of cultivators. I have no wish to give the impression that they are preferred either by my employers or myself to flowers, for such is not the case. They are grown simply as supplementary to the few flowering plants that can be had during the autumn and winter months, for the purpose of giving greater interest to the attractions of the conservatory, and to enable us to employ a greater variety of plants in the decoration of the dining and drawing rooms than is practicable when flowering plants are alone available. Since we have weeded out the least desirable of the kinds and fully mastered the cultural details of the others, the berry-bearing plants annually form a feature that invariably brings me much praise from my brother gardeners. Some of the kinds, I would observe, come in well for table decorations, more especially during the Christmas season, whilst others, such as the solanums and aucubas, are found of much service in their respective seasons for placing in halls and corridors, where flowering plants remain but a short time in a presentable condition.

SOLANUMS are, taking all points into consideration, the most serviceable of all the ornamental-fruited plants for winter decorations, but they ought not to be grown to the exclusion of other good things. The cultivation of these subjects has been fully explained in the pages of the Magazine since they came to the front, and it does not appear necessary to dwell upon it at any length. There are, however, a few points to which I should like to refer. Some writers on solanums have strongly advocated the raising of stock from seed, whilst others have recommended propagation by means of cuttings, and much might be said in favour of each method. It is, for example, easier to raise seedlings than to strike cuttings, and of course until the cultivator has stock plants from which to cut for propagating purposes seed must be resorted to. But the superiority of plants from cuttings is so great that I would strongly recommend them in preference to seedlings when they can be conveniently obtained. They are more compact in growth, produce heavier crops of berries, and as they fruit earlier in the season the berries take on their brilliant colour two or three weeks in advance of those produced by seedlings. In raising stocks it is necessary to take the cuttings from plants that are short jointed in growth, and produce berries of large size and of a rich colour. The planting out system occasionally recommended does not entail so much labour as pot culture; but the results are not so satisfactory, and where it is desired to have the finest specimens it is possible to produce they must be kept in pots throughout the year. We employ a rich compost, and shift them on as fast as more root space becomes necessary, for it is important they should not be allowed to become potbound until after they have received their final shift. For the last repotting we employ six-inch pots for the young plants and seven or eight for those of greater age according to their size. Some of our specimens are three and four years old, and these are pruned every spring, and have the balls of soil reduced to about one-half. From the middle of May to the end of September we keep them in a cold pit with the pots plunged in ashes, and supply them liberally with water both at the roots and overhead. As soon as the berries have attained their full size the points of the shoots are pinched off to more fully expose the berries and to give the plants a neater appearance. Exhibitors of solanums would do well to pay attention to the point last mentioned, for fully seventy-five per cent. of the plants shown would be much improved by a judicious pinching of the young growth.

ARDISIA CRENULATA is one of the most effective of the berry-bearing plants, but to grow it in perfection the temperature of a stove is necessary. The plants can be grown on for an almost indefinite period, and will up to a certain point increase in beauty in proportion to their increase in size. In a young state it will require repotting annually, but as the plants increase in age a shift every second year will suffice. There are two essential points in the cultivation of the ardisia. One is to place the plants in a comparatively light and airy

position during the autumn, to ensure the maturation of the young wood, and the other to keep them rather dry when in bloom in the spring. By taking these precautions heavy crops of berries may be annually obtained.

RIVINA HUMILIS is of slender growth, and like the ardisia requires a stove temperature for its successful cultivation. It is exceedingly graceful in growth, and one of the most useful of the berry-bearing plants for the decoration of the dinner table. A stock is most readily raised from seed, which should be sown in February or very early in March, and started in a brisk temperature. To ensure a plentiful crop of berries in the autumn the growth must not be stopped severely, and to obtain good specimens without pinching the shoots more than once we put five or six seedlings in each pot when they are pricked off, and then shift them on intact. Three-inch pots are used for pricking off, and those five inches in diameter for the final shift, and a compost consisting of loam, leaf-mould, peat, and cow manure in equal parts is employed. The plants have their points nipped out when about six inches high, and the lateral shoots produced are allowed to grow unchecked.

CAPSCUMS AND CHILLIES have not been very extensively utilized for decorative purposes, although several are very bright and effective when carrying a good crop of fruits. The most generally useful for the conservatory are Princess of Wales capsicum, a yellow-fruited kind of the most ornamental character; Suttons' Tom Thumb and Williams's Little Gem chillies, both of which bear a profusion of small scarlet fruits. The last mentioned has very small fruits, which are globular in form and not unlike a red currant, and so produced that they stand quite clear of the foliage; in its way it is a decided acquisition. All the capsicums and chillies should be raised from seed sown early in March, and be grown on vigorously throughout the summer in a frame or pit. They should be grown singly and not be stopped beyond having the point nipped out of the Princess of Wales when nine or ten inches, and the other two when from six to seven inches in height. In arranging them in the conservatory the plants should be placed on a level, or nearly so, with the eye, and at exhibitions they ought to be put on the stages, and not on the floor, as was done on several occasions in the autumn, for when so low down they appear to great disadvantage.

AUCUBAS are found exceedingly useful during the latter part of the winter and early in the spring, as they have a bold and effective appearance amongst the other things, and worthily take the place of the solanums, which are then more or less past their best. The only sort we grow for indoor decorations is the green-leaved female form, the Aucuba japonica fœmina viridis of the trade catalogues, because of its neat habit and extreme fruitfulness. We deal with it in a very simple manner. The plants are grown in two beds, and at the end of the summer we select as many as are required of those bearing good crops of berries and nip off the young shoots that are above the clusters. Early in October the selected plants are lifted and put in pots according to their size, and then placed in a cold frame, in which they remain until required for decorative purposes. The plants we select each year range from neat examples bearing three or four clusters of berries to bushes of moderate size. I would add that they are planted out again when taken from the conservatory, and that each of the beds contains several good specimens of the male form. To maintain the stock a few cuttings are struck annually in August. W. J.

AN AGED GANDER.

AT Messrs. Howard's, poulterers, Leadenhall Market, there is a memorial stone to a gander which for a dozen years or so was a familiar figure in and about that place, and was known by the name of "Old Tom." The stone has been there for many years, but in making some alterations two or three months ago it was brought into prominence again, and was furnished up, so as to keep the memory of "Old Tom" alive. The bird was quite a "character" in its way. It was hatched at Ostend, and was in later life taken to Calais, where it was taught a number of tricks, and always figured at the fairs there. From Calais it seems to have been sent to Leadenhall Market by mistake with a number of others. It was retained, however, and once had a narrow escape of its life, as it was sent by inadvertence with some more geese to a poulterer's in Houndsditch, and when the messenger arrived from Leadenhall to reclaim it nine out of the eleven which had been sent were killed, and Tom's fate would soon have been sealed. Tom was accustomed to march to about the market with all the importance imaginable, walked in and out of the taverns, and was not adverse to taking "a drink." One day—that was so long ago as 1835—Tom was found dead, was placed in a box in state, and a penny was charged for seeing it, which went towards the cost of the memorial stone. At that time the bird's master was Mr. Grover. When Messrs. Howard's alterations above referred to were made, the box was opened and the bones were seen. Upon the stone is the following inscription:—

"The Grave of poor Old Tom.
In memory of Old Tom, the Gander,
Obit 19th March, 1835, ætat. 37 years 9 months 6 days.
This famous gander while in stubble
Fed freely without care or trouble;
Grew fat with corn and sitting still;
And scarce could cross the barndoor sill;
And seldom waddled forth to cool
His belly in the neighbouring pool.
Transplanted to another scene,
He stalk'd in state o'er Calais Green,
With full five hundred geese behind,
To his superior care consign'd,
Whom readily he would engage
To lead in march ten miles a stage.
Thus a decoy he lived and died,
The chief of geese, the poulterer's pride."

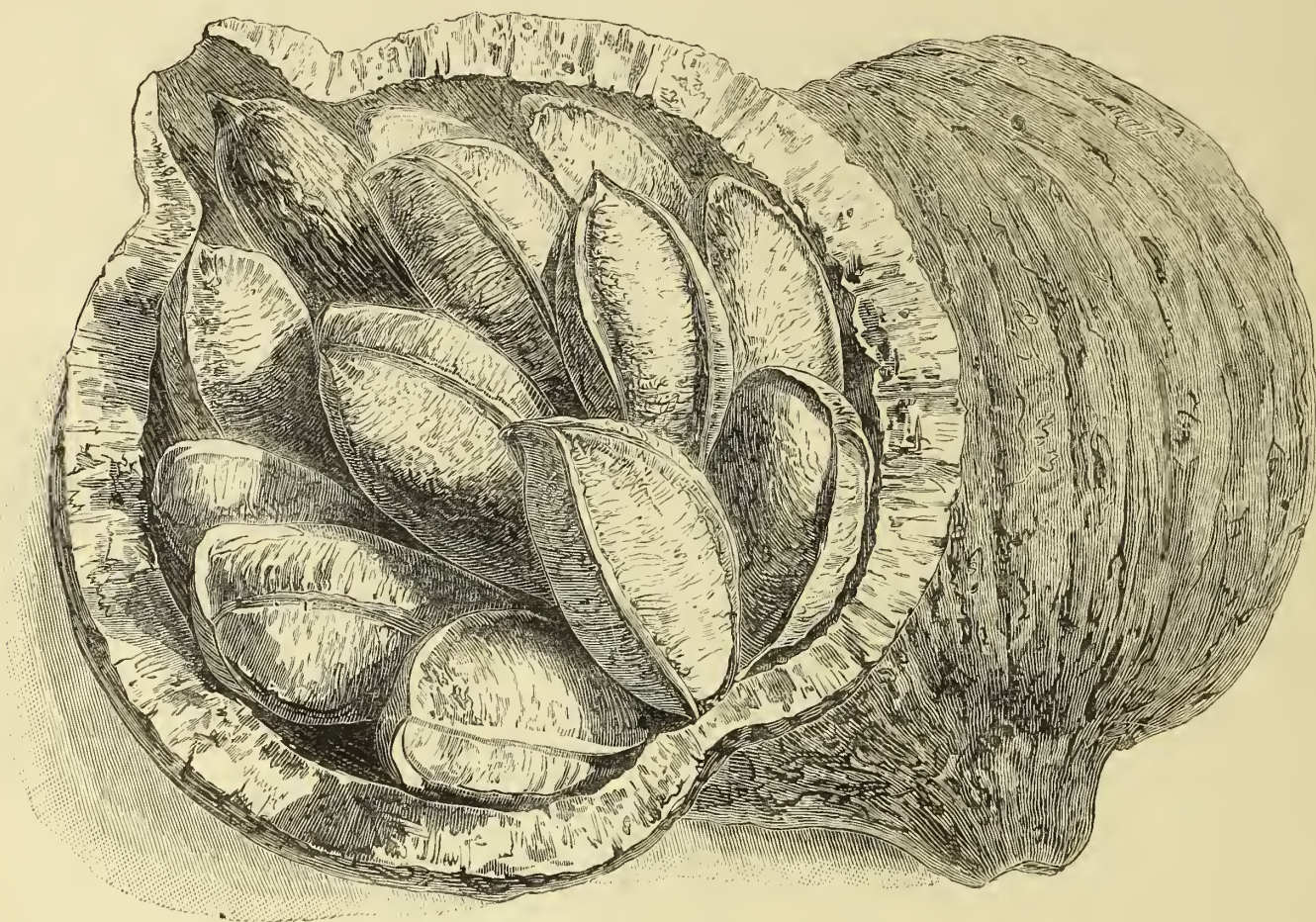
There is a notice of Tom in a recent edition of *Goldsmith's Animated Nature*.—*City Press*

NOTES UPON NUTS.

STRICT classification of natural objects is impossible, and it follows that we cannot with precision classify nuts. Between an apple pip and a filbert the difference is great, but according to some definitions they are both nuts. Useful classifications are nevertheless possible, and usually easy, and nuts offer no special exception to the rule. A nut is, in the first place, a seed or a group of seeds, and it has a hard pericarp. It follows that a gallnut is not a nut because it is an excrescence, and the earthnut is not a nut, but an underground tuber. The well-known nuts that have a place in commerce are about eighty in number, and of these a considerable proportion are of quite minor importance. But the really important nuts make amends for the obscure ones in their exceeding importance as articles of food and as materials for manufactures. We derive from them oils and essences, fibres and fuel, bread, water, and medicines. The milk of the cocoa nut is the only wholesome drink obtainable in many places where the nuts grow in great abundance. The ivory nut is an example of the extreme hardness of pure vegetable tissue. The chestnut and the water chestnut are bread for man, and the nuts of the oak and the beech are bread for the pig, and he thrives thereupon in proportion to the quantity allowed him.

Nuts may be classified in various ways. One classification available is that of small nuts and large nuts, which appears at first as rather stupid, but proves at last to have a real geographical value. There are no large nuts produced in temperate climes, and very few small nuts are produced in tropical climes. Therefore to group nuts in sizes may be of some service at times. As in the present day we are expected to explain things we do not understand, we meet the question, Why are the nuts of temperate climes small as compared with

In the hazel and its varieties we have a nut the shell of which is more or less exposed to the atmosphere, having no protecting hull or pulpy covering. The common hazel of the hedges is thought but little of in good society, but it is a very sweet nut, rich in oil, and more easily digested than a filbert. As a coppice wood our common nut is of great value for the making of hoops and for charcoal; the favourite black pigment with artists for quick work being hazel charcoal. The larger varieties of *Corylus*, derived originally from Pontus, and conveyed hither by way of Italy and France, are of great commercial importance, and their cultivation constitutes an important part of the rural industry of the county of Kent. In those plantations, however, the true character of the tree is never made manifest. When left untouched by the pruner, and having the advantage of a suitable soil and climate, the filbert tree soon become conspicuous for size and nobility. A tree figured in the GARDENERS' MAGAZINE of December 25, 1875, affords a demonstration of the vigorous growth and beautiful proportions of the tree when left to the care of nature. Its production of nuts corresponds with its magnitude, proving that however convenience may be served by systematic pruning, no such practice is needed to ensure an abundant production of the much-valued nuts. Filberts collectively are divided into two classes, named respectively filberts and cobs. The main difference between them consists in the relative length of the husk, that of the true filbert being longer than the nut, and clothing it beyond the summit; that of the cob being shorter, so that a considerable portion of the nut is bare. The filbert takes its name from Philibert, said to have been a French king. But nothing is known of his apocryphal majesty. The cob is so called because it is a cob, a round head or lump or bunch being so called in many parts of the country. A cob horse is a dwarf lumpy animal; a thoroughbred cannot be called a cob. A cop is a head of trees or a conspicuous tuft of

BRAZIL NUTS IN THE POD (*Bertholletia excelsa*).

those of tropical climes? by saying that the small nuts are assailed by birds and squirrels only, but the large nuts are assailed by monkeys. It follows that a protection that suffices in one case might not suffice in the other, and it should be added that the large nuts of the tropics have shells of tremendous hardness, such as monkeys will always find it difficult to crack.

The seed of a peach we call a stone, that of an almond we call a nut. They are precisely analogous in every essential particular, but in minor details differ slightly. The peach nut is very hard, and is enclosed in a large mass of sweet pulp; the almond nut is less hard and is enclosed in a thin body of austere and absolutely inedible flesh. In fundamentals they agree exactly. The walnut and the chestnut are in like manner enclosed in flesh or pulp, the outer rind in the case of the walnut having an important place in the arts. Walnuts differ greatly in character as influenced by soil and climate. The English are the best that come to our markets, but much smaller than those grown in the South of France, Spain, and the Caucasus. These are all of great size, and their shells are often fitted up as jewel cases, pin-cushions, and purses. These large walnuts are comparatively flavourless as compared with those of English growth. The Canadian walnuts are of great size in the husk because of the exceeding thickness of the pulp, but the nuts are not larger than English nuts, and are by no means agreeable to the uninitiated palate, being pungent and acrid. The hickory is a near relation of the walnut, and is a pretty pale-coloured nut with a second-rate walnut flavour. The outer hull or husk is very thin and the shell of the nut is thin but quite flinty in its hardness after having been exposed to the air some time. The hickory is a tree of moderate growth with a grand leafage.

some kind of vegetation; the words are commutable, and their meaning nearly the same. The thinnest of nuts is the Cosford, which may be cracked by the pressure of the finger and thumb. For ornamental purposes the purple and the red filberts are especially worthy of notice for their beautiful colour, and the Pontic filbert (*Corylus colurna*) is not the less important for its great size and the ample spread of its handsome husk. This filbert is figured in the GARDENERS' MAGAZINE for September 2, 1876, where will be found some useful notes on ornamental nuts adapted for the English garden.

The water chestnuts (*Trapa*) constitute a very curious series of nuts. The best known amongst them is the European Water Caltrop (*T. natans*), the nut of which is spiked like the ancient instrument of war that was thrown upon the ground to cripple the enemy's horses. Another of this family is the Singhara of Kashmir (*T. bispinosa*), which constitutes the principal food of large populations in the east. The Ling or bull's-head nut is perhaps the most interesting of the series, for the nut may be likened to a carving in walnut wood representing a bull's head in miniature. This ling (*T. bicornis*) is largely grown in China and Japan as an article of food, its principal constituent being starch. All these nuts are the produce of floating water plants of very curious construction.

The Pistachio (*Pistacia vera*) belongs to the highest class of nuts, being a delicacy for a king's table. This is the produce of a tree belonging to the cashew nut family, and is common in Western Asia. The fruit is a little larger than an olive, with a brittle shell containing two kernels or cotyledons. These are angular, oval in form, and of a dull purplish red colour, remotely resembling dun-coloured kidney beans. The flesh is of a curious shade of pale green, very

agreeable in the mouth, and yet not possessing any very special flavour. They are in this country used by confectioners to flavour dishes, and they are occasionally placed on the table with the dessert.

From the pistachio to the Pea-nut (*Arachis hypogaea*) is a terrible transition, for this is a plebeian nut, and in London a pocketful may be purchased for a penny. A remark has been made about the necessity for large nuts in the tropics, but this a small one, and a native of the West Indies and West Africa. Now, strange to say, Nature has hit upon a happy expedient to keep this nut, which is not only small, but has a shell as tender as thinnest biscuit. It may be described as a pea changed into a nut, the plant that produces it being a member of the great leguminous order, and the kernels or seeds, of which there are usually two in each nut, having the peculiar flavour of a dried pea.



BULL'S-HEAD CHESTNUT (*Tupa bicornis*).

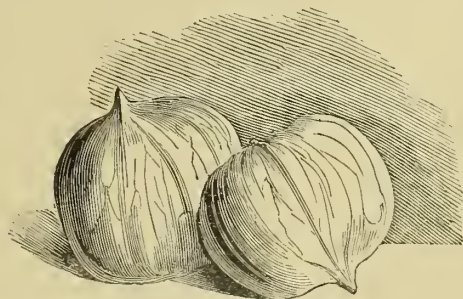
The nut is about an inch long, of a pale colour, the shape of a bolster, very prettily striated and stippled, and often slightly constricted in the middle as if it would like to appear as a tiny dumb-bell. How will Nature save such a frail tasty thing that almost any creature, from man downwards, will devour if able to secure it? What the eye does not see the heart does not yearn for. This nut is, in the course of its growth, very carefully thrust into the ground by the plant that produces it, and there it completes its growth and attains maturity. And if its passage downwards is impeded it does not attain maturity, and there is an end of the matter.

The large tropical nuts are well represented by the familiar cocoa nut, which in the London market is now commonly designated "coker" nut. The public are less familiar, however, or altogether unfamiliar, with the natural growth of the Brazil and Sapucaia nuts. These, as sold in the shops, have all the marks



KENTISH COB NUT (*Corylus avellana*).

of having been produced in masses within a pod, the three-sided Brazil nuts being more especially characterized by signs of pressure. They are the produce of South-American trees renowned for their size and nobility as well as for their liberal production of edible nuts. The most curious in natural characters are the sapucaias, for they are produced in large pods that may be described as cauldron shaped. These pods are furnished with proper convex lids, which fall away when the nuts within are ripe, and thus permit of their distribution. The nut of commerce is named *Lecythis Zabucojo*; it is of a tawny colour



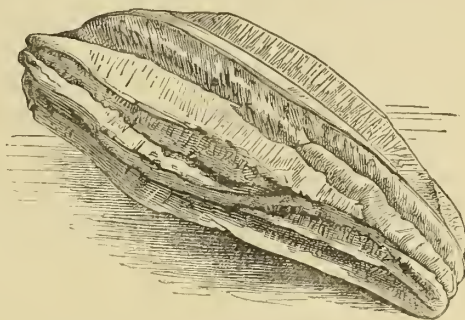
HICKORY NUTS (*Carya alba*).

deeply striated, less hard in the shell than the Brazil nut, and of more agreeable flavour and digestibility. The Brazil nut (*Bertholletia excelsa*) is produced in a spherical or irregular oval pod of exceeding hardness. When broken the nuts are found closely packed in a vertical series numbering from fifteen to thirty nuts in all. If they are once removed it is impossible to repack them. It but rarely happens that either of these reach this country in the pod, but occasionally by careful searching pods may be met with. The usual size of a Brazil pod is that of a shaddock or a cocoa nut, and it requires a smart tap with a hammer to break one.

THE LONDON MARKETS.

In walking through the markets whence the five millions of people within the metropolitan boundary draw their supplies of fruits and vegetables, it is soon seen that of several of the more important subjects there is not such an abundance as last year, or indeed in several years immediately preceeding it; more especially is the falling off in the supplies of apples and potatoes apparent, for if there is not absolute dearth of either all the markets are but lightly stocked, and the prices rule very high as compared with the past four or five years. Of the more perishable kinds of vegetables and the choicer fruits there are good supplies on all sides and the prices such as to leave but a very small margin of profit to the producers. Flowering and ornamental-leaved plants, which are but little, if at all, influenced by the seasons, are quite equal to the demand, and the holly and mistletoe, which this season are well berried, and evergreens generally, have been sent to the market in sufficient quantities to allow of their disposal at reasonable if not low prices.

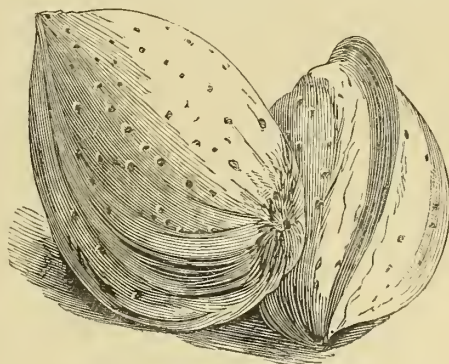
During the current year, now rapidly drawing to a close, the vegetable markets of London have been augmented by the market provided at Bishopsgate, by the Great Eastern Railway Company, but it yet remains to be seen whether or not it will prove a success. It has the great advantage of affording plenty of space for the storage of potatoes and other vegetables that can be kept for any length of time after reaching the market, and for the transaction of business under cover. It also possesses the convenience of a line of rails so laid down that the consignments can be brought to within a very few yards of the office of the salesman in the truck in which they were originally loaded, so that the heavy expense of cartage and the attendant loss of time in delivery are avoided. But, placed underneath the goods station of the Railway Company, the market has the great disadvantage of being very dark and gloomy,



SAPUCAIA NUT (*Lecythis zabucojo*).

and there can be hardly any doubt that the want of light will militate against the success of this and the contiguous market for fish. The importance of light in markets for such things as vegetables and fish does not appear to have been fully recognized, for along those portions of the boundary where win lows sufficient for all purposes might have been provided offices have been erected. A comparatively large number of salesmen have already taken up their places in the market, and the stores of potatoes, onions, carrots, and other roots show that buyers have been well provided for. The ample storage room and the equable temperature render the market specially suitable for potatoes, and there can be hardly any doubt that were the light better it would at once take first rank as a potato market, if not for the more perishable classes of vegetables.

The stocks of potatoes in the market are much smaller than last year, and the prices range from twenty to thirty per cent. higher. The leading English



ALMOND (*Amygdalus communis*).

varieties are Magnum Bonum, Regent, Victoria, and the Champion, and many of the samples, more especially those coming from the northern and eastern counties, are in very poor condition, in consequence of their having remained in the ground until quite recently. The most popular and highest-priced potato in the market is the Magnum, which is now worth from £6 to £7 per ton; Regents and Victorias, which rank next to the Magnum Bonum, are worth from £5 to £6 per ton, and the Champion averages £5 per ton. The supplies of potatoes from Germany are only about one-half of those received just before Christmas last year, and they are worth about a shilling per bag more, the prices now ruling being from 5s. to 6s. A few Dutch Rocks and Reds are being received, and average 4s. per bag. Onions are very plentiful, and immense supplies of the "Spanish onions" of the shops are being received from Spain and Portugal, and of Red Tripolis from the south of France. The cases of Spanish onions, containing about 1½ cwt., realize from 7s. to 8s., and the average price of the Red Tripolis is 3s. 6d. per case of nearly 100 lbs. Onions of the ordinary types, which have been received in large quantities from Belgium, are now worth from 2s. 6d. to 4s. per bushel. Carrots are plentiful and good, and average 3s. per cwt. Brussels sprouts have been most abundant this season, and the prices have ruled low, but they are now less plentiful, and good samples are worth about 2s. per half-sieve. Seakale is coming to hand freely, and is being sold at from 1s. 3d. to 2s. 6d. per punnet. Rhubarb is now worth from 8d. to 1s. per bundle, and tomatoes, which are fairly plentiful and moderately good, range from 1s. 6d. to 2s. 6d. per dozen.

Apples, which are the most important of all the fruits for winter use, are very sparingly represented in the several markets, and generally speaking the prices rule very high. A comparatively few American apples are coming forward, but the Transatlantic supplies do not bear any comparison with those received two years since, when we had to lament the loss of the greater portion of the English crop. The American apples now represented most extensively in the London markets are the Baldwins, Redstreaks, Greenings, and Russets, and of these there is a considerable difference in the quality and condition of the fruit, the condition of a considerable proportion being decidedly unsatisfactory in consequence of want of care in the packing. At the present moment in Covent Garden the finest samples of Baldwins and Redstreaks are realizing 22s. per barrel, of Greenings 25s. per barrel, and of Russets 28s. per barrel. In the Borough Market Baldwins and Redstreaks are fetching about 20s. per barrel, Greenings 22s., and Russets 25s., the fruit good, but not equal to the best in "the Garden." The lower grades, which are to be met with in the greatest quantities at Spitalfields, are from two to four shillings per barrel lower all round than the Borough quotations. English apples are scarce, high in price, and generally speaking poor in quality. A large proportion of the Borough and Spitalfields supplies was so inferior that in any ordinary year it would have been absolutely unsaleable, yet there appeared to be a good demand for it at from 3s. to 4s. per bushel. Very few varieties that can be readily recognized were to be seen in any of the markets. In Covent Garden were a few Blenheim Oranges and Wellingtons, of which good samples were commanding from 10s. to 12s. and 8s. to 10s. per bushel respectively. Winter Quoining was worth about 2s. per bushel less than the Wellington. In the Borough Market fairly good fruit of King of the Pippins was realizing from 8s. to 9s. per bushel, and full-sized fruit of Lemon Pippin from 7s. to 8s. per bushel. It is also worthy of note that samples of the last-mentioned, of which none exceeded an inch in diameter, commanded from 5s. to 6s. per bushel. Apples are now being imported from Spain, and on the 14th no less than 13,000 baskets were landed in London from one vessel, the Bonny Kate. Pears are very scarce, and only in the Central Avenue, Covent Garden, are good samples to be seen, the prices ranging from 3s. per dozen upwards; but pears under 6s. per dozen are decidedly poor. Cob nuts are more abundant than for many years past, and are realizing about 56s. per cwt. wholesale, and from 8d. to 9d. per lb. retail.

Grapes, with the exception of the thick-skinned Almeria, are limited to Covent Garden, where the supply appears to be liberal without being excessive, and the prices are about the same as last year. The varieties represented consist chiefly of Muscat of Alexandria, Gros Colmar, Alicante, and Lady Downes, and their respective values stand in the same order as that in which the names are here given. Muscat of Alexandria commands from 7s. to 9s. per lb. in the open market, Gros Colmar from 3s. 6d. to 4s. 6d. per lb., Alicante from 2s. 6d. to 3s. 6d. per lb., and Lady Downes from 2s. to 3s. per lb. Much of the fruit of the Gros Colmar, which when well finished is the showiest of all the black winter grapes, was decidedly red, and generally speaking this variety is not, so far as the market samples are concerned, up to the average of the last three years. Pines are now practically limited to the supplies from St. Michael's, and although not abundant they are very reasonable in price. Both in the Borough and in Covent Garden well-ripened fruits in the best condition, and weighing from 4 lb. to 5 lb., could be purchased at prices ranging from 6s. to 10s. Pomegranates, of which immense supplies have been received throughout the autumn, are fairly plentiful, and large fruits are worth about 1s. 6d. per dozen. Oranges up to the present time have been somewhat smaller than usual, but they are plentiful and cheap. Cases containing about four hundred fruits are worth from 15s. to 17s. per case, according to quality.

The Covent Garden flower market is well supplied with ornamental plants of all descriptions, for up to the time of writing the weather has been favourable to the conveyance of tender plants to and from the market, excepting, of course, the short period of cold in the early part of the month. The leading flowering plants sent to the market during the past week were azaleas, bouvardias, cyclamens, epiphyllums, hyacinths, and zonal pelargoniums, and the prices for azaleas ranged from 24s. to 42s. per dozen, bouvardias from 12s. to 18s., cyclamens 7s. 6d. to 18s., epiphyllums from 12s. to 30s., hyacinths from 7s. 6d. to 12s., and zonal pelargoniums 6s. to 10s. Amongst fine-foliage plants *Dracena terminalis*, *Ficus elastica*, and palms were the most important, and the two first-mentioned ranged from 24s. to 60s. per dozen, and the latter from 2s. to 15s. each.

There has been no dearth of evergreens for decorative purposes, and both holly and mistletoe have been abundant and exceptionally well herried. The prices have been fairly good, large bundles of holly thickly set with berries realizing from 8s. to 10s. Mistletoe from the west of England was worth from 18s. to 21s. per crate, and mistletoe from France about two guineas per crate, each crate weighing nearly two cwt. Retail fine bunches of mistletoe were offered at from 1s. to 2s. 6d. each.

PEACHES OUT OF DOORS.

No one engaged in the production of choice fruits for the table can be more fully alive to the usefulness of a well-furnished orchard house than myself. But I am no convert to the somewhat extensively prevailing belief that it is not possible to obtain good crops of peaches and nectarines from the open walls unless the soil, situation, and season are exceptionally favourable to these fruits. Before I can entertain any such belief I must blot out the experience of more than a quarter of a century, and utterly ignore the fact that in the gardens in which I have been engaged during that period good crops have been gathered in nineteen or twenty of the twenty-five years. On the contrary, I entertain the opinion that in many instances the management of the trees rather than the season is at fault, and that if the same care was taken now of the trees as was the case in years gone by we should not hear of so many failures or so much of the impracticability of successfully cultivating peaches and nectarines against the open walls. To show that I have good grounds on which to base these assertions, I would first state that I have been practically engaged in horticulture from my youth upwards. Probably it would be nearer the mark to say from childhood; for my father was a gardener, and although he held a good position, he evidently thought a boy who intended being a gardener could obtain a better education in the garden than in the school-house. I will not stop to discuss the soundness of his views upon this point, but I will state that I commenced to take an active part in the work at so early an age that before I was fourteen I could train and nail a peach tree equal to the most highly skilled man employed in the garden. By sixteen I was so proficient that I was allowed to prune as well as nail, and many a day I have been engaged in the work from daylight to dark when the weather has been so bitterly cold that the wonder is, not that I was able to handle the knife

or hammer, but that I was not frozen to the ground or the ladder. The narration of these facts would be of no practical service were I not able to state that during the ten years I was engaged in that garden the crops were remarkably good. From 1851 to 1861, the period of my engagement, we did not miss a single crop, but of course the supplies were in some years more abundant than in others. During the three following years I had charge, as foreman, of the forcing, fruit growing, and kitchen garden departments of a large establishment some twenty miles distant. The wall trees were wholly entrusted to myself, and managed on the same lines as those at home. They annually bore good crops, although a considerable number of failures were recounted to me when the trees came under my charge. Since the period last mentioned, I have had entire charge of a garden in an entirely different part of the country, and we have had but little occasion to complain of the behaviour of peach trees. But the most complete failures have frequently occurred in neighbouring gardens, and many a time, since the management of the garden in which I spent my young days passed into other hands, has the venerable gentleman to whom they belong complained to me of the failures to obtain satisfactory crops. He in common with others believes the seasons to have so changed as to render the production of peaches and nectarines out of doors a precarious matter, and does not appear to have once entertained the idea that a change in the system of management might have had something to do with it. Briefly summarized, the practice which has proved so satisfactory consists in laying in enough young wood during the summer season to properly furnish the tree, and no more; in keeping the growth perfectly free from insect pests; in protecting the flowers and young fruits in the spring with canvas or nets, and in unnailling the trees early in the winter, and tying the shoots loosely in bundles, and fastening them to the wall. Keeping the border for a distance of three feet from the wall free from crops of all descriptions and undisturbed is also a part of the practice. There are of course some soils unsuitable to these fruits, and some districts in which no skill on the part of the cultivator will ensure well-ripened wood, without which fruit cannot be had; but, generally speaking, peach culture can be carried on out of doors with the same, or nearly the same certainty of success as with fruits generally regarded as more hardy.

A PRACTICAL MAN.

"NEW ZEALAND CHERRIES."

A CAPE paper of the 24th ult. says:—Yesterday a fruit dealer in Market Square, incensed at the liberties taken by the loafers with his ware displayed at the door, placed half a gallon of cayenne peppers in a basket, labelled it "New Zealand Cherries," and hung it in a conspicuous place in front of his stand. In a few minutes the next-door merchant sauntered up, inquired how trade was, picked up a New Zealand cherry, placed it in his mouth, and suddenly left to attend to a customer. The Rev. Dr. Bolly next rounded-to, observed that the yellow-fever news from Memphis was not very encouraging this morning, and—ah! it had been years since he had eaten a New Zealand cherry; whereupon he ate one, remarked that it was superb, wiped his weeping eyes on his coat sleeve, supposed that New Zealand was getting warmer every year, wished the dealer good morning, and departed, lamenting the growing weakness of his eyes in the sunlight. A chronic dead-beat then came up, took a mouthful of cherries, spluttered them out with an imprecation, all over the fruit, stuffed a pear, a banana, and a bunch of grapes into his mouth to take out the taste, informed the dealer that he would have him prosecuted for keeping green fruit, and went down the street to the pump. A lady with two children next appeared, stopped to admire the cherries, asked if she mightn't taste of them—she had never seen any before—supplied the children, and walked away—walked away with a face fiery with scorn and anger, while the children set up a howl that brought all the people to the doors and windows, and drove all the policemen off the street. Thus the fun went on all the morning. The fruit-dealer never laughed so much in his life. The occupants of the adjacent and opposite stores, and a shoal of small boys, soon learned what was up, and watched and joined in a ringing roar as each new victim tried cherries. Finally, a solemn-looking countryman lounged up, inquired the price of them 'ere New Zealand cherries, invested in a pint, put one in his mouth, took it out again, gave the fruit dealer a lingering look of mild reproach, pulled off his coat, and "waded into" him. When he left, the fruit man with tendencies to practical jokes had a blue eye, a red nose, a purple face, a sprained wrist, and several bushels of fruit scattered round among the small boys, while the ringing roar of laughter was going up from the lookers-on.

THE GARDEN OF EDEN.

ACCORDING to Dr. Friedrich Delitzsch, a learned German Assyriologist, recent cuneiform discoveries have decided the site of the Garden of Eden of the book of Genesis, and demonstrated the geographical exactness of the Biblical narrative. The Garden of Eden was that part of the land of Babylonia which extends northwards of the present ruins of Bahylou, and which may be defined as bounded on the north by a line running from Bagdad on the Tigris to Akkad on the Euphrates, and on the south by a parallel line extending from Babylon to the Tigris. This district had a Babylonish name, which may be rendered "the Garden of the Lord of lands." In the Septuagint Eden is rendered Paradise, the latter being a Persian word, denoting an enclosed garden or pleasure. This district of country is watered by the Euphrates alone—not like the rest of the land by both the Euphrates and Tigris—a fact noted by Arrian, Xenophon, Strabo, and Ammianus Marcellinus, who speak of the marvellous natural and artificial resources of the district in their times, and its amazing productiveness in corn, dates, and grapes. Gihon and Pison were arms of the Euphrates—the former probably being identical with the Shatt-en Nil of later records, and Pison the Pollakopis of the Greeks. So late as the days of Alexander the Great, the Persian Gulph extended much farther inland, and received the Euphrates and Tigris as separate streams, their mouths being a day's journey apart. Hiddekel was the Tigris. Havilah, the gold whereof was good, was probably part of the country between the head of the Persian Gulph, and the City of Babylon. The Magi, who came from Chaldea, it will be remembered, brought gold among their presents to the infant Redeemer, and gold, bdellium, and onyx are mentioned in Babylonian records as products of that country. Ethiopia or Cush was probably the country to the north-west of the Persian Gulph, once watered by the Shatt-en Nil. It is curious that the name Makau is applied to part of it, and also to the country of the Egyptian Nile. Professor George Rawlinson has noticed the provenance of the Negro type of features in certain bas-reliefs in Susiana, and there is evidence of some not remote connexion between the Cush of Asia (rendered Ethiopia in our version), and the Cush of Africa or Ethiopia.

The House, Garden, and Home Farm.

A CHRISTMAS CARD FOR A CHILD.

To catch old Christmas in the morning air
A child stole out and wandered on the heath;
And there sat Christmas, blowing foggy breath,
Cross-legged upon a stile, and cried, "Look here!
This smile's for you—a good wide smile, my dear,
Of bright red gums, and rare plum-pudding teeth,
And jolly old wrinkles round my holly wreath;
Ho, ho, for Christmas and a glad New Year!"

That child was I; and every year, in snow
Or mist or rain, to that same heath I go,
And there sits Christmas on the self-same stile;
And of the dear sweet days we talk awhile,
Laughing and crying at the things we know,
But parting ever with a hug and smile.

THEODORE WATTS.

THE HOUSE.

PLANTS and flowers employed in house decoration suffer so much from the effects of dry air and heat, and the deposit of carbon upon them where gas is burnt, that those of any value should be systematically removed at every opportunity, and be brought in again as may be needful to render further service. When people are fatigued with festivity, they are apt to leave this and that till the morning; but if the best of the plants can have attention, even to the exclusion of other things of some importance, it will be well, because they may be kept a long time in fair condition with a little care; whereas neglect favours speedy death, and the dead do not come to life again very often. It is not needful to take plants out into the open air, or to return them to the plant houses. To be sure, if they can be all properly housed as soon as "the revel is done" it will be the better; but for mere keeping removal to any cool room, or hall, or sheltered shed, will generally suffice. The main point is to get them out of the hot dry air, and to do this without incurring a chill either to the plants or those who remove them. Early next day they should be looked over, and all that need water should have it, so as to allow time for the surplus moisture to drain away, leaving the pots all clean and dry for the next dressing-up. All plants doing duty in heated rooms should be very carefully looked after as regards watering, for the soil in the pots soon becomes dry, and the effects of a dry air are aggravated by the exhaustion of the roots. As a rule, flowers that are nicely set up should not be in the least disturbed: they last the longer the less they are handled or shaken.

THE GARDEN.

ASPARAGUS, SEAKALE, AND RHUBARB will now be coming in plentifully from the forcing beds. If these beds are allowed to become too dry the produce will be neither good nor plentiful. But they may be moist on the surface and yet dry at the roots of the plants; therefore ascertain by stirring the soil with a trowel in the middle of the bed, and if dry give a good soaking with tepid water. Make up fresh beds for successive supplies. In ordering in roots for forcing take care either to plant immediately on receiving them, or keep the roots moist with moss or mould, or they will be much injured by the action of the atmosphere.

CHRYSANTHEMUMS may be disposed of very easily by setting aside in a cool greenhouse onestore pot of each variety it is intended to propagate, and destroying all the rest. Good stools in six-inch pots will furnish any number of cuttings when required. Cultivators who have no glass can pack the roots close together under a wall or fence, where some dry straw can be thrown over them during severe frost.

FRUIT TREES of all kinds, whether in fruit garden, orchard, or orchard house, should now be pruned and painted. For the latter purpose a mixture of lime, soot, and clay, to the consistence of paint, will answer well; or use Gishurst Compound, or Nicotine Soap, in solution of a moderate degree of strength.

KITCHEN GARDEN.—All unoccupied ground ought to be deeply dug at once if it has not been turned over since the last crop was taken off. Deep stirring and successive frostings of the soil are immensely beneficial in the culture of esculents. The outdoor work of this month must be regulated by the weather. When the ground is not fit to be trodden on collect all the clippings of hedges, prunings of trees, &c., &c., for charring, and keep the produce under cover to use as needful; it is a most valuable top-dressing for peas and other early crops, both to stimulate growth and prevent attacks of slugs.

PEAS AND BEANS may be sown now in frames, to transplant when the season is sufficiently advanced. These will be useful to replace any outdoor sowings destroyed by frost, and to mend and patch the rows that have suffered damage. The best way to sow for transplanting is on strips of turf, which can be lifted out and laid in the rows when the transplanting takes place.

PLANTS IN FRAMES.—Wherever mildew appears cut away the part affected at once, dust the cut part with sulphur, and admit a current of air if possible to hasten the drying of the wound. Remove all dead leaves and decaying litter from amongst the plants.

RHODODENDRONS that have occupied the same position many years will require a little refreshing at the root, and this is the best time to do it. A mixture of very rotten cow-dung and leaf-mould is an excellent surfacing material, or two or three inches of rotten cow-dung only will do; nothing stronger must be used.

ROSES requiring protection, and hitherto neglected, must have attention at once, as we are now approaching the season of real winter. Plantations of roses should now be mulched with half-rotten manure, the looseness of which will protect the roots from frost, and the drenchings of rain and snow will carry much of its goodness into the ground. All newly-planted standards to be securely staked.

TENDER PLANTS in the open ground, such as Fuchsias, Erythras, Bouvardias, Oxalis, Alstroemerias, Japan Lilies, Watsonias, and other rather delicate bulbs in the peat bed, must have some protection, such as coal-ashes.

THE HOME FARM.

THE work on the home farm must be regulated by local circumstances, but the manuring and ploughing of all unoccupied land should be pushed on when the weather and the condition of the soil are favourable. The carting of composts

must, as far as practicable, be done in frosty weather. If any of the crops of full-grown turnips and swedes still remain out they should be stored with as little delay as possible. The large cattle cabbage with solid heads may be kept in an outhouse several weeks without deteriorating in quality, and in many instances it will be an advantage to cut a few cartloads and bring them to the homestead when the horses are at liberty, instead of waiting until they are actually wanted, and taking the horses from other work. In the cultivation of root and other green crops for feeding the stock on the home farm, one of the most essential points is to secure a good tilth, and this can only be had by thoroughly exposing the soil to the action of the weather some time previously.

TRANSLATING.

THE difficulty of translating poetry is but poorly understood by such as have never attempted it. There are intelligent readers to be found who cherish the notion that a good translation of a work is quite as good as the original. The subjoined translations of one of Petrarch's sonnets are offered as illustrations of the difficulty of conveying into another tongue the language of a first-class poet. Both translations are faithful, and both are good—the first is by Lady Dacre, the second by Mr. Cayley:—

If the lorn bird complain, or rustling sweep
Soft summer airs o'er foliage waving slow,
Or the hoarse brook come murmuring down the steep,
Where, on the enamel'd bank, I sit below
With thoughts of love that bid my numbers flow;
'Tis then I see her, though in earth she sleep!
Her, formed in Heaven! I see, and hear, and know!
Responsive sighing, weeping as I weep:
"Alas!" she pitying says, "ere yet the hour,
Why hurry life away with swifter flight?
Why from thy eyes this flood of sorrow pour?
No longer mourn my fate! through death my days
Become eternal! to eternal light
These eyes, which seemed in darkness closed, I raise."

Whenever plaintive warblings, or the note
Of leaves by summer breezes gently stirred,
Or baffled murmur of bright waves I've heard
Along the green and flowery shore to float,
Where meditating love I sat and wrote,
Then her whom Earth conceals, whom Heaven conferred,
I hear, and see, and know with living word
She answereth my sighs, though so remote.
"Ah, why art thou," she pityingly says,
"Pining away before thy hour? why flows
Out of thine eyes so sorrowful a stream?
Weep not for me, since death has made my days
Day without end, and when I seemed to close
My eyes, they opened on the eternal beam."

CHURCH DECORATION.

By C. R. KELLY, Landscape Gardener, Tarporley, Cheshire.

THE EXTERIOR.

ANY attempt to decorate the exterior of the church must be approached with, if possible, even greater care than that of the interior, where any mistake committed will only be of temporary duration, and may be rectified or avoided as experience may teach when the next opportunity occurs. But in the case of the exterior the work must necessarily be of a more permanent nature, for, not leaves and flowers, but living plants will furnish the material for the work. But there are other very important considerations suggestive of great care, such as the difficulty of doing anything that will really increase the beauty of the edifice, and the possibility—or probability—of any neglect in the future care of the plants which might lead to results altogether different from those anticipated by the original decorator. Where the design is really beautiful and the stone-work good very careful consideration is necessary, even on the part of a skilful decorator, before he attempts the work. As in case of the interior, the greatest care is necessary in order to preserve every feature, whether plinth, buttress, or string-course, each one being of great importance in the harmony of the design.

Where there is a nice breadth of ashlar-work between the plinth and the first string-course, it may sometimes be covered (if done very neatly) by running the plants up, without leaves or branches, in the least conspicuous places until they reach the ashlar-work, and when this is covered by carrying them over the string-course in the same way to the next space.

Or a plant of a different colour may be employed for each space by keeping it clear of leaves and concealed by the leaves of the others while crossing their spaces, until it reaches the space allotted to it. In this way if, after careful consideration it is seen to be wise to do so, a whole gable may be covered without concealing or destroying the proportions of its features. Or what might perhaps have a more artistic and graceful appearance would be to cover from plinth to string-course, and then run either a broad band or some very light lines round the window, and, where there are buttresses at the corners, up the sides of the gable. But it is only by the most careful consideration and study of each edifice, its situation, surroundings, and all its associations, by a really competent person, that the two very important questions can be answered,—First, whether it be wise to attempt decoration? and, secondly, in what way should it be done?

Ivy will, I think, be found to be the only really suitable plant for the purpose; but the varieties are so numerous, the form and colour of foliage so various, that they afford variety quite sufficient to satisfy all probable requirements of taste. But only the very dwarf-growing varieties with short leaf-stalks must be used; for all the mouldings, string-courses, &c., have been designed only of proportions suitable for the building as it is; therefore if any plant is used which stands too much out from the wall such things will be dwarfed and spoiled in their proportions. As in the interior, when nothing is done no harm is done, but when any attempt is made to decorate the great danger lies in doing too much; one graceful sprig or spray in the right place, and confined to it, will undoubtedly be more beautiful and in better taste than masses of foliage too rough and coarse for the spaces they occupy.

Great things are possible, but the greatest care is necessary, for, as in the interior, the sole aim must be to make the church itself more beautiful.

Notes of Observation.

CHRYSANTHEMUM JULIA LAGRAVERE.

A SUGGESTION has been made that this justly popular chrysanthemum should be included among the pompones, and the leading societies have been called upon to take the initiative in the matter. How are they to do this without affording an opportunity for all kinds of disputes and upsetting the classification generally accepted? Julia Lagravère belongs unquestionably to the reflexed class, and if its blooms are not so large as those of Dr. Sharpe, or the more recently-introduced King of Crimson, they are much too large to be included with the pompones. It has, moreover, the growth and foliage of the large-flowered section, and if we include it amongst the pompones we certainly cannot shut out Dr. Sharpe, Chevalier Domage, and several others of like character, and I am not quite certain whether we should not be compelled to admit also Mrs. George Rundle and a few other of the incurved flowers of small size. When properly grown Julia Lagravère makes an effective specimen, and full-sized flowers stand out prominently in a stand of reflexed blooms.

A CHRYSANTHEMUM FANCIER.

APHELANDRAS.

Very attractive at the present moment are the *aphelandras*, of which we grow a good stock every year. Our plants range from one to three years old, and their spikes of brilliant scarlet flowers produce a rich effect. We strike a few cuttings every spring and put them three or four together in small pots, and then shift them on without separating them. The cuttings are afforded the assistance of a brisk bottom heat, which according to my experience is a prime necessity, and the plants have provided for them a mixture of peat, loam, leaf-mould, and sand. The plants that are retained for growing on again are pruned rather hard back in the spring, and then shaken out of the soil and returned to pots of the same size. The finest of those in general cultivation are *Aphelandra aurantiaca* and *A. aurantiaca Roezli*, both of which have dark glossy green leaves, and flowers of a bright scarlet, the leaves of the last-mentioned being particularly deep in colour.

W. B.

WINTER-FLOWERING BEGONIAS.

At the present moment the winter-flowering *begonias* are flowering freely, and contribute so much to the attractions of the stove that many cultivators may with advantage be reminded of the fact that the tuberous-rooted kinds are not the only members of the genus worth growing. Some of the finest of the fibrous-rooted kinds suitable for winter decorations are *B. fuchsoides*, which is very attractive, whether ten inches or ten feet in height. *B. Moouligh* is a compact-growing form, producing creamy white flowers, and valuable for its distinctness and attractive character. *B. Saundersiana* is a well-known species, producing a profusion of pink flowers. *B. Madlle. Fanny Giron* is a splendid variety, neat in growth and very free blooming, the flowers being rosy red and produced in good clusters. *B. insignis* still holds its own amongst the pink varieties, and can be strongly recommended. *B. semperflorens* has a good habit, and produces a profusion of pure white flowers that may be employed to advantage in the dressing of *épergnes*; the variety of this with rose-tinted flowers is so beautiful that it deserves to be well known and generally cultivated. *B. hybrida multiflora* deserves a word of warm praise, for it has flowers of a very pleasing shade of pink, and a neat free-blooming habit. The foregoing form a nice selection, but those who require more may add *B. digswellensis*, *B. Ingrami*, and *B. prestoniensis*, all of which are most meritorious. To adopt an elaborate system of culture in dealing with these *begonias* is altogether unnecessary. The cuttings should, as a rule, be struck in February or March to give the plants a long season of growth, and if the tops of the young shoots are selected and afforded the assistance of bottom heat they will strike as readily as *verbenas* or any of the other free-growing hedders. In potting them off I put these intended for examples of medium-size in small sixties, three plants in each, and to form the foundation of large specimens I use large sixties, and put five plants in each, four round the sides and one in the centre. They are all shifted on as the demand for more root space necessitates without being divided, as the object in putting several in each pot is to obtain good specimens without the frequent stoppings required to produce neat bushes when a beginning is made with plants potted singly.

W. B.

CENTROPOGON LUCYANUS.

The plant of which the name is given at the head of this note is a worthy companion to the *epiphyllums*, *eranthemums*, *gesnerias*, and other subjects that give colour and brightness to the stove at this dull season of the year, and should not fail to have its due share of attention. In the first place, it may be said that the flowers are of a rich red colour, and the plants very attractive when nicely grown; and in the second, that neat examples are not difficult of production. This *centropogon* can be readily propagated by means of cuttings struck early in the spring. Tops of the young shoots should be selected for propagating purposes, and after the cuttings have been prepared in the usual way they should be inserted in small sixties filled with peat and sand, three in each pot, and the pots plunged in the hotbed in the propagating pit, or in the cucumber bed, as may happen to be the most convenient. In due course they will require larger pots, and to reduce the labour as far as possible shift into six-inch pots, which will be quite large enough the first year. They are not to be separated, as by commencing with triples good bushes can be obtained with less trouble than when they are potted singly, as once stopping will suffice to ensure enough lateral growth. The compost best adapted to the requirements of the *centropogon* is formed with peat and loam two parts each and leaf-mould and silver sand one part each. The growth requires the support of neat stakes, which should be put to the plants when the shoots are four or five inches in height. Large specimens may be obtained by growing the plants on a second year. These should be pruned moderately early in the spring, and as soon as they are commencing to break be turned out of the pots, have the soil about their roots reduced to about one-half, and be returned to pots of the same size as those from which they were taken. When they have well filled the pots with roots they can be shifted into others eight inches in diameter. The flowers, it may be added, are very useful in a cut state.

W. B.

GESNERAS.

Although *gesneras* are well grown in many places, it is not a frequent occurrence to see them in such a splendid condition as the specimens recently exhibited at Tunbridge Wells by Mr. D. Buchanan, the skillful gardener at Sherwood, the residence of Dr. Siemens. The plants were in eight-inch pots, three or four in each, and the flower spikes formed a mass of flowers about eighteen inches through, and produced an effect of the most attractive character.

B.

AZALEAS FOR WINTER FLOWERING.

The large-flowered azaleas, which produce such a splendid display of colour in the conservatory and on the exhibition stage during the months of April and May, are not the most suitable for winter decoration, although with the aid of the forcing pit they may be had in bloom at an early period of the year. The best for the purpose are Fiedler's White and *Narcissiflora*, which find so much favour with the growers for market, and those forming the group obtained from *Azalea amena* by crossing it with varieties of the Indian azalea. It is to the latter I now wish to refer, for they constitute a distinct and variable section, and as yet are not well known to the general body of cultivators. Earliness of flowering is one of their distinguishing characteristics; and to show how early they are I would mention the fact that I have had several of them in bloom for quite a fortnight past without having had to force them hard. Since about the middle of October the plants have had a place in a structure in which the temperature is maintained at about 60 degrees, rather under than over, and before the flowers began to expand they were syringed overhead three or four times a week with tepid water. I have just introduced a second hatch, and a third lot of plants will be started early in January, and by this arrangement we shall have an abundance of flowers until the large-flowered varieties can be obtained in perfection. The flowers of the early races, of which Mrs. Gerard Leigh is one of the finest types, are of medium size, averaging an inch or so in diameter, and in shape are intermediate between those of *Amena* and *Duc de Nassau*, and can perhaps be employed to greater advantage in a cut state than those of large size. The trusses are of medium size, and produced as freely as could be desired; by placing the plants in a light position when completing their growth, and taking the usual steps to have the wood well ripened, we obtain a truss of flowers at the point of almost every shoot. One of the most desirable of the group is Mrs. Gerard Leigh, which has bright rose-coloured flowers, produced in trusses containing an average of twelve. Not less valuable is Miss Buist, which has flowers a size smaller than those of the preceding, stout and waxy in texture, and of the purest white. For bouquets and dressing *épergnes* the flowers are superior to those of any of the white market sorts, and the variety will, as it becomes known, attain to a high degree of popularity. In addition to these may be mentioned Prime Minister, delicate rosy pink; Lady Musgrave, bright carmine, and Princess Beatrice, mauve. I have also grown two varieties more closely allied to *Amena* than either of the foregoing, and like them very much. These are Emblem and Marvel, which have magenta and rose coloured flowers respectively. The early-flowering section bids fair to acquire considerable importance, for Mr. Todman has devoted much attention to them of late years, and, as shown by the varieties sent to South Kensington last January, has succeeded in raising several possessing much merit. He exhibited one at the Brixton Hill chrysanthemum show under the name of Master H. Connell, which has medium-sized flowers of the most brilliant scarlet, and was deservedly awarded a first-class certificate. Whilst recognizing the merits of the new sorts, I do not overlook *Indica alba*, Fiedler's White, and *Narcissiflora*, and, following the example of the most successful of the growers of cut flowers for commercial purposes, I have several large specimens of each, and by introducing two or three into a warm house at suitable intervals, commencing in October, I am able to meet all demands for choice white flowers.

HEAD GARDENER.

LARGE SPECIMEN CHRYSANTHEMUMS.

Since Mr. Beckett exhibited at Kingston the collection of specimen chrysanthemums, of which the majority measured from six to eight feet over, the question has cropped up on several sides as to whether the size of the plants staged at the public exhibitions ought not to be restricted. Those who are in favour of restriction take their stand on the ground that plants of such gigantic proportions require an immense amount of labour in training, and however satisfactorily finished are not suitable for the decoration of the conservatory. Others again contend that the exhibitor should have perfect liberty in the matter, and be allowed to show plants of as large a size as he can produce. To the latter class I must confess to belong. I certainly prefer plants of medium size well furnished with flowers of good quality, but I do not think it is for the committee of any society to say to cultivators, "You shall only bring to our exhibition plants that will look well in a conservatory." Were it to be done, chrysanthemum shows would, to my mind, be shorn of much their attractiveness, and in this view of the case I am supported by the teachings of history. Fifteen or sixteen years since a cry was raised that the azaleas contributed to the summer exhibitions were "too large for the conservatory," and it was so far successful that the gigantic examples which had for so many years formed such grand features were practically banished for several years, much to the injury of the exhibitions.

PRACTICAL CULTIVATOR.

SONERILLA HENDERSONI.

Amongst the few good stove plants flowering at the latter part of the autumn and during the winter, a prominent position must be given to *Sonerilla Hendersoni*. It is not so striking in appearance as the poinsettias, the *epiphyllums*, and a few other subjects that might be called to mind, but it is exceedingly beautiful, and when well grown it is eminently attractive. This *sonerilla* is of dwarf growth, seldom exceeding when in the most vigorous condition a height of three inches; the leaves are of a greyish silvery colour, and form a dense mass, from which rise in the most profuse manner the spikes of the bright rose-coloured flowers. It may be further stated that the spikes rise about three inches above the leaves and that the flowers measure about an inch across. In the matter of growth *Sonerilla Hendersoni* differs very much from other members of the genus, for it can be multiplied at a rapid rate and be grown into full-size specimens in about nine months without any special skill or attention. The practice which I have found to yield the most satisfactory results is to strike the cuttings towards the end of February or early in March in small pots, three in each, and then shift them on without separating them. Small sixties, after they have had a few medium-sized crocks placed in them, are filled nearly level with the rim with a mixture of peat and sand, and the cuttings are inserted at equal distances round the sides, and then shut up in the propagating frame until they are struck. At this stage they are removed to a warm corner of the stove where they enjoy a fair share of light without exposure to the sun, and when the small pots are nicely filled with roots they are shifted into others two sizes larger—to be exact, into pots five inches in diameter. A rather light and rich compost is essential, and the mixture we have found most suitable is one consisting of fibrous loam, peat, and leaf-mould in equal proportions, and a liberal dash of sand. The pots into which they are shifted must be sufficiently drained, as stagnant moisture about the roots is most disastrous in its effect upon such delicately-rooted subjects as this.

G. S.

GRAPE GROS COLMAR.

Although not equal in flavour to either the Alicante or Alnwick Seedling, this noble grape is not when properly ripened so indifferent in quality as it is frequently represented to be. To ripen it properly it requires more heat when finishing than either of the other two grapes mentioned, and to the neglect to afford the vines sufficient warmth at that stage may be attributed much of the badly-flavoured fruit of which we hear. Gros Colmar does not, according to my experience, require a high temperature throughout the whole period of growth. After I had found how essential a brisk temperature was from the time the grapes began to change colour until they had attained maturity, I thought possibly a temperature similar to that required by the Muscat of Alexandria would be beneficial. Subsequent experience has shown that such is not the case, and some vines planted in the muscat house have been rooted out, for the fruit produced by them was in no way superior to that produced by the vines before they received the assistance of artificial heat during the ripening process. The proper course, so it appears to me, is to maintain a temperature about equal to that required by the Alicante until the berries are changing colour, and then increase the warmth by about 5 degs. I believe Alnwick Seedling will eventually take a high position as a winter grape, for it is far superior in quality to the variety here specially referred to; it is better than either Alicante or Lady Downes, and it has an excellent appearance. In flavour Mrs. Pince has no equal amongst the late black kinds excepting the Black Muscat, which so few can place upon the table in a presentable condition; but unfortunately there is considerable difficulty in colouring it well. The difficulty, however, is not so great that it cannot be surmounted, and I would assure cultivators that they would be amply repaid for any little extra attention they may pay to the vines to ensure a good finish to the bunches.

W. S.

GOLDEN QUEEN GRAPE.

In reply to a "Young Gardener's" query respecting the Golden Queen grape, I will briefly relate my experience with it. I have at the present time a vine of the Golden Queen on its own roots, which is bearing a crop equal in colour to the finest example of the Muscat of Alexandria that has yet come under my notice. The vine in question was raised from an eye and planted by myself, so that there can be no doubt as to whether it is on its own or foster roots. Therefore I should say that the superiority at Tunbridge Wells of one sample over the other was due entirely to the vine being placed under more favourable conditions for bringing its crop to maturity, or to its being managed with greater skill. It is without doubt an excellent grape, for it bears a good crop, is handsome in appearance, and excellent in flavour, and the fruit keeps well. I have it in a house with the Black Hamburg, which ripens its crop in the first week in August, and the two kinds do remarkably well together. The Golden Queen attains maturity about six weeks later than the variety with which it is associated. The berries are plump and the wood green, and from the present appearance of the crop I should say that it would hang for some time yet without being deteriorated. So valuable, indeed, is the Golden Queen for its keeping qualities that I should certainly recommend those who require late grapes to plant it.

Clifton.

J. R.

The inquiry of a "Young Gardener" respecting the influence of the muscat stock on the Golden Queen grape is not without interest to grape growers, but it is hardly possible to explain the cause of the difference in the colour of the berries of the two samples referred to. We all know that in some cases the stock does influence the scion to a certain extent, but seeing that in this case both the stock and the scion produce fruit of a yellow colour, it does not appear at all likely that the stock has any direct influence upon colour. My experience of the Golden Queen is not of long duration, but from what I have seen of it I am inclined to think highly of it, especially for its keeping qualities and rich flavour. In appearance it is not very pleasing, as the colour is somewhat dingy, and the transparency hardly so clear as one could wish; but I am inclined to think that this character might be much better developed by fully exposing the bunches to the light as soon as the berries begin to change colour. With me the vine is a vigorous grower, and produces bunches of moderate size, and in sufficient numbers to justify its being classified with the good bearing varieties.

J. C. CLARKE.

BENTHAMIA FRAGIFERA.

At page 677 Mr. J. C. Clarke inquires if any one can report of this fine plant thriving near the sea. In the gardens committed to my charge at Westbrook, Teignmouth, there is a specimen standing about twenty feet high and about the same in breadth, and its distance from the sea is about fifty yards. In six out of eight years it has flowered and fruited freely. On the 12th of December I noticed a fine lot of ripe fruit on it. The shelter from east winds that it enjoys may be an advantage to it, but it is fully exposed to the north and west.

W. WOODGATES.

UTILIZATION OF WASTE HEAT IN THE GARDEN.

By J. C. CLARKE.

WHEN visiting gardens I have often been much pleased with the ingenuity displayed by some men in conducting and arranging the work of the garden, and, to their credit it must be said, that as much care had been taken as would have been possible had the property been their own and the cost of maintenance to be borne by themselves. In no part of garden management have I seen so much ingenuity displayed as in utilizing the waste heat from hot-water apparatus. These appliances are frequently placed in very peculiar positions, and as a consequence there is often a great waste of heat from pipes laid between the boiler and the houses to be heated. It is in reference to this waste of heat and the means adopted to utilize it that I intend to offer a few remarks in this communication.

The first case I shall allude to was in a rather large garden in North Devon, containing several vineries in one range, and a plant stove and cucumber and melon houses in another. The distance between the two ranges was about eighteen feet. The boiler which had to heat the two ranges was fixed in the centre at the back of the vineries; consequently to heat the other range the hot water had to be conducted beneath the surface a distance of ten feet. The pipes were, of course, placed in a brick chamber, but still there were ten feet of flow and return pipes, or twenty feet in all, constantly giving off a strong heat, which, of course, under the circumstances could not be avoided. But it occurred to the gardener that this waste heat might be utilized

in the production of various subjects for the use of the family. He accordingly had a narrow frame made to place on the chamber, and in this he forced seakale and rhubarb at one time, and devoted it to propagating purposes at another. I remember his telling me how valuable the frame was for forcing lily of the valley, and for starting any small plants that required the assistance of bottom heat.

The most interesting of the various methods adopted for the utilization of waste heat that I have yet seen was one I met with the other day, and I have no hesitation in saying that it showed more than an ordinary degree of ingenuity. The case in its main features does not differ from most others. There were two houses to be heated, and there was a hot-water apparatus put down for that purpose. The houses have lean-to roofs, and there is an ordinary shed on the north side. In this shed was fixed a small independent saddle-boiler, which was doing its work in the most effectual manner. But, like all other boilers that are not set in brickwork, it unavoidably gives off a certain amount of heat. The gardener was not long in finding this out, and as quickly set about to make use of the heat which was being wasted, and I am bound to confess that he has been most successful. Between the boiler and the east end of the lean-to shed there was a spare space about six feet in width, and as the width of the shed is about ten feet it occurred to him that with the aid of some properly-constructed shelves, and some large doors to place in front of them, mushrooms might be grown and seakale and rhubarb be forced with the heat given off from the boiler. The shelves were fixed, and the two upper ones devoted to mushrooms, and the other to seakale and rhubarb. When I called upon my friend on a bitter cold day early in the current month (December) an excellent crop of mushrooms was just peeping through the soil, and the seakale and the rhubarb were nearly ready for the table, and this practically without the expenditure of a penny for heat. Indeed, so satisfactory were all the arrangements and the results that I left the garden impressed with a favourable opinion of my friend's capacity for adapting himself to circumstances.

Another instance of a similar character which came under my notice in another garden must be mentioned. Here the gardener had ingeniously formed a propagating frame over a flow and return hot-water pipe that had to pass through the end of one house to heat a range of pits in the front. As these pits contain succession pines, a strong heat is given off from the pipes during at least eight months in the year. A neat frame about eighteen inches in depth and with glass lights had been carefully fixed over the pipes, and the body of the frame filled with sawdust, in which to plunge the cutting pots. As regards the heat obtained, the end nearest the border was rather in excess of what was wanted, but at a distance of four feet from the boiler, and beyond that point, it was all that could be desired. By occasionally sprinkling the sawdust a nice moist atmosphere is maintained, and I was not surprised to hear the gardener say that in this small frame he every year struck several thousand cuttings.

I have met with other cases of a similar character in my travels, but it is not necessary to mention them, as sufficient has been written to show that the gardeners of to-day are not slow to take advantage of any circumstance that is likely to assist them in their work.

Exhibitions and Meetings.

NATIONAL ROSE SOCIETY.—ANNUAL MEETING, DECEMBER 7.

As briefly announced last week, the annual meeting of the National Rose Society was held on the above-mentioned date at Ashley's Hotel, Henrietta Street, Covent Garden, and notwithstanding the weather being very unfavourable there was a good attendance of members. Dr. Hogg presided, and Mr. B. R. Cant and Mr. J. W. Pawle acted as scrutineers of the ballot for the officers and members of the committee.

In the report presented to the meeting, and unanimously adopted, the committee congratulated the members on the satisfactory progress made during the past year, and described the exhibition held at South Kensington as the best show the society has yet held, and as the largest exhibition of its kind ever seen in this or any other country. The Bath and Darlington shows were also referred to as having been most successful. The publication of the "Catalogue of Exhibition Roses" was recorded with pleasure, and as showing how highly it has been approved by rose growers it was stated that the demand for copies had much exceeded the expectations of the committee, and in consequence nearly all the extra copies printed for sale had been disposed of. With reference to the question of What is an amateur? which has had been under consideration during the past year, it was thought impossible to give a definition that would properly meet every case. Accordingly the committee thought it would be better to decide each case on its own merits as it arises. They thought also it would be well to express an opinion to the effect that no person who traffics in either plants or flowers ought to be considered an amateur.

The financial statement shows that the expenditure exceeded the income by £44, but owing to the large increase in the number of members the reduction in the balance from the previous year had not been so large as was anticipated when the arrangements for the year were made. The income, inclusive of the balance in hand of £97 9s. 4d., amounted to £683 10s. 10d., of which the sum of £273 9s. was received in subscriptions. The prizes awarded at the several exhibitions amounted to £462 5s., and in addition the sum of £33 was expended for medals offered as prizes at the exhibition of the affiliated societies, of which there are now twenty-one. A fitting tribute was paid to the memory of the late Mr. W. Scott, who for several years past occupied the position of treasurer, and much pleasure was expressed that Mr. T. B. Haywood, of Reigate, had accepted the vacant office.

The arrangements announced for 1883 comprise three exhibitions, the first at Southampton on June 28, the second at South Kensington on July 3, and a third at Sheffield on July 12.

As the result of the ballot the following are the members of Committee and the Officers for 1883. Those preceded by an asterisk are new members. President: the Rev. Canon Hole. Vice-Presidents: George Baker, the Hon. and Rev. J. T. Boscawen, James McIntosh, the Mayor of Sheffield. General Committee

H. Appleby, R. N. G. Baker, *Rev. H. A. Berners, Rev. H. B. Biron, *R. Bloxam, T. F. Burnaby-Atkins, Rev. J. B. M. Camm, B. R. Cant, R. B. Cater, Rev. A. Cheales, Captain Christy, J. Cranston, H. Curtis, J. Cutbush, C. E. Cuthell, C. Davies, Rev. E. L. Fellowes, *H. H. French, Rev. J. M. Fuller, Rev. F. H. Gall, T. Gravely, *Rev. R. C. Griffiths, T. B. Hall, G. P. Hawtrej, *J. Shirley Hibberd, R. Hogg, LL.D., C. F. Hore, *J. House, J. Laing, M. T. Masters, F.R.S., W. Mount, G. Paul, W. Paul, J. D. Pawle, Rev. J. H. Pemberton, Rev. E. N. Pochin, G. Prince, T. F. Rivers, W. Robinson, J. Sargant, *A. Slaughter, J. Tinsley, A. Turner, C. Turner, H. J. Veitch, *J. Wakeley, E. R. Whitwell, *E. Wilkins, *Rev. J. A. Williams. Auditors: G. P. Hawtrej and George Paul. Hon. Secretaries: the Rev. H. Honeywood D'Ombraim, Edward Mawley. Hon. Treasurer: Thomas Burt Haywood.

Unanimous votes of thanks were accorded the committee, the honorary secretaries (the Rev. H. H. D'Ombraim and E. Mawley, Esq.), the treasurer during the past year (Mr. G. Lambert), the Horticultural Club (for the use of their rooms), and to the chairman (Dr. Hogg).

TOOTING HORTICULTURAL SOCIETY, DECEMBER 8.

The annual meeting of this society was held on the above date, and like the ordinary monthly meetings that have been held, was remarkably successful, the attendance being very large. The prizes awarded at the recent exhibition were distributed by the president, H. Goodheart, Esq. The officers for the ensuing year were elected, and the balance sheet passed. From the statements of accounts it appears that the income of the society, since its formation in the spring of the current year, amounted to £93 3s. 4d., and the expenditure to £75 1s. 6d., leaving a balance to the credit of the society of £18 1s. 6d.

As at the ordinary monthly meetings, plants, flowers, and fruits were exhibited, and owing to the large number of subjects staged the display was remarkably good. Especially noteworthy were the primulas, zonal pelargoniums, camellias, and chrysanthemums, all of which reflected much credit upon the exhibitors. Mr. Todman exhibited his new seedling azuleas Mrs. Tom Corbet and President Goodheart, which have white and bright-red flowers respectively, and chrysanthemum Mrs. Todman, a fine purple sport from Leon Quex. First-class certificates were conferred upon these novelties, and also upon Evening Star, James Townsend, and Thomas Todman chrysanthemums exhibited by Messrs. S. Mahood and Sons, Putney. Mr. R. Holmes was also granted a first-class certificate for a splendid dish of Black Alicante grape. A cultural certificate was granted to Mr. Lansbury for a group of primulas, which were splendidly flowered; to Mr. T. Todman for a beautiful collection of zonal pelargoniums; to Mr. W. Glide for several stands of chrysanthemums; to Mr. F. Ball, Tooting Common, for a collection of plants suitable for the decoration of the dinner table, and to Mr. Bunby for a group of flowering and ornamental-leaved plants.

Temperley Road, Balham.

W. CLARK.

Replies to Queries.

Eucharis amazonica.—C. M.—An article on the cultivation of *Eucharis amazonica* appeared in the GARDENERS' MAGAZINE of January 1, 1881, from the pen of Mr. J. C. Clarke.

Camellias.—D. S., Bromley Common.—No charge is made for answering the queries of correspondents, and if you will tell us what you want to know we will do our best to assist you. State the case fully and without reference to a previous communication.

Onions.—W. S.—Apply a liberal dressing of farmyard manure at once, and throw the soil into ridges to expose as large a surface as possible to the action of the weather. A good dressing of soot or charred refuse now or when the ground is broken down will also be most beneficial.

Rhododendrons.—Inquirer.—Thoroughly-decomposed cow manure is the most suitable fertilizing agent for rhododendrons. Sufficient should be employed to cover the surface of the beds to the depth of two or three inches. A moderate mulch of partially-rotted stable manure may be employed if more readily available.

Ferns.—Constant Reader.—The only safe course will be to break up the balls as carefully as possible and pick out the grubs. They cannot be otherwise destroyed, for any preparation of a sufficient degree of strength to kill the grubs would seriously injure the plants also. The plants should not be disturbed until early in February and the mixture used in repotting should consist exclusively of loam, peat, and sand.

Coniferous Trees.—H. Haskins, Bournemouth.—The whole of the trees mentioned in your letter may be propagated by means of seeds, which should be sown early in the spring. The cupressus, junipers, cryptomerias, thuja, and retinosporas can be multiplied by means of cuttings also. The cuttings should be taken in September or early in October, and be inserted in beds of light sandy soil made up in cold frames. There is not, so far as we are aware, any work that would exactly meet your requirements.

Lawn.—W. E., Preston.—In the course of next spring apply two dressings of guano or nitrate of soda, at the rate of five pounds to the square rod, the first early in March and the second five weeks later. Early in the summer sprinkle each of the clusters of daisies with a little guano, selecting a period of hot and bright weather for the work. The guano will turn the grass brown, but in a short time after a good shower of rain the grass will grow rapidly where the guano has been applied, and the brown patches soon disappear. Unless the guano is applied during a period of hot sunny weather it will not destroy the daisies, and when a lawn is much overrun with daisies it will be necessary to give the lawn attention two or three times in the course of the summer to make sure of their eradication. There is the alternative of digging out the daisies, but it will be found a long and tedious operation.

Evergreens.—T. M., Hants. The cunonymus and other shrubs you mention are propagated from cuttings, which are usually struck in August or September. The new wood should be moderately firm when the cuttings are taken, and a bed of sandy soil be made up in a shady position for their reception. The most expeditious way of inserting the cuttings is to make drills about three inches in depth, then place the cuttings along them and fill in with soil, treading it as firmly as possible. Well water them in, and sprinkle occasionally during the first two or three weeks, unless the rains render artificial waterings unnecessary. It is a good plan to apply some light protection during periods of severe weather, and in the spring to moderately tread the space between the rows, as even with protection the soil will be loosened. Bracken and branches of fir laid over the beds will afford the most suitable protection.

Names of Plants.—Regular Subscriber.—No. 1, *Davallia bullata*; 2, *Davallia canariensis*; 3, *Nephrolepis exaltata*; 4, *Polypodium pectinatum*; 5, *Asplenium bulbiferum*; 6, *Adiantum Luddemannii*; 7, *Selaginella Martensi*; 9, *Selaginella caulescens*; 10, *Selaginella cæsia*. The chrysanthemums were out of condition, and the other specimens were not sufficient for identification. F. W.—1, *Zygopetalum Mackayi*; 2, *Sophranites grandiflora*; 3, *Lælia anceps Barkeri*; 4, *Oncidium Rogersi*; 5, *Dendrobium moniliforme*. K. R.—1, *Sparmannia africana*; 2, *Luculia gratissima*; 3, *Aralia elegantissima*; 4, *Adiantum mundulum*. Constant Reader.—1, *Calanthe rubro-oculata*; 2, *Calanthe Veitchii*; 3, *Calanthe vestita luteo-oculata*. H. W.—1, *Erica gracilis*; 2, *Eranthemum pulchellum*.

Beetle.—W. H.—The grubs which have done so much injury to your ccheverias and other succulents, cyclamens, begonias, and mimulus are those of *Curculio sulcatus*, and we would advise you to shake the plants out of the soil and repot, using as a matter of course fresh soil. The whole of the soil removed from the plants should be subjected to a very strong heat to destroy the grubs. The best plan will be to make a fire in the garden with refuse wood and throw the soil over it. The grubs cannot be destroyed in the pots without injury to the plants. They change into the chrysalis state towards the end of May, and a month or so later the perfect beetle is developed. When the pest exists a strict search should be made at intervals during June and the early part of July, and every chrysalis or beetle that is found be at once destroyed, for after the eggs are deposited very little, if anything, can be done to prevent injury to the plants during the autumn and winter.

Habrothamnus elegans.—M. P.—This fine greenhouse plant is not suitable for pot culture, as it is not until it attains a large size that it shows its true character and becomes effective. The best place for it is against a pillar in the conservatory, but may it be planted in any fairly open position and be supported with a stout stake ranging from eight to twelve feet high. It should be planted in a compost consisting of loam, peat, leaf-mould, and sand, with a good layer of broken bricks or crocks to carry off superfluous moisture. The leading shoots must be stopped at about every eighteen inches to ensure the plant being well furnished with lateral growth from within a short distance of the border. The side shoots must be allowed to grow unchecked during the summer and be cut back to about the second bud at the winter pruning. Liberal supplies of water will be required during the spring, summer, and autumn, but in the winter when the plants are at rest very little moisture at the roots will suffice.

Peach House.—W. S.—There will be some risk in the use of the mixture you propose unless it is put on very lightly, and allowed to become thoroughly dry before the trees are planted. The preferable course would be to lay the wood in a creosote bath for two or three weeks previous to using it. Creosote is one of the best preservatives of wood, and when dry there is no danger of the wood giving off exhalations injurious to vegetables. In dressing wood with creosote it is placed in a bath from one to two feet in depth, and of a suitable length and breadth, and then covered over with the creosote. The bath must have a flue underneath along the centre, as it will be necessary to heat the creosote during the first week the wood is in the bath. To fit up a suitable bath is not a difficult or troublesome matter when stone slabs can be readily obtained. If you use the tar put it on the wood as hot as possible, and be careful to well work it in. For your purpose the following peaches will be the most suitable—Royal George and Bellegarde, two trees of each variety, and Noblesse one tree. The best nectarine to plant will be Lord Napier.

Standard Chrysanthemums.—E. G.—In the cultivation of standard specimens of both the large-flowered and the pompon varieties a beginning cannot be made too early, and we would advise you to commence at once. Rooted suckers will be preferable to cuttings, and, if available, they should be taken advantage of. To detach the suckers without injury to the roots turn the old plants or stools out of the pots, and shake sufficient soil away to expose the base of the new growth. Pot the suckers singly in sixties, with a mixture of loam, leaf-mould, and sand, and place in a frame where they can be kept safe from frost. They will require a shift into five-inch pots as soon as they have filled the sixties with roots, and, as a matter of course, they must not be stopped until the desired height of stem is obtained. The plants can be grown on a second year if desired, as shown by the specimens that have been exhibited at Stoke Newington and elsewhere. When they are kept over one year the beads are pruned rather hard back in the course of the winter, and the plants when breaking have the balls of soil reduced and are repotted. The suckers that rise round the stem are removed before they have made much progress.

Grape Vines.—Young Gardener.—You should proceed to make the border at once, as the general work is not so brisk as it will be two months hence. When the border is made procure the vines, and either plant them as soon as they come to hand or keep them until they have started into growth and then plant. If they are planted in a dormant state put them low enough for about one and a-half or two inches of the cane to be below the surface, and in a week or so afterwards prune them to the second joint above the soil. If on the other hand you leave them in the pots until they are growing freely prune them as soon as they are received to the first prominent bud from the base. The proper time for planting will be when the new growth is about six inches in length, and they should be put just low enough for the base of the new shoot to be below the surface. In both cases the balls of soil must be carefully loosened round the outside and the roots spread out to enable them to strike more readily into the new soil. For the house intended for the production of supplies from July to October Black Hamburgh and Buckland Sweetwater will be the most suitable, and for the late house Alicante, Lady Downes, and Golden Queen are the best. In both vineries five canes of the black kinds should be planted to each cane of the respective white sorts. The finest of all white grapes for winter use is the Muscat of Alexandria, but it requires more heat than you will be able to afford it.

A CONCOMB teasing Dr. Parr with an account of his petty ailments, complained that he could never go out without catching cold in the head. "No wonder," returned the doctor; "you always go out without anything in it."

A LAWYER says that the three most troublesome clients he ever had were a young lady who wanted to get married, a married woman who wanted a divorce, and an old maid who didn't know what she wanted.

"SAPO CARBONIS DETERGENS" is a physicians' name for a remedy prescribed for the past quarter century for every variety of skin disease. The public have also adopted the same as a preventive of small-pox, scarlet fever, and measles. Purchasers should see that the Latin brand is on every tablet, and WRIGHT'S COAL TAR SOAP on each wrapper, without which none genuine.—[ADVT.]

D. of M.	D. of W.	ANNIVERSARIES, FESTIVALS, OCCURRENCES, HISTORICAL NOTES, &C.	SUN.		MOON.		HIGH WATER AT				M. temp. avrg. of 40 yrs. Clin. wick	USEFUL PLANTS IN FLOWER. H. Hardy; G. Greenhouse; S. Stove.	Day of Yr.	
			Rises.	Sets. before Noon.	Rises.	Sets. Morn.	London Bridge.		Liverpool Dock.					
							Morn.	After.	Morn.	After.				
1882			H. M.	M. S.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	DPG.		1882	
31	S	Sunday after Christmas.	8 9	3 17	3 53	11 58	10 51	5 58	6 18	3 5	3 21	37.1	Tree Carnations, G.	Various.
1883		JANUARY.												365
1	M	Circumcision. (Last Qr., Oh. 50m., aftern.	8 9	3 45	4 0	Morn.	11 11	6 37	7 0	3 43	4 2	36 8	Erica hyemalis, G.	White.
2	Tu	Calcutta captured 1757.	8 8	4 13	4 1	1 2	11 33	7 22	7 49	4 25	4 47	36 7	Daphne rubra, G.	Red.
3	W	Training Ship Warspite burnt, 1870.	8 8	4 41	4 2	2 7	11 19	8 15	8 45	5 14	5 40	36 6	Cytisus Atlecaua, G.	Yellow.
4	Th	Roger Ascham died, 1563.	8 8	5 0	4 3	3 10	Aftern.	9 22	10 0	6 10	6 47	36 5	Correa speciosa, S.	Scarlet.
5	F	Alexander Smith (poet) died, 1867.	8 8	5 36	4 4	4 15	1 0	10 36	11 10	7 25	8 1	36 4	Helleborus niger, H.	White.
6	S	Epiphany. Old Christmas Day.	8 7	6 2	4 6	5 15	1 51	11 40	—	8 35	9 5	36 4	Cytisus racemosa, G.	Yellow.

The Gardeners' Magazine.

SATURDAY, DECEMBER 30, 1882.

THE TWENTY-FIFTH VOLUME (New Series) of THE GARDENERS' MAGAZINE is completed with the present number. The Index will be presented with the issue for January 13, and immediately thereafter the volume for 1882 will be on sale, handsomely bound in green cloth, price 10s. 6d.

SUBSCRIPTIONS dating from the commencement of the year are now due; and as the paper is forwarded only to subscribers who pay in advance, those who obtain it through the post are desired to renew their subscriptions forthwith, at the following rates: 11s. 6d. for twelve months; 6s. 6d. for six months; 3s. 6d. for three months.

Auction Sales for the Ensuing Week.

MONDAY, JANUARY 1, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Liliun auratum and Hardy Bulbs.

WEDNESDAY, JANUARY 3, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Roses, Fruit Trees, Hardy Plants and Bulbs, and Imported Orchids.

THURSDAY, JANUARY 4, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Imported Orchids.

SATURDAY, JANUARY 6, AT 12.30 P.M.—Mr. J. C. Stevens, at 38, King Street, Covent Garden, W.C.; Hardy Plants and Bulbs.

HORTICULTURE IN THE YEAR 1882 may be said to have prospered fairly well, but the records of the year are not brightened by any specially interesting events or great discoveries. We are in a sort of jog-trot way; gardening as a recreation claims an ever-increasing number of followers, but horticulture in the highest sense of the term can scarcely be said to be in a state of rapid advancement. In some things, perhaps, we are rather going backward than forward; but, looking at the case from many points of view, we think we may safely say horticulture is in a healthy state and advancing slowly. There is nothing new to be said as to the application of electricity in plant growing: the light of the sun appears to be as needful as ever in ripening strawberries and the production of salads. There is not much to be said as to the introduction of new plants, for there are but few collectors at work, and novelties of special and peculiar merit have, of late, occurred at about the same rate as angels' visits, giving but small employment to the recorder of events. The season, in its meteoric and economic aspects, has been of a somewhat negative character, for we had neither a true winter nor a true summer; neither a general failure of crops nor a general or striking success. A great growth of grass made but a middling crop of hay, owing to the damaging effect of unseasonable rain. The fine promise of a corn crop was in some degree discounted by the low temperature of the time when sun heat was more especially needed. But in respect of agricultural produce collectively the season was not a bad one, and in many places the farmers have in some degree regained the hopeful spirit that a series of bad years had well nigh crushed out of them. It is a matter somewhat for surprise that we have this year to a great extent escaped potato disease. The early crops were much affected, and the late crops were slightly affected. Nevertheless, with a cold summer and much unseasonable rain a heavy bulk of potatoes of good quality has been secured, a fact we think attributable in a very large degree to the spread of enlightened views on the subject of potato culture.

The Fruit crop was better on the whole than the reports represented. But it was poor enough, and we dare not boast of it. The market prices tell the tale. They are high enough to gratify few, and they are high enough to tell of the disappointment of many. The fruits that more especially need sun heat to ripen them were sadly deficient of bulk and quantity, and our old friend the apple, which is certainly the counterpart of the potato in the fruit world, makes the best show in the market. Here, as in the root with which we bracket it, there is great improvement as regards the total of the crop of the season. Half a century; or, say a quarter of a century; or, say only fifteen years ago, such a season as that of 1882 would, we think, have produced a crop no better than a tenth of the total of the present crop; and whatever the speculative comparison may come to it cannot be doubted that improved cultivation must be credited with a very large share of the advantage to mankind of a moderate crop in a most unfavourable season. In this

case we cannot refer to a special exhibition or movement as in any way accounting for the beneficial progress of the cultivation. But the cases are nearly parallel for all that. The horticultural papers have for some time past been busy in collecting and diffusing information on the subject; and the planting of fruit gardens, whether for household or market purposes, has been very materially aided by discussions on the relative merits of varieties, both as to productiveness and quality. We may have to go down a peg now and then in our anxiety to ensure a crop, but we now see our way pretty clearly to ensure quantity and quality together, and to a certain extent we are becoming independent of seasons in the growth of apples, as in the growth of potatoes. The temperature and rainfall of the past summer suggest to us these considerations, but in giving utterance to them we are conscious of our fallibility, and will hope for the best.

Looking at the more elegant departments of horticulture, we see many signs of progress, although, as remarked above, there is nothing great to call for notes of admiration! Our business, in view of the facts, appears to be to cultivate patience, and hope for the best. Meanwhile we are bound to say that horticulture, in all appeals to the masses of the people, is now greatly dependent on the special societies that meet with such rough usage in certain quarters, where there should be much light, but where, instead thereof, there is much darkness. All the special exhibitions of the past year were not only successful—they were brilliant. Never in our time, and probably never in any time, have such exhibitions of Auriculas, Pelargoniums, Roses, and Carnations been seen as those that made a brilliant exhibition season at South Kensington. The Pelargonium Society had the good fortune to entertain, at its exhibition—which was the best of the series of eight that have been held—a party of distinguished Belgian horticulturists, and the fact affords a suggestion of the national as well as the floral reason for sustaining the special societies. We ask the friends of horticulture everywhere to be ready in helping to sustain the fine spirit that is abroad—a spirit that has plainly declared that florists' flowers shall not be trodden underfoot, even by learned professors whose exalted views might entitle them to a place in the seventh heaven.

The botanical side of horticulture is dull enough, but the floral side is lively. The Amaryllis is becoming a florists' flower, and we shall soon have serious work in determining its properties and its proper place in competitive exhibitions. The Begonia is in no dubious position. It is a florists' flower of the very first importance; its uses in the open garden giving it a pre-eminence as regards popularity; for, after all, the open garden is the best battle ground for the settlement of the claims of rival floral champions. But we must take the Tree Carnations into consideration. Speaking in a severe tone, these are not florists' flowers, but their usefulness is unquestionable and the increasing demand for them will suggest to the wiser order of critics that their properties might with advantage be embodied in a code, for now that we have many varieties we can afford to select the best, and allow the remainder to go as weeds of the wall to whatever destination suits them. There are many grand varieties of this class now in cultivation, and the very first requirements of art are that in such a case we should pronounce in definite terms for the best, and leave the others to go wherever they are wanted.

From gardening to gardeners is a proper transition no doubt. We could not properly begin with the men, because they, like the rest of mankind, are the creatures of circumstances. Well, the circumstances have not been favourable to gardeners during the past half-dozen years. The crops are affected by the seasons only; the gardeners are influenced by the seasons, the rents, and the state of trade. It cannot be concealed that gardeners have had a bad time of it the past few years; but it was not the fault of the government, of the horticultural papers, or of employers in any general way. The rental of the country has been reduced by unfavourable seasons, and all classes have suffered. Bad seasons and bad trade usually go together, and when the private purse is found to be shrinking there is always a probability that the garden will be the very first part of the establishment to suffer in consequence. This is just what has happened. There is, in the broad view of the case, no blame and no remedy. We have said that whatever intelligence may accomplish in reducing the total effect of potato disease, no one can engage to abolish the pestilence unless he

possess the power of regulating the behaviour of the sun in the heavens. We will venture to say the same of the man who would propose at this season to remedy the grievances of gardeners. If the sun does not shine the garden will not prosper, and when a run of bad years occurs farmers, gardeners, traders, artists, authors, and even undertakers, will be prejudiced, because the world will have less wealth, which means less money; and, as the snail tucks in his horns when he suspects danger, so will the safe-moving citizen regulate his expenditure in accordance with his expectations. But bad seasons alternate with good seasons, and so at the close of the year, which is near at hand, we would revive the happy burden of Charles Mackay's song, and say, "There's a good time coming, boys; wait a little longer."

CAPTAIN SAXBY'S WEATHER TABLES for 1883 are published as usual in neat form for the pocket by Messrs. Letts and Co., 13, Royal Exchange.

LOUGHBOROUGH CHRYSANTHEMUM SHOW.—It appears that our report of this affair was incorrect in one particular. The first prize for twelve incurved flowers was awarded to Mr. J. Lansdell, of the Gardens, Barkby Hall.

CARTER'S PERPETUAL-FLOWERING VIOLA is a peculiarly interesting plant. Flowers gathered from the open ground within the past few days are of a soft lavender-blue colour, and emit a rich spicy odour. For such a thing there must be a thousand uses.

THE degree of Doctor of Medicine has been conferred by the University of Cambridge upon William Collingridge, M.A., M.B., S.Sc. Cert. Camb. (Christ's College), Medical Officer of Health of the Port of London. The subject chosen by Dr. Collingridge for Thesis was "Scurvy: Its Causes and Prevention."

"PAXTON'S FLOWER GARDEN," Part 29, just published, contains coloured figures of Darwin's barberry and the very showy gesneria-flowered sage. The lovely *Berberis Darwini* looks dry and hard in the plate, the sparkle of the plant being but poorly suggested. The woodcuts comprise a number of interesting subjects.

A MONSTER PUMPKIN.—His Highness the Maharajah of Cashmere has given the go-by to all the gigantic cabbages and big gooseberries in creation. He lately sent in to Lahore, so the Indian papers tell us, a specimen of the horticulture of his Happy Valley in the shape of a pumpkin 6 ft., 7 in. long, and 3 ft. in diameter.

DESTRUCTION OF SPARROWS IN AUSTRALIA.—The *Adelaide Evening Journal* says the following figures, showing the number of sparrows and eggs that have been destroyed up to Nov. 6, have been supplied to that journal by the Under-Secretary: Heads, 27,345; eggs, 187,212. From Oct. 1 to Nov. 6, 5,420 heads were paid for and 44,685 eggs.

THE CHRISTMAS NUMBER of the *Rock* newspaper has some peculiar attractions for those who take special interest in ecclesiastical and Biblical subjects. The several papers are evidently designed for general usefulness, and that by Mr. Froude on the relations of the three principal nationalities of the home empire is worthy of his high name.

DRIED FRUITS AND THE REVENUE.—The Customs duty levied on dried fruits brought during the twelve months ending March 31, 1882, the not inconsiderable sum of over half a million sterling. This was made up as follows: Currants, 930,274 cwt., £325,610; figs, plums and prunes, 121,950 cwt., £42,692; raisins, 409,539 cwt., £143,255; total, £511,657.

A SYLVAN SANATORIUM may be found at the very gate of London, the *City Press* declares, in the beautiful district of High Beech and in Epping Forest generally. On days when the fog is impenetrable in London it is usually sunny and exhilarating in this great sylvan tract, and when mist occurs there it is made of water only, the much-dreaded sooty mixture that kills the Londoners being nowhere to be met with.

AGRICULTURAL DEPRESSION AND ITS REMEDY.—Speaking at Catterick, near Richmond, Mr. Rowlandson, the farmers' candidate at the recent North Yorkshire election, said agricultural depression was owing to something more than bad seasons. What was requisite was to give the tenant the freedom of cropping, and the landlord freedom of sale. The benefits of this would be felt by all classes, not excluding the agricultural labourer.

LETTS'S DIARIES, in all shapes and sizes, for business men, country gentlemen, lawyers, doctors, in fact, for all who can possibly make use of such things, are at command as usual, and distance all competitors in style, finish, and price. Moreover, this famous firm indulges in fanciful almanacs, Church calendars, and registers for the household and the toilette, one of this class being a black letter almanac with fac-simile pictures in sixteenth-century style.

THE HEATING OF THE ROOF, as adopted by Mr. W. Bull at Chelsea, and Mr. H. Cannell at Swanley, has been carried into effect in the palm stove at Kew with very considerable advantage. It makes an end of drip, economizes boiler force, equalizes temperature, and saves from injury the leaves of plants that are near the glass, and that when severe frost prevails might, without such protection, be seriously damaged.

"FLORAL DINNERS" are now given by fashionable hostesses at Nice. One special flower is adopted for each evening, and the tables are covered with garlands of roses, marguerites, lilies, violets, &c., arranged in fantastic forms. Plates of old Dresden or Sèvres china, wreathed in sweet-scented blossoms, are said to look charming.

THE LIGHTING OF THE COUNTRY HOUSE obtains but small attention as compared with the feverish anxiety that prevails as to the lighting of houses in towns. Where lamps are in use it is probable that some advantage may result from consideration of the articles manufactured by the Holborn Lamp Company, 118, Holborn. Many of these are remarkably efficient and extremely beautiful, and are adapted for burning the cheapest oils.

THE MILD WEATHER is bringing many plants into flower prematurely, and primroses are again to be heard of. Many of the hopeful class of people talk already of the near approach of spring, forgetting that we now have to face the two ugliest months in the whole year. It is not well to encourage extravagant hopes at any time, and as regards the winter and the spring we know absolutely nothing as to where one will end or the other begin. In a run of years January and February are times of frost and fog, and there is plenty of time as yet for wintry weather.

DOUBLE PRIMULAS.

By J. C. CLARKE.

It is a singular fact that many cultivators are unsuccessful in the management of double primulas, and if we except the old double white variety, they are looked upon by the majority of growers as rather "miffy" subjects. When we find such to be the general opinion, we may safely conclude that the character is not altogether undeserved. Those who make a speciality of them can grow them in a satisfactory manner; but then the general body of gardeners have neither time nor convenience to do so; they must therefore confine their attention to such plants as will endure ordinary treatment. I have seen enough of the newer varieties of double primulas to know that they require special care and appliances to ensure success. Many good gardeners have taken them in hand, but have signally failed to keep them alive after they have once flowered. No doubt the fault lies in the treatment, and I believe the great secret is that the plants are allowed to exhaust themselves in flowering. When first received as new plants they are generally neither very large nor very strong, but as a matter of course the grower is anxious to make a display with them, and so they are encouraged to flower, and allowed to do so longer than is good for them.

If this explanation be correct, which I believe it is, the lesson taught is that they must be treated with greater care. To start upon this assumption, those who are in possession of newly-purchased plants will act wisely if they only allow them to produce one crop of flowers, because at this season of the year it is the nature of this section of primulas to continue putting up fresh flowers. It will not overtax the plants to allow them to develop the first flowers, but to allow small and weakly plants to continue flowering will undoubtedly weaken them to such an extent that they will be practically of no value either for propagating from or for keeping over for another year. And now, having given this caution, based upon my own experience and observation, I will endeavour to give a few practical instructions on the management of these plants that I hope may be useful.

PROPAGATION.

This is not so difficult a matter as some people suppose. We may reckon that they go out of flower by the middle of January. The plants should then be placed on a sunny shelf in a house where the temperature is maintained at about 45 deg. by night and 55 to 60 deg. by day. Only just enough water must be given to keep them alive, for the object is to harden the growth, because it is the half-ripened side shoots that make the best cuttings and ultimately the best plants. From eight to ten weeks of this treatment is not too long. At the end of that time the cuttings may be taken—the end of the cutting should have quite half an inch in length of the firm half-ripened growth—and then inserted singly in small pots, and the pots at once plunged in a propagating pit where there is bottom heat. They must be kept close for the first fortnight, and a very little water will suffice to keep the soil moist. I have also struck them in a cucumber or melon bed, but owing to the steam there is some danger of the cuttings dying off before they are rooted. Those who have neither of these conveniences may strike them in a cold pit or frame, if the cuttings are put in about the end of June. But when the stock is raised without heat the plants are very small the first year. The advantage of striking them early is that there is a longer season of growth secured, and consequently they make nice little specimens the first year. The easiest of all the plans I have tried in raising a stock of plants is by earthing up the stems of the old ones: the *modus operandi* is very simple. In the month of March select some strong plants that have several side growths, and with a pair of scissors or a sharp knife remove the lower leaves so as to leave bare the stems, and then place a small mound of fine sandy soil round the stems. Then place the plants on a warm light shelf in the greenhouse. As the mound of earth will prevent watering from a water-pot in the ordinary way, as often as the plants want water they must be gently placed either in a cistern or bucket of water, and held there for a minute or two until the whole of the soil which the pot contains is moistened.

About two months after the earthing of the stems most of the side growths will have made sufficient roots to bear severing from the old plant. They must be searched for carefully, and each piece taken off

separately with a sharp knife. If this part of the business is performed judiciously there will still be left sufficient growth on the old plant to make a decent specimen, and each piece taken off will make a small plant if potted separately in a small pot. After this operation is completed the management will be just the same as if the plants had been raised from cuttings inserted in pots and placed in heat.

THE SOIL.

A suitable soil plays an important part in this culture, for it must be of the most substantial kind; rich, yet not too light. I find the following mixture a very excellent compost for double primulas:—equal parts turfy loam, peat, thoroughly rotten animal manure, and rather a liberal sprinkle of the best Bedfordshire silver sand. If the compost is sifted at all, it must be through a very coarse mesh sieve, but unless the loam is lumpy it is better not sifted, as if carefully worked about on the potting bench with a spade it can be got fine enough for the purpose. To preserve the fibrous matter is essential to keep the soil open, for the delicate roots of these plants cannot penetrate a soil that contains hard lumps. A certain quantity of fine particles in the compost is desirable, but it is easy to err in having too large a quantity, so that when slightly overwatered it will soon get into a compact, heavy, ungenial mass.

THE POTTING.

There is nothing difficult to understand in this operation. The pots should be quite clean, and so should be the crocks. The drainage of the pots is no doubt the most important part of this portion of the details. A rather large hollow piece of crock should be placed over the hole and then several pieces, and over these another layer half an inch in depth; the last layer to be broken up fine and free from dust or dirt. In selecting the size of the pots, the strength of each plant should be studied. The more vigorous they are the larger pots they will require. If the cuttings were inserted in three-inch pots the first shift should be into a five-inch size, and this first shift should take place as soon as they have filled the pots with roots. Small weakly plants will not require any larger pots the first year. Early-struck and vigorous plants may have a shift into six and a half-inch pots about the middle of September. Moderately firm potting is necessary, but the soil should not be made so firm as is done in the case of pelargoniums.

WATERING.

This really is a very important part of the management, as an excess of moisture in the soil, if continued for any length of time, will soon bring the plants into an unhealthy state, besides rendering it likely that the plants will die off by damp accumulating round the collar. Clear water is best for them until they show signs of flowering, and then regular supplies of weak manure-water will assist them immensely.

SUMMER QUARTERS.

From the beginning of May until the end of the summer a shady place is desirable, and through the months of June, July, and August shade is absolutely necessary. A cold frame under the shade of a north wall affords very suitable quarters. They require plenty of air, but are best sheltered from rain. About the end of August they should be taken to a warm greenhouse.

WINTER TREATMENT.

A shelf near the glass where the plants can have a moderate supply of air is the best position for them. To flower them successfully they require to be kept in a temperature of 45 deg. by night and 55 deg. by day. They ought not at any time to be crowded, and especially during the winter. As the flowers fade they should be regularly removed, as decaying flowers retain injurious moisture in dull damp weather. To keep them in good condition cleanliness is very necessary at all times.

DARLINGTONIA CALIFORNICA.

THIS most singular plant has been long enough known to cultivators to have been much more common than it is. Introduced some time after the beginning of the present century, it has since occasionally been met with in the gardens of those who have a fancy for something out of the ordinary way; but unfortunately, as with a good many other highly desirable plants that will not continue to thrive under treatment such as is suited to the general run of pot-grown things, it has too often been subjected to cultural conditions such as are all but certain to end in disappointment. When a plant indigenous to any country warmer than our own makes its appearance, unless the right treatment which it requires is at once hit upon, it not unusually happens that the conclusion jumped at is that more heat must be given it, and if for a time under such usage there seems to be a promise of success by the plant having a luxuriant appearance, the difficulty is supposed to be got over, all going well for a time, until signs of weakness become apparent, the plant ultimately dwindling away, the victim of the over-excitement it has undergone through mistaken kindness, which has destroyed, and continues to destroy, more valuable plants than ever succumbed through inattention. Thus it has been with nine out of ten of the imported examples of darlingtonia that have reached this country alive. They are at once potted and placed in a warm moist atmosphere, where, if enough vitality remains, they are forced into top growth without any corresponding root action to support the formation of leaves. Under such conditions a greater or less percentage of the strongest succeed for a while, but rarely for any length of time.

The darlingtonia is in reality a cool greenhouse plant, and rarely succeeds long in the atmosphere of a warm stove. It may be increased from seeds produced under cultivation, but before these are existent it is evident that healthy vigorous plants must be available to pro-

duce them; so it will be better to give a short account of the treatment I have found successful with newly-imported stock, such as frequently is to be had at a reasonable price, like *sarracenias*, to which in some respects the darlingtonia is not unlike in its requirements. It is a swamp plant, growing with its roots naturally in moisture, and on this account has a great dislike to the drying influences inseparable from the long journey from its distant native home. The leaves are always more or less shrivelled when it arrives in this country, with usually some few living roots; but the formation of new root-fibres with the darlingtonia is a slow process, the plants only beginning to push them after they have been in contact with a moist medium for some time. As soon as they are received, all dead and decayed leaves should be removed, after which they ought to be well syringed, so as to rid the foliage of the dirt accumulated on it in transit; they should then at once be placed in pots small in proportion to the size of the plants, one-third filled with clean potsherds; for in common with all other plants of a like character, although requiring the soil in which the roots are placed to be quite wet, they do not like stagnant moisture, which quickly reduces the material to a soapy inert mass. The best soil that I have found for them is half fibrous peat and half living sphagnum, chopped up so that it will mix freely with the peat, to which add a few crocks, or pieces of broken charcoal, and a little sand. In this they should be potted moderately firm, putting two or three sticks to support the principal leaves, being careful in thrusting them in not to bruise or injure the not over-abundant amount of roots the plants are likely to possess. If they are received late in spring or during summer they should be put in an ordinary cold garden frame, with a few inches of ashes under the pots to keep out worms, and if the pots are half or wholly plunged in moss it will be all the better. The frame ought to be kept closed in the night, and tilted a little in the daytime, but with no current of air passing over the plants, nor so much admitted as will dry the atmosphere too much. They should also be shaded when the sun is on the glass until they have made some growth, and in most cases even after this for it is necessary to bear in mind that with this, as with most other plants cultivated under glass, they will not bear full exposure to the sun in the hottest part of the year in the way they are subject to it under natural conditions. If all goes well, in a few weeks the plants will begin to make growth, producing their singular pitcher-like leaves, but in the first instance not attaining near the size of the old ones. As autumn approaches they should be transferred to a pit or greenhouse, standing the pots on some moisture-holding material, and covering them with bell or hand glasses, tilted so as to give a little air. Keep the soil moister than would be required for ordinary greenhouse plants all through the winter, even when at rest. Should the newly-imported plants be received too early in the season to admit of placing them in a cold frame, or too late in the autumn to allow of their making growth under such conditions, they ought to be at once put in a house or pit where they can be kept at a moderate greenhouse temperature through the winter, so as to encourage them to make a little progress; the object in all cases being to induce root growth simultaneously with that of the leaves, without which, though the latter may be produced, the plants are almost sure to die off the following spring, when they should again make a start.

The second season, if all goes well, they may be kept in a corner of an ordinary greenhouse or pit, standing them on some moisture-holding material, and being careful not to subject them to a through current of air, such as if opposite to a side light open daily, giving them a little shade in bright weather, but the bell or hand glasses may now be dispensed with. Their peculiar pitcher-like leaves will this second season be produced considerably larger than the first effort made, but it is not until the third or fourth year that their full size may be looked for.

Each spring, before growth commences, they should be turned out of the pots, and as much of the old material got away as can be done without injuring the roots, and replaced with new. The pots, as a matter of course, will need to be proportionate in size with that of the plants, but they are spare rooters, and a six or seven inch pot is large enough to support a strong specimen bearing a dozen or fifteen leaves. When in active growth the plants should be watered almost every day; an occasional sprinkling overhead with the syringe will help to keep them free from insects, such as thrips and green fly, to both of which they are subject, especially the former. When either of these pests make their appearance there must be no dallying until some future time to reckon with them, or the leaves will be permanently disfigured. Tobacco smoke will be found the best remedy.

When the plants become strong they flower and ripen seed, which should be immediately sown in a shallow pot, drained and filled with a material similar to that recommended for growing them in, pressing the soil quite firm, and making it smooth on the surface, after which give a thorough soaking with water, scattering the seed on the top, and standing the pot in a pan kept filled with water, by which means the material will be kept sufficiently moist without watering overhead, the effect of which would be to wash the seeds down too deep for them to vegetate. A loose piece of glass laid on the top of the pot will help to keep the surface damp. Directly the seedlings appear the glass must be removed, giving enough air to prevent weak growth. When the plants have each made a leaf or two an inch long they should be pricked out an inch apart in pots filled with material similar to that in which they were sown. Here they may remain for the first season, putting them singly the ensuing year into small pots, which may be plunged as close as they will stand in larger pots filled with moss. All that is necessary is to treat them in every way similarly to that advised for the imported plants after they have got established, simply giving more pot-room as required. R. Q.

CAPE HEATHS.

By JOHN BEXTER.

THE azalea has been, and not inaptly, termed the "King of the Greenhouse," and I think the erica or heath has fully as great a claim to the title of "The Queen." For the beauty of its flowers, the diversity of habit, colour, and season of flowering, it is altogether without a rival. The propagation and cultivation of this charming family possess much to fascinate the amateur. There is really no great difficulty about the matter, and the attention to the little niceties of treatment are so well repaid by the pleasant aspect of the plants when in a healthy state, that I strongly recommend lovers of plants to take ericas in hand.

Most of the species and varieties are best propagated by cuttings, but a few kinds—for instance, *E. elegans*, *E. andromedæflora*, *E. triumphans*, *E. vasiflora*, and some others—are only satisfactory when raised from seed. I should not recommend the amateur to attempt the cultivation of the kinds mentioned at beginning; but rather I would advise him to commence with a few autumn and winter blooming kinds, such as *E. verticillata* major, *E. hyemalis*, *E. hyemalis superba*, *E. grandinosa*, and *E. Willmoreana*, and such spring and summer flowering kinds as *E. Sindryana*, *E. candidissima*, and the beautiful varieties of *E. ventricosa*, more particularly *E. ventricosa coccinea* minor, *E. ventricosa grandiflora*, *E. ventricosa magnifica*, and *E. ventricosa superba*. To these should be added the lemon-coloured *E. affinis* and the magnificent yellow *E. Cavendishi*.

These can all be struck readily from cuttings, which should be selected and prepared in the following manner. Choose the cool season of the year—say, from September to February—for the work of propagation. Before taking off the cuttings, prepare the pots in the following manner to receive them: Take perfectly clean five or six-inch pots and invert small pots in them, and place round the small pots to their full height clean rather rough crocks, and over the whole put a layer of smaller crocks. Be careful to use crocks that are free from dust or anything which would stop the free passage of the water, for perfect drainage is essential to success. Then after laying on the top of the crocks a few pieces of fibrous peat, to keep the soil from filtering down, fill up the pot to within half an inch of the top with fine peat and well-washed sand that has been dried after washing, and make it very firm. Cover with a half-inch layer of clean sand, and make the top quite level. Thoroughly water the sand and soil with a fine rose, and let the prepared pot stand for a few hours to drain before inserting the cuttings.

The best cuttings are the tops of the small lateral shoots, from young plants if possible, and sufficiently firm for the foliage to strip easily from the base without tearing the bark. They must not be tough and wiry, or they will not strike freely, if at all, and will not make good plants. They should be about an inch long, and have the leaves stripped from the lower half. Cut the base clean and insert in the sand up to the foliage, but none of the foliage should be buried. Take care not to bruise the cuttings in pressing them in with the dibble, and run some quite dry sand into the holes to prevent the cuttings shifting about when watered in, which should be done thoroughly with a very fine rose.

When there is the convenience of a small case in a shady corner of the greenhouse in which the cuttings can be kept close, it will not be necessary to place bell glasses over any of the kinds enumerated. But in the absence of a case and in propagating the hard-wooded kinds a bell glass must be used. It should be about one inch less in diameter than the pot, to leave a margin of sand round the edge of the glass, to allow water to percolate through it to the cuttings inside. After the first watering to settle the sand round them, the cuttings should not be watered overhead if kept under a bell glass, and care must be taken that the tops are free from dripping moisture before the glasses are shut down. In the case the cuttings must be carefully watered as they need it with a very fine rose. The glass covering the case will need wiping occasionally, and, for a short time before the greenhouse is open for air, the case may be left open, increasing the length of time the cover remains off as the cuttings become rooted. When bell glasses are used, the condensed moisture inside will require wiping out two or three times a week at least, and as the cuttings begin to grow a small block of wood or crock must be placed under the edge of the glass to admit a little air. Increase the admission of air gradually until the glass can be entirely removed, and leave it off at night for a few times before its entire removal.

When the rooted cuttings are well inured to the air they may be potted off, using rather fine sandy soil, and where room is scarce they may be put round the edge of small sixties, four in each. These will require later on to be divided and potted singly—*Ventricosa* and *Cavendishi* in small sixties and *Hyemalis* and other soft-wooded kinds in large sixties. If the young plants can be placed in a case for a week or two after the first potting it will be a decided advantage. They may then be put on a shelf near the glass till they are ready for potting singly, when a cold pit or frame will afford suitable quarters for them during the first summer. *Hyemalis*, *Willmoreana* and *Sindryana* will require stopping several times during the season, and the points of the longer shoots should be taken out each time. In the following spring the best of them will be strong enough to be shifted into six-inch pots, and will make plants with twenty to thirty shoots, and if not stopped later than May they will flower finely. These should be placed out of doors at the end of May in a sunny position, but with shelter from strong winds.

The other kinds will not need pots larger than five inches in diameter, and one or two stoppings will be sufficient for them. They will need comfortable quarters in a pit or frame with a fair amount of air, and slight shading from powerful sunshine till about the middle

of July, when they should be gradually inured to full exposure. The varieties of *Ventricosa* and *Cavendishi*, *Affinis* and *Depressa*, should be placed in a rather close house or pit for a few weeks after flowering each season. This course of procedure is necessary to ensure profuse and regular blooming year after year. A little experience will soon teach the cultivator when sufficient growth has been made, when, as in the case of young plants, they should be gradually inured to the full sunshine and air.

The finer hard-wooded kinds need a similar course of management through all the earlier stages, except that exposure to full sun is not needful for them, and it is better through all the hot months to shade them in the middle of the day and allow them full exposure at night. Whilst the plants are young and are being grown on to the specimen state a pit is the most suitable place for them, but when the plants have become large a cradle which can be shaded and protected at the sides from rough winds is most suitable for them through the summer, removing them to the conservatory as the flowers advance.

Of course the plants will need an occasional shift into larger-sized pots, particularly the better kinds. This should always be done in the cool season of the year; and when taking them indoors in the autumn is the favourite time with me. I have always found them do well, and it is an advantage to have the winter before you to attend to the tying of the trained plants after shifting.

In the matter of training it will be necessary in most cases to have a good sound centre stake, to prevent the plant breaking off at the collar. I do not recommend the use of more sticks than are required to support the main branches and keep the plant sufficiently open to allow the flowers to fully develop themselves. Specimens that are to be carried to exhibitions will need more tying than otherwise, especially those with sticky flowers, as the blooms adhere when they touch each other. If the plants are kept nicely tied out very little stopping will be required beyond now and then removing a stray shoot. Much stopping produces an unpleasantly dumpy appearance and inferior flowers. The soft-wooded heaths are different to the hard-wooded in the matter of stopping, and the plants that are kept after they are too large for six-inch pots must be cut back each season, and when new growth has fairly started be shifted into larger pots. The balls may be reduced with a sharp knife and the plants be repotted in the same size again. They will do well for some time in this way, but those two years old are, as a rule, the best.

The heath is one of the hardest of the greenhouse plants, and a pit near the glass where there is means of keeping out the frost without covering up is as good a place as they can be wintered in, particularly when of medium size. When a house has to be used the lightest and airiest position should be given them. It is necessary to avoid crowding in all stages. The greatest enemy is mildew, but if it is carefully watched for and the part attacked dusted with sulphur, or if in summer the part is dipped or syringed with Ewing's Mildew Composition, it is soon checked and killed.

The soil in which they succeed best is sweet sound peat of medium texture, with sufficient clean sand to keep it open. The pots must be well drained and the potting done very firmly. Last, not least, a heath should not at any time be allowed to become very dry. It is difficult to wet peat if it is really dry, and should any of the balls become so, stand the pots in water for some hours till the peat is well soaked. With careful attention to watering and using soft water heaths may be grown to perfection. The soft-wooded kinds may be supplied two or three times when the pots are full of roots at the end of summer with guano water, prepared at the rate of one ounce of guano to a gallon of water.

TRADE CATALOGUES.

SUTTON AND SONS, READING.—*Amateur's Guide in Horticulture for 1883.*JAMES VEITCH AND SONS.—*Catalogue of Garden and Flower Seeds, Implements, &c.*B. S. WILLIAMS, VICTORIA AND PARADISE NURSERIES, UPPER HOLLOWAY.—*Descriptive Catalogue of Flower, Vegetable, and Agricultural Seeds.*H. AND F. SHARPE, WISBEACH.—*Wholesale Catalogue of Garden and Agricultural Seeds.*DICKSON AND ROBINSON, 12, OLD MILLGATE, MANCHESTER.—*Select Vegetable and Flower Seeds.*STUART AND MEIN, KELSO, N.B.—*General Catalogue of Vegetable and Flower Seeds.*WEBB AND SONS, WORDSLEY, STOURBRIDGE.—*Spring Catalogue, 1883.*HENRY BOLLER, WOODFIELD ROAD, HARROW ROAD.—*Catalogue of Succulent Plants.*C. FIDLER, READING.—*Catalogue of Seed Potatoes, 1883.*HOLBORN LAMP COMPANY, 118, HOLBORN.—*Catalogue of Patent Empire, Duplex, and other Lamps.*

THE OLIVE IN CALIFORNIA.—It appears that Mr. Cooper, of San Barbara, San Diego, and other places, has demonstrated by his cultivation of the olive that the tree thrives well and bears well in California, and also that it is profitable to cultivate it. The trees begin to pay at three years, and when five years old will pay all expenses of tillage and harvesting with a surplus, while the sixth year the crop will pay for the land, the trees, and the tillage for the five years previous, and with good care the increase is larger from year to year for a century longer. Indeed there are now alive in Asia Minor trees known to be upwards of 1,200 years old, and they are still in full bearing. In a pamphlet published by Mr. Ellwood Cooper the statement is made that some of his best trees, eight years old, produced 2,000 gallons of berries to the acre, and the European standard is eight gallons of berries for one gallon of oil, so that this gives a product of 250 gallons of oil per acre. The oil finds a ready market at 5 dols. a gallon, which gives an income of 1,250 dols. or £250 an acre for the best eight-year-old trees in an exceptionally good year.

THE PLANTING OF GRAVES.

By C. R. KELLY, Landscape Gardener.

IF the decoration of the church is a work of importance which must be treated with reverence and care, surely that of the churchyard must also be important, and for similar reasons ought also to be treated with reverence and care. For if the church is the most important and precious building in the parish, the ground it stands in and all its surroundings must also hold the same rank in comparison with the grounds and surroundings of other buildings. As the church is "The House of God," so the churchyard is "God's Acre," and is as truly set apart for His use as His house is for His service.

But there are circumstances and interests associated with the church yard so universal as to concern every one in the parish; for the infant of days, the child toddling at its mother's knee, the youth full of hope and gladness, the middle-aged, busy and burdened with the cares and toils of life, the profligate rushing through life with express speed, the aged leaning on the staff, are each and all travelling to this place. Here each journey ends. And whether that journey ends in the sweetness of infant innocency, the full bloom of youthful beauty, in the midst of life and usefulness, or when wasted by disease, or when worn out with old age, here each body must find its resting place until that glorious harvest: for are they not all buried "in sure and certain hope of the resurrection to eternal life"?

Is not this, then, a place of great importance and deep interest to every one in the parish? Is there one who has not lost a friend, is there one who does not love the church yard, or who would not rejoice to see it the most cared for and best kept acre in the parish? Am I justified in making this appeal for the country churchyards of dear old England? And shall I be excused for asking these questions? Why are our country churchyards so much neglected?

appropriate in the grounds of the mansion and the hall, who can say that it would be either desirable or appropriate in the churchyard? Would not the attempt altogether change its character, and, however well done, would not the display have a very damaging effect on the hallowed associations of the place? I have seen an attempt in that direction by the introduction of ribbon borders, but the effect was most sickening. But although it is very undesirable to have the flower garden or anything like it in the churchyard, it is very desirable to have flowers. But first let us have the most necessary and desirable of all things—good, smooth, well-kept turf; for where can there be found anything so suitable, so important, or so beautiful as the nice green sod?

In old churchyards the ground will frequently be found, by long use, to have been considerably raised above its natural level. In such cases I do not think it will be either necessary or desirable to alter it greatly. Rather let it be smoothed over and made neat and tidy, so as to assume the form of a graceful mound or gentle slope, which in most cases will be more effective than a level surface, and which will not only cost less, but will also cause less disturbance to the graves of the departed. Although it may quite safely be said that nice smooth green turf is the best groundwork for the decoration of the churchyard, it is not so safe nor so easy to offer any really practical suggestions for the more general embellishment thereof.

For as churchyards are as various in their requirements with regard to general adornments as they are numerous, it will be much better here to deal only with individual graves, and if even only a limited number of these are done in a really neat and effective manner, and the remainder of the yard kept in tidy order, its requirements with regard to further adornment will be more easily judged of by a competent person on the spot.

As for the churchyard in general, so for each grave in particular. The most indispensable of all things is nice smooth green turf. Neither spar, marble chippings, nor any other substitute, however pretty in themselves, can ever have the beauty of the green sod; besides, their effect, instead of being bright and cheering like the green grass, is saddening in the extreme. Having

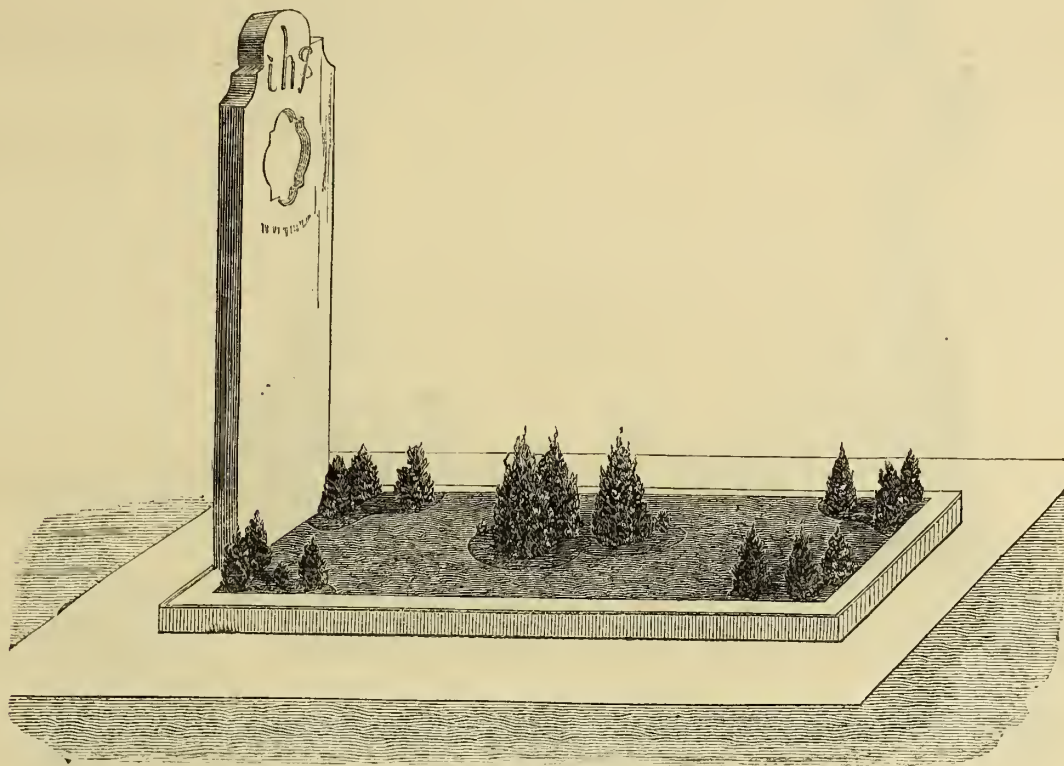


Fig. 1.—SHRUBS ON GRASS.

Why are they not better kept than the grounds belonging to other buildings? Why are sheep instead of men put into this garden to "dress and keep it"? And where the innocent sheep, who are allowed to tread over the ashes of the saints of the Lord, are driven forth? Why is the grass allowed to grow so long, and the turf to remain so uneven? The only reasonable answer I can hear to these questions cometh from the venerable edifice, through whose doorway each of these sleepers have been, or should have been, carried in all the helplessness of infancy to the font, and through whose doorway again each one has been carried to the grave; and that answer is its echo.

For what other reasonable answer can any one give? How can it be the want of interest in that which concerns every one? How can it be that no one wishes to see them improved, when so many admit the necessity for improvement? Or, how can it be the want of means, when so small a sum is required? For although it is very desirable that the churchyard should become the most cared for and the best kept acre in the parish (whether in the field, where the farmer who must, if possible, make a profit by its cultivation will, even in bad times, strive to keep it in tolerably neat and tidy order; or in the garden, where, whether kept for pleasure or profit, more care and neatness are to be found than in the churchyard), it is not by any means desirable that it should be changed to such an extent as to be unlike itself by being made to assume the appearance of a modern flower garden.

By no means; rather let the services of the innocent sheep be retained than allow our dear old country churchyards to have any attempt made in them to cause them to become like even a good and well kept flower garden, with its ribbon borders and many-coloured flower beds.

Not that I in the least dislike the flower garden, ribbon border, or flower bed. On the contrary, I appreciate them greatly and prize them highly, and trust that they will continue to increase and improve as they have done during the last twenty years, to the very great credit of our British horticulturists. But, although the flower garden is right and good in itself, and is desirable and

decided to have grass for the groundwork, the next consideration will be that of the bed or beds, and as the space is very limited their number and size must be in due proportion to it. For an ordinary-sized grave a bed in the centre—either trefoil, heart-shaped, or in the form of a cross—when planted really neatly has a very nice appearance.

For a double-sized grave, besides the bed in the centre, a small one at each corner, as in Fig. 1, is generally greatly admired. While in order to afford more room for flowers some prefer the grass in the middle, and a little border all round next the border-stone, as in Fig. 2, which has a very neat and well-furnished appearance.

For others, again, which are kept in a less expensive manner a small circle or a diamond-shaped bed in the centre of the bright green grass looks very well; or in some instances the bed is dispensed with, and a neat little plant is substituted, while in the most simple form the grave is turfed over, and the grass kept regularly cut, which is certainly far more beautiful than any spar marble chippings, or any other dead though pretty substitute for grass could ever make it.

But if spar or marble chippings are quite unsuitable as a substitute for grass, where the space will admit of, a narrow walk being formed all round the grave outside the border-stone, they will make very pretty gravel for it, and look very well with the green grass on either side.

The planting of these little beds is a work which requires great care, for, as not only they, but the whole space to be dealt with, is very limited, the plants must not only be small, but they must also be neat and graceful in their habit, foliage, and flower. No matter how good the flower may be if the foliage is too large and coarse, or if the habit of the plant is in any way unsuitable for the small space, however useful or valuable as a decorative plant for other places, it is altogether out of place here, where neatness is of the first importance.

For the aim must always be to make each grave a picture in itself, with a

beauty of its own, and having an interest peculiar to itself, especially in the estimation of those most interested in it.

As it is of great importance that each grave should have a bright and cheerful appearance at every time of the year, I have always found it best to plant them with both shrubs and flowers; or where flowers alone are used in the little bed, if the space is large enough there ought to be a few neat little shrubs on the grass. A rough sketch of a grave planted in this way is given in Fig. 3: the little bed was filled quite close with the best churchyard summer-flowering plant I have ever met with, *Campanula pusilla alba*, the dense mass of pure white bells, and the bright yellow *Retinospora*, on the green grass, bordered with the pure white spar, formed a picture which my sketch cannot do justice to. Where a number of graves are kept, and the majority of them are bright with flowers, a few may be planted so as to look very well with shrubs only, as in Fig. 4, which is a little golden cross on the bright green turf, planted with *Retinospora plumosa aurea*. This was planted several years ago, and being well exposed to the sun it keeps quite close in habit with very little cutting, and is always "a thing of beauty."

Fig. 5 is a rough sketch of one where the corner beds are planted quite close with *Retinospora plumosa aurea*, and in the centre bed there are three plants of *Cupressus lutea*, leaving room for one flowering plant in summer, but for several bulbs in spring. This also is well exposed to the sun, and the tombstone being a beautiful little marble cross, the green grass and the golden *Retinospora* against the pure white marble are beautiful. When the tombstone is marble with a recumbent tablet, or cross of marble, a beautiful effect may be produced by covering all the remainder of the grave with green or golden ivy. But whether flowers and shrubs are used together or separately, the greatest care is required in their selection and arrangement, for the object must be to make each grave really beautiful in itself, and as nearly perfect in neatness as possible. The smaller the space the greater the necessity for neatness in grass, shrubs, and flowers.

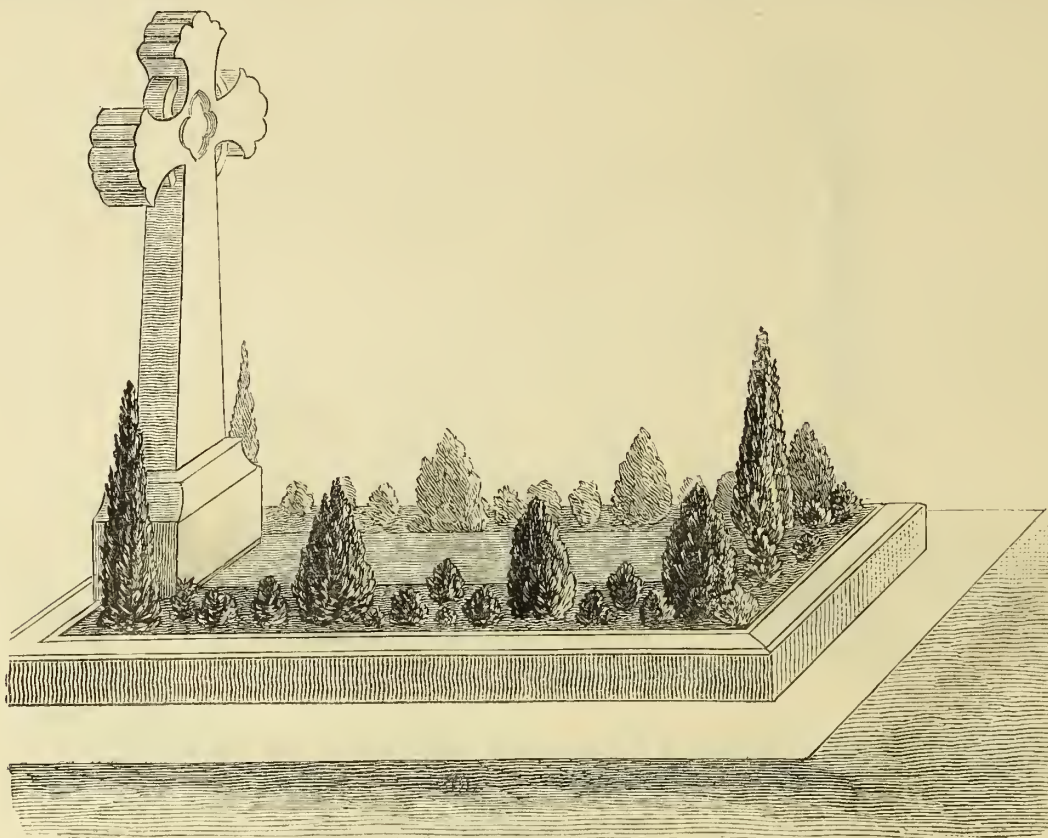


Fig. 2.—GRASS OR FLOWERS IN CENTRE AND BORDER OF SHRUBS. (See page 729).

Many of the varieties of *Retinospora* are exceedingly useful and appropriate for the work, but whether for massing or for specimen plants the most useful one I have met with is *Retinospora plumosa aurea*, which can be kept sufficiently dwarf for the purpose for several years.

The next in importance is *Cupressus lutea*, small plants of which are exceedingly beautiful, and when well grown are more graceful than the others. But small plants of many of the varieties of *Cupressus*, *Biota*, *Juniperus*, *Thuja*, and *Box*, or any other plant with small leaves and a neat habit of growth, may be used, but the preference should be given to those which can be kept of a proper size for the work for several years. From three to nine inches in height will generally be quite large enough for these plants, unless when the space is large and the habit of the plant graceful, when from twelve to fifteen inches may not be too much.

When the tombstone is a cross, small plants of either green or golden Irish yew may be used, from eighteen inches to two feet in height, planted under the arms of the cross.

Another very valuable class of plants for the purpose is the *Euonymus*, several varieties of which, when grown as standards, with nice stems of about two feet, are exceedingly useful and beautiful, but unfortunately the late severe winters have been very hard upon them. But there is no necessity at present for enumerating the varieties of plants suitable for the purpose, for if the demand for them could only be produced our nurserymen would very soon supply us with many plants even more suitable for the purpose than those already mentioned—plants specially grown for the purpose, not only with bright foliage, but with beautiful flowers for summer and berries for winter.

The supply of flowers suitable for the purpose is already great, but no doubt many others still more suitable would be found were the demand for them increased.

For spring there is no lack of bulbs, the snowdrop the first, and the most beautiful of all churchyard flowers, cheering us with its beauty and purity, can never be dispensed with; the crocus, the hyacinth, and the dwarf varieties of tulips are all suitable, and make the churchyard even more bright and cheering in spring than it can very easily be made at any other time of the year.

As soon as these are past their best they must be removed, when their places may be filled with pansies, daisies, forget-me-nots, lobelias, verbenas, dwarf stocks, and asters, and the beautiful *Campanula pusilla alba*. Every plant must be neat and small in size and in foliage, for this reason; I am afraid the geranium must be excluded. I tried it again and again, but gave it up several years ago on account of the size of its foliage.

The graves of the young are generally planted with white flowers, suitable ones for the purpose can quite easily be found for the greater part of the year, but for late autumn a really good dwarf white-flowering hardy plant is much wanted. For if the work is to be extended it is of great importance that a sufficient number of really good hardy flowering plants be found for the purpose, but no doubt when the demand is increased the supply will be equal to it. But whatever flowers or shrubs are used, their beauty will be greatly enhanced by keeping the grass in neat and tidy order, in the cutting of which Clark's or Ridgway's patent grass cutters will be found to be a great boon to all interested in the work.

Cut flowers and dried grasses are sometimes largely used, especially at Christmas and Easter: when good and real their effect is cheering, but dried grass is unreal, and artificial flowers are worse, and we have enough of unreality and make-believe in life without being followed by such things to the grave; while their effect, instead of cheering, is really saddening. For, although we cannot by churchyard decoration benefit the dead, let us endeavour thereby to benefit, cheer, and comfort the living.

AUSTRALIAN TIMBERS.

Not long since a question was seriously raised regarding the alleged scarcity of tanning materials; like the subject of paper materials, the probability of any deficiency in the supply cannot be looked upon in any other than an important light. It would seem, not that the natural resources of the world are absolutely failing, but that man is not sufficiently alive to his own interests to discover or develop any new industry, notwithstanding that new discoveries in science are rather the rule nowadays than the exception. Physical or mechanical science, however, seems to be the most fashionable and to find most devotees; nevertheless, there are fine fields of discovery in natural science, and more particularly in that section bearing on the application of plants; and, moreover, good reasons why those discoveries should be prosecuted are well exemplified by the demands for paper materials, tanning substances, new dyes, caoutchouc or india rubber, and new medicinal products. It is Australia to which attention is naturally directed as a source of many valuable now commercial commodities. Hitherto the long journey from England and the cost of freight has been, perhaps, the only drawback to the more general utilization of the vast resources of this great colony. In a climate suited in every way for the cultivation, not only of our own British orchard produce, but also of many semi-tropical fruits, it is surprising that such fruits have not before this been imported in quantities to British ports. It is to be hoped, however, that the recent importation of fresh fruits from Australia to the Paris Exhibition will sufficiently prove the capability of such a scheme, and result in a thorough system of traffic in the fruit trade, and, moreover, open fresh fields for the introduction of Australian produce generally.

In a descriptive catalogue of Victorian timbers exhibited in the Industrial and Technological Museum, Melbourne, the value of Australian woods for furniture, building, and other purposes, is exemplified. Considering the very

great variety of useful and ornamental woods produced in Australia and Tasmania, it is surprising that some of the best of them, such as the Huon pine (*Dacrydium Franklini*), the Tasmanian myrtle (*Myrtus Cunninghamii*), the musk wood (*Aster argophylla*), the dogwood (*Bedfordia salicina*), and others, are not more used by cabinet makers in this country. It has always been said that the expense of freight militates against bringing heavy woods from such a distance as Australia; but if too costly to be used in substance for furniture, it would seem that they might be applied as veneers, for it cannot be denied that some of those just enumerated are unique in figure and colour. It is not that these splendid woods are difficult to obtain, or that there is little prospect of a continuous supply; on the contrary, many of the trees are widely distributed, and the woods are to be had in unlimited quantities. Thus, for instance, the so-called Tasmania myrtle, or, as it is sometimes called, the evergreen beech, occurs over a tolerably wide range in Victoria, and constituting the main forest for many miles on the Mount Baw-Baw ranges. On account of the great diameter of these massive trees, very large planks are obtainable. The wood is used in the colony for cogs of wheels by millwrights, as well as by cabinet makers for various articles of furniture. The musk wood tree is often found up to a height of 60 feet, but seldom or never exceeding that height. It is confined to moist umbrageous forest gullies, but is very abundant in those situations. The wood is of a yellowish or brownish colour, beautifully mottled, with a very pleasant fragrance. It is hard, and suitable for fancy articles of furniture, pianofortes, as well as for turnery purposes.

In the genus *Acacia* numerous specimens furnish a variety of ornamental woods. The principal of these are, perhaps, the black wood or light wood (*Acacia melanoxylon*), a large tree, abundant on the rich river flats and in the valleys. The wood is close-grained and heavy, and is useful for all purposes where strength and flexibility are required, being largely used by coachbuilders in every department of the trade, as well as by coopers, for railway carriages

ings, and for railway sleepers, piers, and bridges. Besides the uses of the wood, the resin exudes from the tree in very large quantities. Essential oil and other extracts have also been prepared from the foliage. The most colossal species is, perhaps, *Eucalyptus amygdalina*, which is known locally under various names as stringy bark, messmate, peppermint, &c. It is said to be not uncommonly found up to a height of 420 feet, and sometimes to attain a still greater height. The wood is hard and close-grained, well adapted for house-building, planking of ships, shingles, rails, and other purposes. This species contains more oil in its foliage than any of its congeners; 1,000 lbs. of fresh-gathered leaves, with their small branchlets, yield by distillation 500 ounces of oil. It is rubefacient, disinfectant, and employed externally in rheumatic affections, and in perfumery, scenting soaps, &c. The spotted gum of Victoria (*Eucalyptus gonicalyx*) is a species often found of a very large size, but mostly of moderate dimensions. The wood is hard, straight, and even-grained, and is employed in the colony chiefly for joists, beams, rafters, and heavy framing work, as well as by coopers for staves. The bark is described as being usually deciduous, but sometimes persistent. The species produces resin in very large quantities, and from 100 lbs. of fresh leaves 16 oz. of essential oil have been obtained. For illuminating purposes this oil is admirably adapted; it produces a brilliant white flame, superior in intensity and colour to that from the best American kerosene, and its use in kerosene lamps does not cause any smoke or smell, and is free from danger. The other most useful species valued for their timber are—*Eucalyptus rostrata*, the red gum tree, a tall-growing tree, very abundant along the river flats and open valleys, the wood of which is of a brownish-red colour, and is used alike for furniture, carpentry, agricultural implements, and ship and house building; *E. leucosylon*, the iron bark tree, often growing to a great height, and producing, perhaps, the strongest timber of the whole of the eucalypts; and *E. obliqua*, the Victorian stringy bark

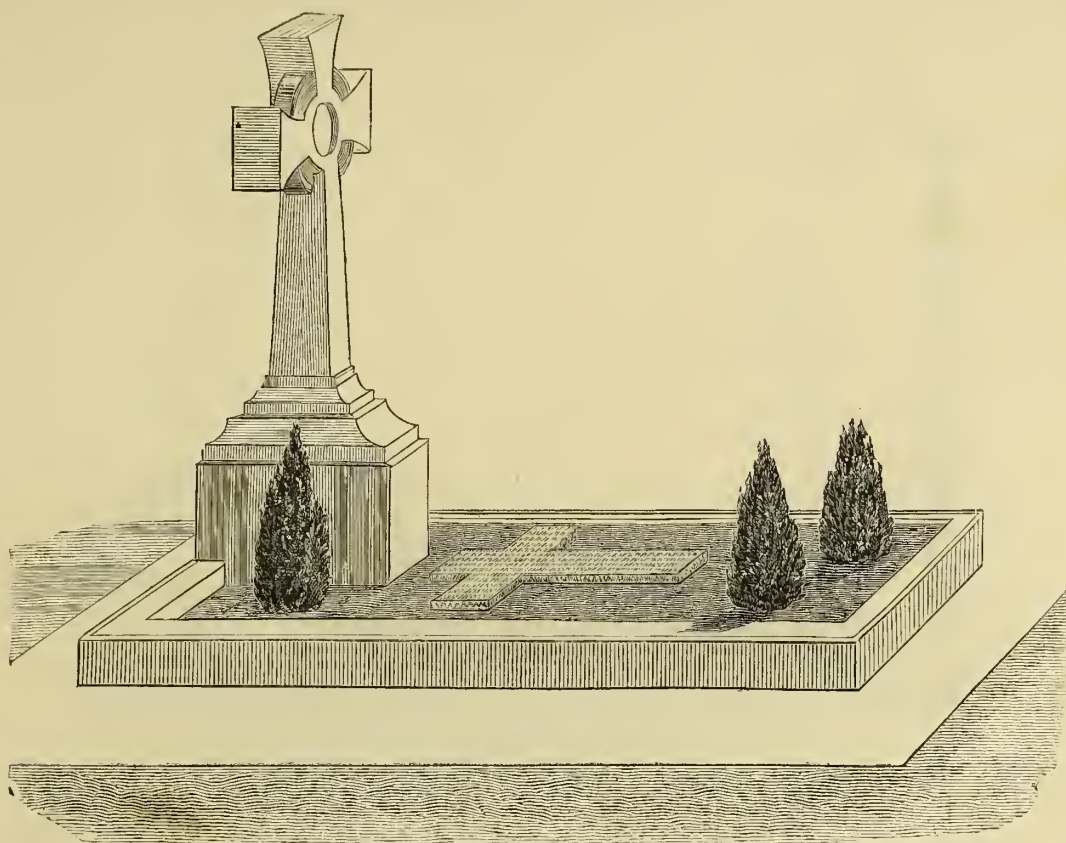


Fig. 3.—CROSS IN FLOWERS ON GRASS AND SHRUBS AT THE FOUR CORNERS.

and trucks, and in the better class of agricultural implements. The colour of the wood is a rich reddish brown with dark markings, in some specimens surpassing in appearance even the finer kinds of walnut. The myall wood, now well known for making pipes, is the produce of *Acacia homalophylla*. It is a small tree found in the Mallee Scrub, valued for its fine violet-scented dark-coloured wood; besides being used for pipes, it is also applied to whip handles and small articles of turnery. This species also exudes copious supplies of gum during the summer season.

The common wattle (*Acacia decurrens*), as well as the green wattle, black wattle, and feathery wattle (*A. mollissima*), and the silver wattle (*A. dealbata*), are all valuable, not only for their woods, but for their barks, which contain tannin, and some of which are regularly used by tanners in the colony. The trees grow to a moderate height, but are very abundant in some districts, and the bark can be obtained in almost any quantity. The trees are stripped in September and the two or three months following, and the bark being allowed to dry, is at once in a condition fit for market; a useful gum known as wattle gum is procured from these trees.

So much has been said of late regarding the uses and probable extended application of the products of the *Eucalypti* that a few notes on the products contained in the Industrial Museum at Melbourne will exemplify the value of this great genus. Of all the species the blue gum (*E. globulus*) is certainly the best known, on account of its reputation, whether justly so or not is still unproved, of purifying malarious districts. Few trees, perhaps, have ever attracted so much attention as this species. Trees have been planted in almost every country where it could possibly succeed, and even in small private gardens the blue gum is very often to be found. As a timber tree it will no doubt prove valuable, on account of the colossal size to which it grows, and its extremely rapid growth, together with the great strength and durability of the timber, which in the colony is largely used for beams, joists, &c., in build-

tree, a gigantic tree, and not unfrequently attaining a height of from 300 ft. to 400 ft., with a very thick, rugged, and fibrous bark; hence its local name. The wood of this tree is not so strong and durable as most of the other species. It is straight and even-grained, and is readily split into fenceings, palings, shingles, &c.; nevertheless, it is very liable to warp and twist. The thick fibrous bark is used for thatching houses. The woods here enumerated are but a mere tithe of what may be obtained from the Australian forests, and, bearing in mind that India has recently sent into the English market samples of its native timbers, with a view to establishing a traffic with this country, it is not, perhaps, too much to hope that the time may not be far distant when Australian woods will appear regularly in the timber market.—*Journal of the Society of Arts*.

FIGS UNDER GLASS.

It is not a frequent occurrence to meet with a house devoted wholly to figs, except in gardens of large extent, nor is it often that we have an opportunity for reading of their cultural requirements or the peculiarities of the several varieties, so seldom do writers refer to the furnishing and keeping of the fig house. It must in the first place be acknowledged that the fig is of less importance than the grape vine, and hardly equal in general usefulness to the peach and nectarine, for I should mislead my readers were I to claim for it an equality with either of the three fruits mentioned. I am anxious to state the case fairly, and in the interests of owners of gardens generally I would say that to the vinery and peach house should be added the fig house wherever practicable. Provided it is properly furnished, and managed with a fair amount of care and skill, it will be found at once

interesting and profitable. The trees, whether planted out or grown in pots, will bear two crops annually, and produce a liberal supply extending over a very long period. They will, indeed, if forced gently, supply ripe fruit from early in the summer until late in the autumn, and the supplies will be more than sufficient to afford an ample return for the expense incurred in building the house and for the labour involved in its management. I should like to see fig houses in gardens of moderate size, and I am quite sure that if it were more generally known how profitable they are they would be regarded with more favour than is at present the case.

A costly structure is not necessary for figs, as they do not require the house to be of very large size or to be fitted up in an elaborate manner. A mere glass shed will, in fact, suffice, and it may have a lean-to or span roof, the latter being preferable, on the ground of economy, where there is no wall against which to put the house. A span-roof house forty feet in length and from twelve to sixteen feet in width will be most suitable for a garden of medium size. A house of this description will be just long enough to allow of its being divided into two compartments, one for trees to be pushed on during the spring with artificial heat for early supplies, and the other for the trees to come on naturally, or, to speak more strictly, with the protection of glass only. For those who are prepared to be content with one set of trees a house of the width mentioned and a length of twenty-five feet will answer admirably. The plainest of houses will answer every purpose, and the side or front walls, according as the house is provided with span or lean-to roofs, should be three feet high, and the lower part of the sashes or bars rest upon them. There is no occasion for side lights, and instead of providing them have openings along the

extend their branches over the path at a height, of course, that will allow plenty of head room. Any ordinary soil of a friable character will do for the border, and, generally speaking, it will suffice to dig over the soil and add a little manure if the staple is poor, or road drift or other grit if it is naturally close in texture. In the latter case charred refuse may also be added with advantage. To drain the border as for vines or peach trees is not necessary, as the supply of moisture will be entirely under the control of the cultivator, and a constantly-saturated state of the border can be easily prevented. Moreover, the fig requires plenty of moisture, and does not quickly suffer from a superabundance during the growing season.

Pot culture will answer admirably in houses of large size, and is particularly suited for structures of limited dimensions. In houses from eight to nine feet in width it is decidedly better to grow them in pots, and to those who have small houses pot culture can be most strongly recommended. I have a small house which for some years past has been devoted to pot trees, and with much success; and an amateur friend of mine who has devoted a span-roof eight feet wide and twenty feet long to the same purpose obtains from it a surprising quantity of fruit every season. At the commencement he simply cleared the stages away and stood the pots on the floor to the right and left of the walk, and no alteration has been made in the arrangement since. For pot trees a mixture of good loam and well-rotted manure in the proportion of five parts of loam to one of manure is the most suitable. But so rich a compost for a border in which the roots are able to extend freely would produce an excessive degree of luxuriance and wood too soft for fruit bearing. Pot trees require also a rich top dressing, such as a compost of loam and manure in equal propor-

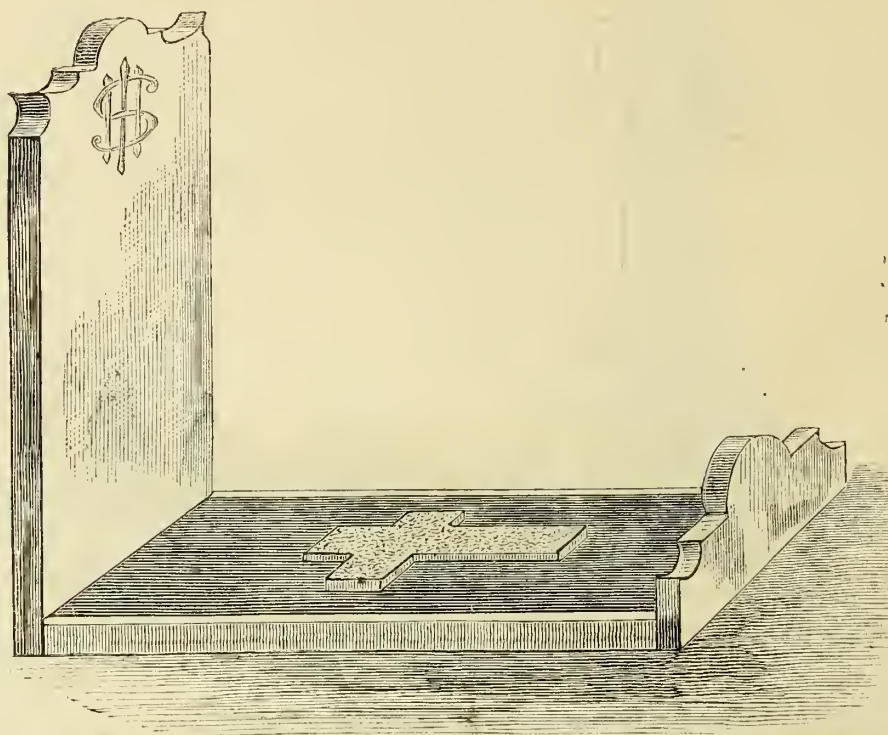


Fig. 4.—GOLDEN CROSS ON GREEN GROUND. (See page 731).

wall for the admission of air, the top ventilators to be provided in the usual way. The openings along the wall should be about twelve inches deep, and thirty inches in length, and be fitted with shutters for the regulation of the ventilation. The openings should be placed about a yard apart. For the efficient heating of a fig house up to sixteen feet in width, a flow and return four-inch pipe on each side will suffice, unless the forcing is to be commenced at a very early period in the year, in which case a flow and return of the diameter mentioned along the side of the centre path should be provided in addition.

Figs may be most successfully cultivated in pots, and when the house is of moderate dimensions they should be so grown. In pots they can without difficulty be kept well within bounds, and they will bear abundantly, provided they are liberally supplied with moisture at the roots. Planted out in a border and the branches trained to a roof trellis, or to form bushes, they will require less frequent attention. I am not particularly favourable to the practice of training the fig-tree in a similar manner to the peach and nectarine, for in the form of bushes they bear as heavy a crop in proportion to the space occupied, and they have a much more pleasing appearance. When bush training is adopted they can be allowed to fill the whole of the house; there is no occasion, as in the case of most other fruit trees grown under glass, to keep them some distance apart and to pinch and prune in such a way as to prevent the branches of one tree touching those of its neighbours. At the same time they must not be so crowded that the leaves do not have sufficient space for their development, or the shoots light enough to ensure their attaining a proper degree of maturity. A house twelve feet wide will afford room for one row of trees on each side, and these can be allowed to

tions in the spring of each year in which they are not repotted, and they ought also to receive once or twice a week during the summer supplies of liquid manure. Trees planted out may with advantage have occasional supplies of liquid manure after they have been some time in bearing, particularly if the soil is naturally poor. But they must not be too liberally fed, and so long as they grow vigorously and produce full-sized fruit the aid of stimulants will not be required.

The trees, whether for pots or planting out, should have a clear stem of not less than twelve inches, and generally speaking they should be kept to a single stem by the removal of the suckers as they rise.

I do not intend entering at any length into the general management of the fig house at the present moment. I would, however, observe that a temperature of 70 deg. is most suitable for the trees started with artificial heat, excepting in bright sunny weather, when the thermometer may be allowed to rise to 80 deg. or 85 deg. A moderate degree of ventilation will suffice, but it must be sufficient to prevent scorching of the foliage. Liberal supplies of water at the root and an atmosphere well charged with humidity are essential to success. The trees should, from the time of starting into growth till the earliest fruits are ripening, be syringed twice a day. I would further observe that unless the syringe is plied vigorously the foliage will quickly become infested with red spider.

The finest varieties for general cultivation are *Brown Turkey*, *White Marseilles*, *Brunswick*, *Bourjassotte*, *Grise*, *Negro Largo*, and *White Ischia*. These are all well adapted for pot culture, with the exception of the *Brunswick*. To those who require a very limited number of kinds, the *Brown Turkey*, *White Marseilles*, and *Negro Largo* can be specially recommended.

G. S.

SHORT NOTES FOR SMALL GARDENS.

By the VICAR'S GARDENER.

KNOWING how great is the interest taken by many amateurs in the cultivation of the choicer kinds of fruit under glass, I shall in these notes briefly refer to the arrangement and planting of orchard houses and vineries suitable for gardens of moderate extent.

ADVANTAGES OF ORCHARD HOUSES.

Whatever may be said or written to the contrary, there can be no question that the cultivation of such choice fruits as peaches and nectarines is a very precarious affair in English gardens, unless the trees have the assistance of glass. In some districts more favoured than others good crops may with skilful management be obtained in the majority of seasons; but, speaking generally, there will in a long series of years be a much larger percentage of failures than of satisfactory crops. The cultivator of peaches and nectarines against the open wall has to contend not only with nipping frosts and piercing winds when the trees are in bloom and the fruit in an incipient state, but with cold wet summers and the resultant consequences of ill-ripened wood and imperfectly-formed flower buds. The influence of a cold and wet summer upon the peaches and nectarines is in many instances ignored by those who, despite the lessons of the last few years, believe in the practicability of growing them with profit out of doors. But according to my experience, which is not by any means short, the weather of the summer and early autumn is a more important factor than either the spring frosts or winds. Against the destructive effects of the frosts and winds of the spring the trees may be protected, provided there is sufficient protective materials and plenty of time at command, but I have yet to learn how the cultivator is to protect the trees against the adverse influences of a cold and sunless summer, unless it

add considerably to the cost, are not necessary, and I would recommend instead side walls two feet in width with openings at intervals for the admission of air. In a house of the width and height mentioned the sashes will be twelve feet in length, and the angle forty degrees, which perhaps is the most suitable angle for fruit houses. A span-roof house formed with ten-foot lights and about thirteen feet in width would also answer very well, but a smaller size cannot be recommended. The lean-tos should have an angle similar to the span roofs, and the width must be regulated by the height of the back wall. A house about ten feet high and twelve feet wide will be found very serviceable. In addition to the openings at the sides ventilators must be provided in the roof, and should be almost, if not quite, continuous throughout the whole length, and in the case of span roofs on both sides. The woodwork, it may be added, should be strong without being very heavy, and the materials used of good quality.

THE FORMATION OF BORDERS.

In arranging the interior of the house, a walk should be provided down the centre of the span roofs and at the back of the lean-tos, and wide enough to allow of any one passing along it with some degree of comfort, a width of three feet being the most suitable. A border will be required unless pot culture is adopted, and this may be wholly inside, or part in and part outside; but in the case of houses of the width here mentioned an inside border will suffice for the trees. An inside border has the advantage of being entirely under the control of the cultivator, so that the moisture can be regulated according to the requirements of the trees. As a set-off to this the trees will, if the watering is neglected, suffer more quickly than those of which a portion of the roots are outside. When one half of the border is to be inside and the other half outside, the side walls must be turned on arches to allow the roots to push into the outer portion. In any case the trees should have a

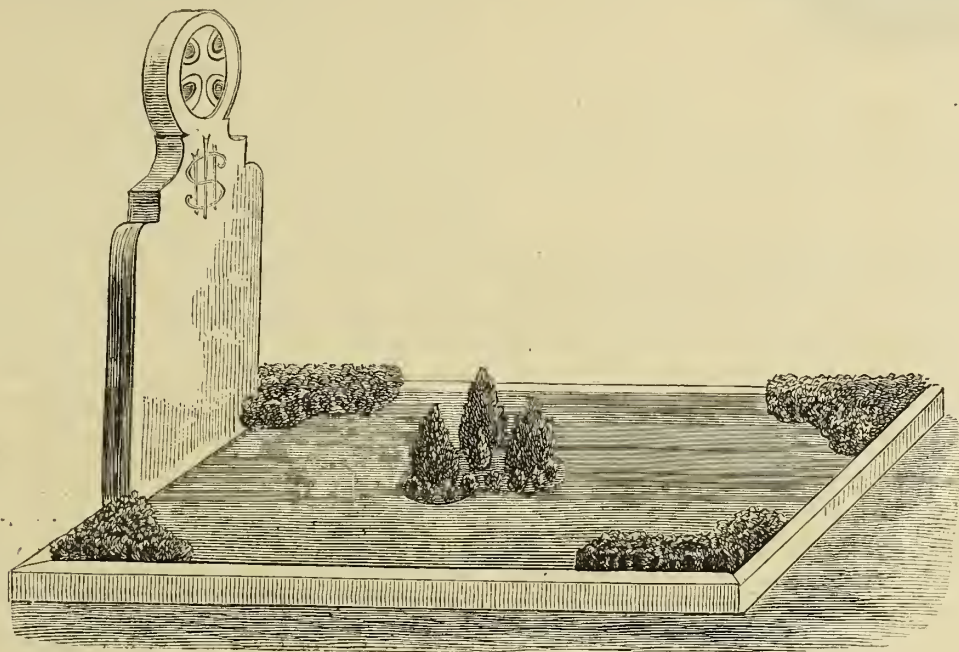


Fig. 5.—GRASS TURF WITH SHRUBS IN CENTRE AND CORNERS. (See page 730)

be with glass. There are some districts where the trees do not properly ripen their wood, except in hot summers, such as that of 1868, and although the advocates of outdoor culture seldom refer to the fact, the requirements of residents in these districts must be taken into account. I must not be understood as advocating the entire abandonment of the outdoor culture of peaches and nectarines, but I would strongly advise those who are anxious to obtain supplies of fruit annually, and are able to do so, to provide themselves with a roomy and substantial orchard house. In districts where the trees do fairly well against the open walls they may be allowed to remain as supplementary to those under glass, but in other cases I would advise their replacement with fruits that are hardier, and consequently suffer less from vicissitudes of the English climate.

CONSTRUCTION OF THE ORCHARD HOUSE.

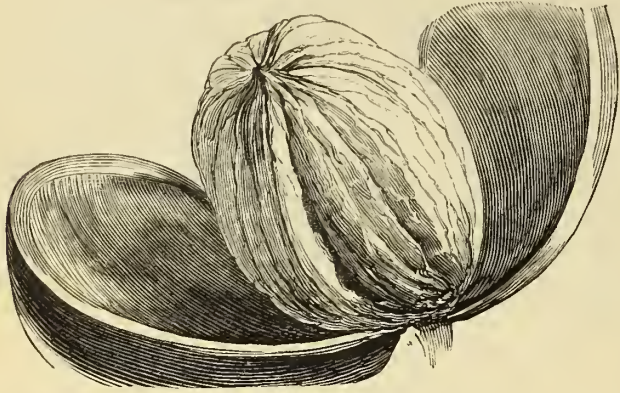
In the building of an orchard house the owner of the garden must of course shape his course in the matter of size according to the amount he intends expending. To build a house of even small size is, I am well aware, a costly affair; yet I would suggest the erection of a house of moderate dimensions, if not of large size. 'Small' houses are more expensive in comparison to the accommodation they afford than large ones, and they so quickly become heated and cooled as the weather changes that they require as much, if not more, time to be expended upon their management. Span roofs are preferable to lean-tos, as they cost less in proportion to the available space within them, and the trees can enjoy more full exposure to the light and air on all sides. Lean-tos must not be despised, and where a suitable wall is available it should be taken advantage of and a lean-to erected against it. A very suitable structure for a garden of comparatively small size would be a span roof from forty to sixty feet in length by sixteen feet in width and eleven feet in height. Side lights, which

border three feet in depth, and this should have underneath it a twelve-inch layer of brick or other rubble, to prevent any stagnation of moisture in the soil. On gravel and other subsoils, through which the moisture readily passes, it is not necessary to provide drainage of any description. Where drainage materials are necessary, the soil must be taken out to a depth of four feet, and the rubble be spread over the bottom to a depth of twelve inches, and covered with turf, grass side downwards. The next step will be to fill in the remaining space with suitable soil. There is nothing better for the formation of a border for fruit trees than sound turfy loam; but it is too expensive to admit of a border of large size being made with it. In very many instances the best of the soil taken out previous to laying down the drainage will answer every purpose. If it is naturally poor a little well-rotted manure may be added, but not otherwise, or the trees will grow with excessive luxuriance during the first two or three years, and give much trouble in bringing them within bounds. It is not, as a rule, until the trees are in full bearing that they require the assistance of fertilizing agents, and it is a very simple matter to supply them with liquid manure, or to apply rich top dressings as soon as it is evident the soil is becoming exhausted.

FURNISHING AN ORCHARD HOUSE.

In furnishing an orchard house the owner has the choice of bush trees, in pots or planted out, and trained trees. Good crops may be obtained from pot trees, but they require much close attention and entail so much labour throughout the growing season that I would advise the amateur to pause before adopting them, more especially if he has but little spare time. Generally speaking, trees planted out are decidedly preferable, and if it is desired to grow peaches, nectarines, cherries, figs, and grapes in the same house, bushes will be the best. If, on the other hand, it is intended to grow peaches and nectarines,

trees trained to a roof trellis fixed about twelve inches from the glass will be the most desirable. In a mixed collection of fruit the grape vines should be planted eight or ten feet apart and trained to the roof with a single cane each. The lateral growth must also be pinched in rather close to prevent the trees in the borders being shaded to an injurious extent. If the vines are planted eight feet apart and not allowed to spread more than eighteen inches on each side of the main rod there will not be any risk of the trees suffering materially from a deficiency of light. A border between seven and eight feet in width will afford room for two rows of bush trees, and these should be planted five feet apart in the rows, and so arranged that every three trees form a triangle. The trees for training to the roof should be planted about six feet apart to allow space for a due proportion of early, mid-season, and late varieties. Some cultivators, I am well aware, allow the trees a space of twelve feet, and when there are several houses to afford a

WALNUT (*Juglans regia*).

Successional supply for a long period there is no objection to confining the trees in each structure to a small number. But in gardens where there is only one structure it is essential that it should contain a sufficient number of sorts to afford a supply extending over as long a period as possible.

SELECT FRUITS FOR THE ORCHARD HOUSE.

The selection of varieties of the respective fruits to be grown is a matter of much importance, for not only should the several kinds be of the highest quality, but they should ripen successionally. In planting a span-roof house wholly with peaches and nectarine trees at a distance of six feet, as advised above, sixteen will be required. Of these twelve should be peaches and four nectarines, unless the latter are very highly esteemed, in which case the proportion should be increased. The peaches I would recommend are Hale's Early, Alexander, Early Grosse Mignonne, Dr. Hogg, Lady Palmerston, and Princess of Wales, one tree each; and Royal George, Bellegarde, and Noblesse, two trees each. The nectarines should be Lord Napier, Rivers's Orange, Pine-apple, and Stanwick Elruge, one tree of each. These kinds should, in furnishing a house with bush trees, be planted in the same proportion. For the orchard house there are no better grapes than Black Hamburgh and Buckland Sweetwater, and they should be planted in the proportion of four or five to one. The finest of the cherries for the orchard house are Early Rivers, Black Tartarian, Elton, Governor Wood, Bigarreau Noir de Schmidt, and Bohemian Black Bigarreau. The most suitable of the figs which should be grown in large pots are Negro Largo, Brown Turkey, and White Marseilles.

JAPANESE CHRYSANTHEMUMS FOR LATE FLOWERING.

By JOSEPH MACDONALD.

It is my opinion, from what I have seen of the Japanese chrysanthemums, that there are many varieties in the section which are more valuable for late flowering than is generally supposed to be the case. For several years past I have paid some attention to their adaptability for late flowering, and I find that it is no more difficult to have a grand display in the middle of December than to have the incurved varieties in perfection a month earlier. The only difference is the late flowering kinds require a month longer under glass, but they pay liberally for space occupied by their flowers, which are of special value after the other varieties are all out of bloom. We use them chiefly for cut flowers. I am able to dispense with the stiff and formal trained specimens which, as I stated in my article on "Chrysanthemums for the Conservatory" at page 675, are necessary for our purpose in the case of the incurved varieties.

In dealing with this section for the purpose of obtaining late flowers, I find that there are two courses open to the cultivator. In the first place, he may strike the cuttings early and pinch off the tops of the plants at least twice—the first time in the month of April, and the last at the end of May. In the second, he may strike the cuttings in March, and grow the plants on without stopping, the results in each case being much the same. If pressed for a reply as to which plan is the best, I should say that I obtain the largest blooms from the plants obtained from the cuttings struck in March, and grown on without stopping. In regard to training, most cultivators will admit that the majority of the Japanese varieties are difficult to train into shape, and because of this I prefer to grow them in a natural manner. When so grown two or three sticks to a plant of good size afford all the support they want. But to make everything clear, I will say here

that if they are required in flower at the same time as the incurved varieties they must be propagated early and have their last stopping quite a month earlier than the other sections.

Assuming that the stock of plants has yet to be propagated or purchased, I should advise that no steps be taken at present further than to make the selection of varieties. If they are not already in stock orders may be given now for the plants to be delivered in due time. But the first week in March must not be allowed to pass without having the cuttings put in, and from the first every encouragement must be given them to strike quickly. The aid of bottom heat, such as a cucumber bed affords, will be just the place in which to place the cuttings to induce them to strike quickly.

If the plants have to be purchased a stipulation should be made for them to be delivered in the third week in March. Whether the plants are raised at home or bought in, the after treatment must be the same. A warm frame or pit must be provided for them where they can have light and air, and be sheltered from frost and cold winds. From this time careful watering, a generous soil, and shifting on as they require more root room, are the chief points in the management. After the end of May they can be placed with the other varieties, and be treated in the same way throughout the summer.

The management during the autumn and early part of the winter I consider to be the most important, as these varieties seem to have a few peculiarities rather difficult to understand. Under exactly the same conditions some of them will flower a fortnight earlier one year than they will another, and to have them all in bloom at one time necessitates some degree of observation. Those most forward require retarding, and the later ones require to be pushed on in rather warmer quarters. If I find any of them likely to bloom before I want them I leave them out of doors for ten days or a fortnight after the others are taken in. To those likely to be late in coming into flower I give the warmest position in a light airy house. In other respects they are dealt with in just the same way as the incurved varieties.

The following list contains those varieties which have proved most desirable for late flowering, and I believe under ordinary management, such as I have described, very satisfactory results may be obtained. In fact, if it were not for these I do not know how I should obtain flowers for church decoration and other purposes for which we use them. To furnish white flowers *Sarnia* is most valuable. The best golden colour is furnished by *Fulton*, *Peter the Great*, light clear yellow; *Gloire de Toulouse*, light purple; *Katakana*, dark bronze; *La Frisure*, lilac and white; *Bertier Rendatler*, yellowish bronze; *Magnum Bonum*, purple and yellow; *Golden Dragon*, yellow; *Bronze Dragon*, bronzy yellow; *Baronne de Prailly*, dark lilac, and *Daimio*, light purple. If more yellow sorts are wanted than *Dr. Masters* and *Grandiflora*, the above may be added. *Meg Merrillees* is a beautiful white variety, but it requires some care to prevent its flowering in advance of the others.

DIPLADENIAS.

By JOHN BESTER.

The dipladenias include some of the most effective exhibition plants grown in the stove, and will well repay the care required in their cultivation.

They can be readily propagated with the assistance of a brisk bottom heat under glass. Small laterals which do not run freely, of which there are generally some where there are large plants, do well; but the best and strongest plants are those raised from a single joint of a strong shoot which has become firm, but still retains its leaves. These if cut in the shape of a wedge about two inches below the

PISTACHIO KERNELS (*Pistacia vera*).

leaves and inserted in small pots filled with a rich light compost, so that the leaves lie on the surface, quickly strike, and in two or three weeks will be ready for a shift into six-inch pots. When well encouraged in the matter of heat and atmospheric moisture they will frequently produce three or four shoots as stout as an ordinary lead pencil. A steady bottom heat will be of great assistance to plants in this stage, but on no account must they be crowded, or the wood will be both slender and soft. Provided they are well managed they will by resting time be quite strong enough to make good specimens for exhibition in the following year. The shoots must not be trained to a trellis whilst the plants are making good growth, but should be allowed to run up long sticks or strings, which can be drawn out when the trellis, which will be necessary the next season, is put to them.

When growth is becoming slow and wood and foliage begin to show signs of maturity, let the supply of water be gradually diminished, till by the time the leaves have fallen the soil may be almost dust dry. Dipladenias are furnished with large fleshy main roots, which suffer in the winter when the soil is kept wet. They are also very susceptible to injury

from cold, so that they should not be taken out of the stove during the winter. They will not require much water from November to February, and a dry out-of-the-way shelf would afford them good quarters. When the wood is ripe it may be coiled in a very small compass low down on the pot, and the plants therefore require but little head-room.

Early in the new year the strongest of the young plants may be shifted into thirteen-inch pots. Examine the roots carefully and remove any that are dead, and then re-pot and press the soil tolerably firm. After they are repotted put a slight wire trellis to each. The best trellises are those of galvanized wire. They must not be too large; a trellis thirty inches high and the same in diameter is better than a larger one till the plants have attained a good size. Train the shoots round the bottom part of the trellis, as it will be found much easier to distribute the current year's growth nicely than when the

PEA NUT (*Arachis hypogaea*).

shoots of the previous season are trained all over the trellis before the growth is made. Place them where a thin twine or thread may be carried from each new shoot to the roof, and along it if necessary, and let each shoot be kept to its own string. When the flower buds are set there will be no difficulty in taking each shoot separately and placing it in the most desirable position on the trellis. It will be desirable to allow active growth to commence before giving the freshly-potted plants a thorough watering, but they must be sprinkled with a fine rose or syringe two or three times daily till they are fairly on the move. Do not be too liberal with water at the roots till it is pretty certain the pot is full of them. The plants will take no harm if removed to a snug place in the conservatory in July and August, when in bloom.

The same course of management must be repeated each subsequent season. The plants will perhaps require sixteen-inch pots after the second year, but that size is large enough for plants of any age. It is desirable to keep a few young plants ready to follow on, for it is not often they do well after they are four or five years old. Therefore a few cuttings should be struck annually. After the first year it will be advisable to cut out all weak wood when the plants are potted, and to reduce the ball of soil considerably. Dipladenias like a light rich compost such as that prepared with sandy loam, fibrous peat, coarse sand, and old dry manure from the poultry yard. In the absence of the latter well-rotted stable manure may be used, and the sweepings of a farrier's shop is also very suitable, especially if it has been mixed with loam a year or two previously. Dipladenias are very liable to the attacks of insect pests, especially mealy bug, scale, thrips, and red spider. Therefore it is necessary to be constantly on the watch, for the plants must be kept clean. But if they are quite clean when started, and the syringe is kept at work daily, they will do well. The practice of allowing houses to become intensely hot before giving air in the morning is very favourable to the multiplication of red spider. It is always advisable to give a little air early, and before any sensible rise of temperature has taken place.

Dipladenia boliviensis is more of a winter bloomer than an exhibition plant, and does best as a permanent climber on the roof of an intermediate house. It is much less tender than *D. splendens* and *D. crassinoda*, and similar kinds. The flowers are white, with a yellow throat, and much smaller and less showy than those of which I have written.

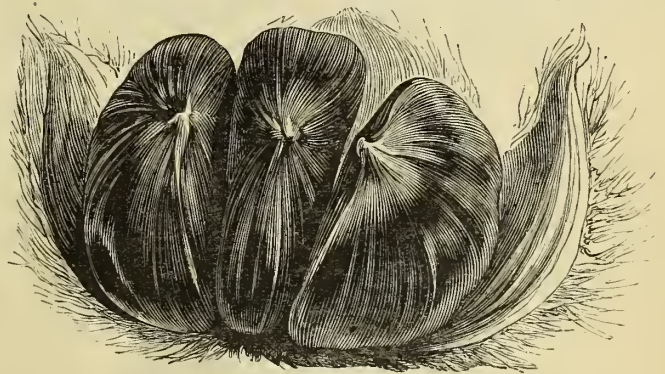
FURTHER NOTES UPON NUTS.

THE interesting paper on nuts in your issue for December 23 suggested to my mind several considerations that somehow appear to be illustrative of the strange half-serious burlesque on Evolution in the Christmas number. I conclude the writer of the strange paper has in view to rebuke the presumptuousness of the evolutionists, who, no doubt, do at times jump at conclusions with most inconsiderate haste. But the teachers of "natural theology" do the same thing; we all find in our fancy more than nature affords warrant for, and it is as certain as the revolutions of time that the argument of design is in no way weakened by any of the proper speculations and true discoveries of the naturalists. Probably the production and distribution of the seeds of plants is a specially suitable subject to show the strong points, both for the evolutionist and the defender of the old-fashioned—say, Paleyian—notion of divine mechanism. Nuts are plentiful and of great value to the higher orders of animals, and therefore peculiarly convenient for study of the characters that belong both to development *inter se* as well also as to their ultimate purpose as seeds provided for purposes of reproduction. The writer of the paper referred to, whether he be Evolutionist or Paleyian, has given a hint for a special study in alluding to the nuts of temperate as compared with those of tropical climates. As he could not in one brief paper treat of nuts exhaustively, he will, I suppose, account for his omission of all notice of the protective plans of nature

in respect of certain kinds of nuts. Here we have a large and fruitful field for observation and speculation. The pea nut, or, as it is usually termed, the monkey nut, is, by the plant that produces it, thrust into the earth to ensure its ripening in safety. But the nuts of temperate climates have not attained as yet to any such cunning procedure. And yet they are very curiously and effectually protected. The *Corylus* in its various forms is, perhaps, the least protected of any, and that active bird, the nuthatch, knows full well how to secure its sweet kernel. But take the beech, the chestnut, and the walnut, and how secure, comparatively, they are! The involucre which clothes the nuts of cupuliferous trees tells the story of their relative dangers. Those with prickly exteriors, as the chestnut and the beech, for example, are tempting in flavour and nutritious properties from a quite early age; but they are rarely assailed while on the tree, for, like the hairy caterpillars, the little mouths that long to eat them dare not encounter the painful task. But we turn to the oak and find the prickles reduced to a beautiful granulation that renders the cup attractive as a decorative object, the armour being in this case unnecessary because of the exceeding bitterness of the nut or acorn. In like manner the walnut is unarmed, but the husk or involucre is bitter and acrid, and the little teeth that hunger for the nut within cannot with any comfort assail the envelope that protects it. The jackdaws that occasionally strip walnut trees probably only do so when pressed hard by hunger, for as a rule a crop of walnuts is pretty safe if left untouched to ripen; but where jackdaws abound the prudent possessor of a crop may properly consider the propriety of gathering the nuts when of proper size for pickling, rather than risk the loss of the whole at the time when the nut is advanced sufficiently to furnish the jackdaws with substantial food.

But observe that all these considerations relate to the stages of development only. Nature is careful to ensure the proper growth and ripening of the nuts, both to maintain the several species of trees that produce them, and render the nourishing crop a great good to a great number of her hungry children. When the nut is ripe it falls, and the outer envelope is rent, and the wholesome nuts are exposed for animals to eat them, and for such as escape being eaten to play their part as seeds and replenish the earth. The bitter green husk of the walnut peels off spontaneously when the nut is fully ripe; the husk of the chestnut splits symmetrically and discloses the beautiful nuts within; the huge flinty pod of the *sapucaia* is opened by removal of the "pot lid," and thus, having saved the viands to ensure proper cooking, the table is spread in the wilderness, and the people—the birds and beasts—are invited to the banquet. It matters not under what banner we march as regards doctrine; the facts are the same for all of us, and they speak of design and beneficence as ruling in all the relations of created things. REX.

APPLE BUTTER.—Peck's *Sun* tells the following story about two Grand Rapids partners in the produce business, named Spafford and Cole, who sent two orders to be filled, one of 3,000 dollars to New York, another of 16 dollars to a Michigan firm:—By some unaccountable mistake Cole sent the 16 dollar draft to the New York house with instructions to place the amount to the credit of the firm, and the 3,000 dollar draft was sent to the Michigan firm with instructions to send the worth of the enclosed draft in apple-butter. The New York house was disgusted at the small remittance, and the Michigan firm were scared out of their boots. It was the biggest order for apple-sauce they had ever heard of, and they started men out all over central Michigan buying up all the apple-butter they could find, and at the end of two days they shipped four car-loads and wrote they would ship the balance some time during the week. Cole was away shooting pigeons when the first load of apple-butter arrived. Spafford was probably as near crazy as any man can be who never tried to edit a newspaper. He looked over the eleven waggon-loads of apple-butter, and when told that there were several car-loads more at the depot he turned pale, leaned against a barrel of beans, and fanned himself with a codfish. He rallied, however, allowed the waggons to be unloaded, but told the teamsters that was probably all the apple-butter they would need that day, if they economized on it, and they need not haul the rest till the next day. The next day Cole got back, and was astonished at the number of barrels in front of the store. Spafford watched him a few minutes, and then called him into the office, and told him it was as good a time as any to dissolve partnership; that Cole could take the apple-butter, and he would take the rest of the stuff, and they would separate. Spafford said at his time of life he didn't want to establish an apple-butter reservoir to supply the whole of Wisconsin and Minnesota. The firm finally got out of the apple-butter trade

SWEET CHESTNUT (*Castanea vesca*).

by shipping it all over the State to be sold on commission, and shoving it into the woods for the lumbermen, and the travelling man who told us about it says the firm actually made 800 dollars clear on the apple-butter, because they had unconsciously cornered the market.

THROAT IRRITATION.—Soreness and dryness, tickling and irritation, inducing cough and affecting the voice. For these symptoms use Epps's Glycerine Jujubes. In contact with the glands at the moment they are excited by the act of sucking, the Glycerine in these agreeable confections becomes actively healing. Sold only in boxes, 7d., tins 1s. 1½d., labelled "JAMES EPPS & CO., Homœopathic Chemists, London." A letter received: "Gentlemen,—It may, perhaps, interest you to know that, after an extended trial, I have found your Glycerine Jujubes of considerable benefit (with or without medical treatment) in almost all forms of throat disease. They soften and clear the voice. Yours faithfully, GORDON HOLMES, M.D., Senior Physician to the Metropolitan Throat and Ear Infirmary."—[ADVT.]

The House, Garden, and Home Farm.

DEATH.

THEY say that thou wert lovely on thy bier,
More lovely than in life; that when the thrall
Of earth was loosed, it seemed as though a pall
Of years were lifted, and thou didst appear,
Such as of old amidst thy home's calm sphere
Thou sat'st, a kindly Presence felt by all
In joy or grief, from morn to evening fall,
The peaceful Genius of that mansion dear.
Was it the craft of all-persuading Love
That wrought this marvel? Or is Death indeed
A mighty master, gifted from above
With alchemy benign, to wounded hearts
Minist'ring thus, by quaint and subtle arts,
Strange comfort, whercon after-thought may feed?

WILLIAM SIDNEY WALKER.

THE HOUSE.

ALL household pets that have been until this time in their usual quarters should be made safe against extreme cold during the next few weeks. Cage birds that are kept in entrance halls, and on staircases, and the like, should be removed to more comfortable localities. Our parrots will, before this is printed, be taken into a roomy kitchen, and will there remain to chatter with the servants until the growing daylight tells of the return of spring. We have found this plan to answer perfectly; for the bustle as well as the warmth is good for these sociable creatures, and the halls and staircases are too dull and too cold at this time of year. All window plants are exposed to risk of injury now, and those of any value should be removed to a cool plant house or shed, as a frost severe enough to freeze the roots will simply kill them root and branch. But where their roots are in a body of soil, or the pots are packed in some protective material, they may survive a sharp frost, and thus the trouble of removing them may be avoided. It is very important now to see that all stores of roots and fruits are safe, for frost is destructive to nearly all such things, and particularly to potatoes. All these things should be dark and dry and cool, but perfectly safe against the slightest freezing.

THE GARDEN.

ARTICHOKES must be well protected during severe weather, for they are not quite hardy, and if not already done in accordance with advice previously given they should have litter heaped about the crowns.

ASPARAGUS beds if still undressed should be heavily manured, but they should not be dug. Be content to lay the manure on, and the rains will wash the goodness down to the roots in due time. In gardens near the coast, seaweed is the best of manure for asparagus.

EARLY POTATOES are usually much prized when they come to table, and any well-directed effort to obtain supplies will be amply repaid. They may be forwarded on beds of leaves and exhausted hotbeds by covering with light rich soil and employing old frames for protection, with litter handy in case of frost. For this early work take the earliest sorts of kidneys and rounds, for the heavy main-cropping sorts are not quick enough.

FLOWERS likely to be met with now are the fragrant coltsfoot, the Christmas rose, and the winter aconite. In mild winters and in sheltered situations there will be an abundance of sweet violets, and the bedding violas will also present bits of colour. To make up for the deficiency of flowers, we have the berries of the pyracantha, skimmia, and other shrubs, which, if not attacked by the birds, present a most brilliant appearance during the month.

OUTSIDE VINE BORDERS to be covered with dry material or boards. Start the vines in the first house at 45 deg. to 50 deg. In late houses paint the stems with a mixture of soap, sulphur, and soot, and give rafters and trellises a general cleansing before the vines are started.

PITS AND FRAMES.—After severe frosts there should be no haste to remove protecting materials. Give special attention now to Cauliflowers, Lettuces, &c., in frames, and dust them with lime occasionally. Make up a small hot-bed for Cucumbers and Melons, and sow in pots, and when forward enough make the fruiting beds. Sow Peas on slips of turf for transplanting. Give air cautiously to such subjects as Auriculas, Carnations, &c., and keep all clean.

PRUNING.—This is not a good time to prune, but if pruning is in arrears it may be carried on during mild open weather. Trees on east walls had best be unnailed till the end of next month, to prevent premature excitement. Dress fruit walls and the trunks of old trees with a mixture of lime, soot, and clay.

ROSES must now be protected where they are much exposed to north-east winds. This is especially necessary in the case of standard tea roses, which in hard weather are often killed back to the work. If it is not thought advisable to take them up and pack their roots in earth in a shed, tie some hay-bands in and out among the shoots which form the head, so as to protect all the lower parts of the main branches, leaving the tops unpruned, to bear the full severity of the weather. The ends of the shoots may be killed back some inches, but the ripe and stout wood of the head will escape through being protected, and at the March pruning all the frosted parts will be cut away. Dwarfs on their own roots are easiest protected by putting fern or straw loosely about them, and then laying a few heavy tiles or bricks over the roots: these keep the litter from blowing away, and preserve the roots from the effects of frost.

SHRUBS to be forced should be taken to greenhouse or warm pit to prepare them, and the first thing needful is to thoroughly soak their roots, which are often very dry. Hard-wooded plants must have fire-heat during frosty weather, but it must not rise above 40 deg. at night, and 50 deg. by day. Soft-wooded plants may be kept growing freely, but not at a high temperature, which is exhaustive of plants and productive of red spider. Keep succulents quite dry. The principal flowers now are Salvia, Jasminum nudiflorum, Fuchsias, Cinerarias, Primulas, Genistas, Deutzias, Crocuses, and Hyacinths. To succeed these there should be in the forcing pit or stove Kalmias, Azaleas, Rhododendrons, Lilacs, Daphnes, Roses, double-flowering Plums and Peaches, and Andromeda floribunda.

VINES breaking to have a gradual rise of temperature, beginning at an average of 55 deg., and with a rise of 10 deg. during sunshine. As the vines acquire a vigorous growth, raise the heat so as to average 65 deg. by day and 60 deg. at night when they come into bloom. A warm dry border will do as much as the best management of the temperature of the house. Be careful

to have a sweet moist atmospheric heat, and consider the necessity of a sufficient root action to meet the demands of the expanding leaves. The want of root action is the most frequent cause of failures in early forcing. Keep the borders sufficiently moist, using water at 80 deg. to 90 deg. for an occasional soaking.

THE HOME FARM.

THE work on the home farm should comprise, first of all, the breaking up of any stubbles that as yet remain untouched, and if this is well done and soon done, there may be got ready in time a seed-bed for beans or mangels. The retention of stubble for any length of time is most injurious, for in the hollow straws in the autumn many destructive flies and beetles lay their eggs, and the land becomes filled with larvæ, and the birds have no chance to feast upon them while it lies undisturbed by the plough. Liming and mucking are the two great tasks now, and when the ground is hard carting can be carried on with advantage. It is generally held that leaving manure in heaps for a length of time is a wasteful practice, but we remember a somewhat forcible essay by Professor Voeleker, in which he held that there was nothing lost by it. Nevertheless, notwithstanding the known ability of the agricultural chemist, we are not disposed to agree with him fully, believing that when dung is once put upon land the sooner it is ploughed in the better, for if the air does not rob it much the rain is bound to do so, and a lot of the soluble salts must be carried away by the gutter and drain pipes.

BEE CULTURE IN INDIA.

THE following information respecting the bee industry in India, gathered partly from the *Indian Agriculturist*, is of considerable interest. The details were obtained by Mr. John Douglas, Superintendent of Telegraphs, from Mr. Morgan, Deputy Conservator of Forests, and are noteworthy from the light they throw on the modes of collecting wild honey. The best honey-producing flower of Southern India is the strobilanthes, which not only forms the principal undergrowth of the *sholas*, both temperate and tropical, but spreads over the grassy slopes of the higher elevations. There are an immense number of species in this genus and they almost all flower once in seven years, dying down entirely, and afterwards a fresh growth springing up from seed. Whenever any species of strobilanthes flowers, colonies of bees migrate from all parts of the country to feast on the honey and rear their young broods. At such times honey becomes plentiful and cheap, and as the strobilanthes honey is of the finest quality and flavour, even rivalling that from the famous Mount Hymettus, it is eagerly sought after by the Todas of the Neigherry Hills, and in fact by all aboriginal tribes. The year 1879 was such a season for honey that it sold at the rate of four annas per imperial pint, whereas its usual price is from eight to ten annas. This honey in the cold climate of the Neigherries crystallizes in from a fortnight to three weeks, when the flavour becomes richer and finer. In the Wynaad, as soon as the moon has waned sufficiently, great preparations are made to take the honey. Bamboo and rattan ladders are constructed, sometimes of astonishing length, and at nightfall, after 9 p.m.—for the bees do not go to bed till then, as you will find to your cost if you disturb them—the Jain (honey) Kurumbars proceed to the *buray*, and, having erected their ladders, if they have to climb upwards, or suspended their cane ladders, if downwards, arm themselves with torches and knives and sever the combs from the rock or branch. The drowsy bees meanwhile, roused by the glare of the torches, desert the combs, and buzz aimlessly about, even on the persons of those engaged in taking the combs, but never attempt to sting, unless crushed or hurt. The combs are then lowered down in baskets, the Kurumbars feasting on the larvæ, which taste something like cream, while the fish, which swarm in thousands when the hives are built over a river, have a glorious feed on the grubs and bees that fall into the water and float helplessly down stream.

The Coorgs make some attempts at bee-culture and practise the industry to a small extent in their own homes; the bees are domesticated, and the hives, which are of a very primitive description, made merely of the hollowed-out trunks of trees, are placed near the houses. The Coorgs have, however, no notion of collecting the surplus honey by any of the contrivances, such as bell-glasses, supers, &c., in use in England in the different apiaries.

In Cuddapah wild honey is collected also from the cliffs and ravines of the district. The process adopted is both perilous and exciting, and the Yanadies alone are able to climb into the difficult and apparently inaccessible places over perpendicular cliffs, in some places from 100 to 200 feet in height. They do this by the aid of a plaited rope, made of young bamboos tied together. This rope sometimes gives way, the result being a terrible accident. It is a very nervous sight to watch the men climbing up these frail supports, and it reminds one of the egg-collecting process in northern latitudes. The men, from below, look like little babies hanging midway, the rope being fastened on the top of the cliff above, by means of a peg driven into the ground, or to the trunk of a tree, the man swinging midway with a 100ft. or so, above and below him, and armed with a stick and a leather basket. The Yanady first burns some grass or brushwood under the hive, by which the bees are driven out; he then swings the rope until it brings him close to the hive, which he pokes with his stick, holding out his basket at the same time to catch the detached portions of comb. When the basket is full, he shakes the rope, at which signal his comrades above draw him up. The bamboo ropes are left to hang, often for years, until they rot away, for a rope of this kind is never used twice, a fresh one being made on each occasion and at each place.

South Canara is also a great honey district. The honey and wax have, however, but little local value, a maund, about 25lbs., only fetching R2 and R16. It is thought that much might be done to open up the industry by exporting the honey and wax to England, the latter being a valuable product and one for which there is always a demand. The trade at present in Indian honey is almost entirely confined to wild honey; but as the keeping of bees is an industry requiring little or no capital, it is especially adapted to the people of India. Should the returns obtained from the inquiries now made and set on foot by Mr. Douglas show that it is worth while to introduce this industry in a practical form, then Mr. Buck—the whole subject having been placed under his department—may possibly see his way to making a decided effort to interest the people in systematic bee-culture with a view to the trade in honey and wax becoming ultimately a profitable one to the country.—*Times*.

"SAPO CARBONIS DETERGENS" is a physicians' name for a remedy prescribed for the past quarter century for every variety of skin disease. The public have also adopted the same as a preventive of small-pox, scarlet fever, and measles. Purchasers should see that the Latin brand is on every tablet, and WRIGHT'S COAL TAR SOAP on each wrapper, without which none genuine.—[ADVT.]

SELECTION OF ORNAMENTAL TREES.

At a meeting of the Massachusetts Horticultural Society the committee, to whom was referred a selection of the best twenty deciduous trees and shrubs, as also twenty of the most desirable evergreens, report as follows:—

In the absence of all instruction as to whether the selection was intended for the purpose of planting places of some magnitude, or to be confined to what seems to be the future character of suburban homes—a comparatively small number of acres—your committee, or rather a portion of them, have made the latter selection, choosing trees and plants of a secondary size rather than those they might have recommended for the adornment of large estates, where much space would have been required. The committee likewise wish to say that these three selections were made by three members of the committee of five, without any consultation with each other, it being thought that by this course the public would receive their individual opinions and experience without any bias or influence from mutual discussion or comparison.

The first list, which was selected by Henry Winthrop Sargent, the chairman of the committee, and is intended for places of moderate or small extent, is as follows:—

DECIDUOUS TREES.

Weeping Beech.	Weeping Larch.
Fern-Leaved Beech.	Weeping Silver Linden.
Purple Beech.	Imperial Cut-leaved Alder.
Cut-Leaved Weeping Birch.	Golden Oak.
Young's Weeping Birch.	Golden Catalpa.
Upright Pyramidal Birch.	Golden Locust.
Purple-leaved Birch.	Variegated Maple.
Weeping Cypress.	Magnolia Soulangeana.
Weeping Bird Cherry.	" conspicua.
Variegated Dogwood.	" glauca longifolia.
Virgilia (Yellow-wood).	" Lennei.
Magnolia cordata.	Camperdown Weeping Elm.

SHRUBS.

Dwarf Horse Chestnut.	Paul's Crimson Thorn.
Oak-leaved Hydrangea.	Kœreuteria paniculata.
Hydrangea paniculata grandiflora.	Judas Tree.
Viburnum plicatum.	Malus floribunda.
Berberis Beali.	Fern-leaved Samach.
" japonica.	Golden Elder.
Scarlet Dogwood.	Weeping Sophora.
New Weeping Scarlet Thorn.	Azalea mollis.
New Double White Thorn.	Rhododendrons.
New Double Scarlet Thorn.	Japanese Maples.

EVERGREENS.

Abies orientalis (Oriental Spruce).	George Peabody Arbor vitæ.
" canadensis (Hemlock Spruce).	Vervæne's Arbor vitæ.
Weeping Hemlock.	Semper aurea Arbor vitæ.
Picea pungens (Blue Spruce).	The Retinosporas.
Victoria Spruce.	Cephalotaxus Fortunei.
Weeping Norway Spruce.	" drupacea.
Golden Yew.	American Holly.
Golden Upright Yew.	Maxwell's argentea Holly.
Waterer's Seedling Yew.	Thuopsis dolabrata.
Young's Golden Juniper.	" borealis.
	Pinus cemhra.

The next list, by H. H. Hunnewell, is intended for a much more extensive place than the above.

DECIDUOUS TREES.

Elm, American.	Oak, White.
" English.	" Scarlet.
Maple, Sugar.	Magnolia Lennei.
" Norway.	Linden, European.
" Scarlet.	" American.
" Japanese atropurpureum.	Virgilia lutea (Yellow-wood).
Other Japanese Maples.	Salisburia (Gingko).
Beech, American.	Dogwood.
" Copper.	Catalpa.
" Weeping.	Flowering Cherry.
Cut-leaved Weeping Birch.	Common Chestnut.
Tulip tree.	Liquidambar.
Magnolia acuminata.	Weeping Willow.

CONIFEROUS TREES.

Abies alba (White Spruce).	Pinus Lambertiana.
" canadensis (Hemlock Spruce).	" pyrenaica.
" excelsa (Norway Spruce).	" excelsa.
" orientalis (Oriental Spruce).	" strobus (White Pine).
" Menziesi.	" cemhra.
" Alcoquiana.	" sylvestris.
" polita.	Sciadopitys verticillata.
" Douglasi.	Larix americana.
Picea Nordmanniana (Nordmann's Fir).	" europea.
" cephalonica.	Retinospora obtusa.
Pinus Pichta.	" plumosa aurea.
	" filifera.

The following list was selected by William C. Strong:—

DECIDUOUS TREES.

Acacia, Three-thorned.	Gingko (Salisburia).
Beech, American.	Maple, Norway.
" Purple.	" Reitenbach's Purple.
" Weeping.	" Scarlet.
Birch, Cut-leaved Weeping.	" Schweidler's.
Cherry, Myrtle-leaved Weeping.	" Sugar.
Elm, American.	" Wier's Weeping.
" Camperdown Weeping.	Magnolia acuminata.
Sophora japonica.	Virgilia, or Yellow-wood.
Tulip tree.	Walnut, Black.

SHRUBS.

Almond, Double White.	Kalmia latifolia.
Azaleas, Ghent.	Magnolia glauca.
Clethra alnifolia.	Prunus triloba.
Cornus sanguinea.	Rhododendrons.
Cydonia japonica.	Roses.
Deutzia crenata flora pleno.	Spiræa arifolia.
Exochorda grandiflora.	" prunifolia.
Forsythia viridissima.	" Thunbergi.
Fringe tree, White.	Syringa Josikaea.
Hydrangea paniculata grandiflora.	Viburnum plicatum.
Hawthorn, Scarlet.	

EVERGREEN TREES.

Arbor Vitæ, Booth's.	Pine, White.
" George Peabody.	Retinospora filifera.
" Hovey's Golden.	" plumosa.
" Pyramidal.	" plumosa aurea.
" Vervæne's.	" squarrosa Veitchi.
" Siberian.	Spruce, Hemlock.
Fir, Englemann's.	" Norway.
" Nordmann's.	" Norway Weeping.
Pine, Austrian.	" Oriental.
" Swiss Stout.	" White.

POTATO GROWING.

MR. COLEMAN, Riccall Hall, lately read a paper on this subject before the York Chamber of Agriculture, and we give the following extracts from it:—

We shall all agree that the potato requires light dry soils, and that whilst condition—i.e., the presence of suitable plant food—is a necessity for securing healthy growth, natural poverty of soil may be remedied by judicious application of manure. But no treatment can render strong heavy soil, however fertile, suitable. It may be that even here, with an exceptionally dry season, excellent crops can be grown, but the risk is too great, and much loss and disappointment has occurred from the attempt to grow potatoes on land which, either from the presence of clay or from imperfect drainage, retains moisture. On the other hand, even weak blow-away sand may be made profitable by the proper growth of the potato. There is another important consideration which should influence our practice, and that is the effect of the potato on the other crops of rotation. Now, as a rule, subject of course to exception, I believe it will be found that on light sand warps, and probably peaty soils, the growth of potatoes at proper intervals benefits the land and helps other crops, both corn and especially roots. The effect on limestone is often the reverse. Here the potato acts like a poison; its cruel influence is seen on the corn which follows. I don't pretend to afford an explanation of a fact too well known to require discussion, but it should influence our practice. I believe the reasons why light soils are so favourable are the following:—1. That the potato disease is promoted by moisture evaporating from the soil. 2. That the free circulation of the air about the roots during the early period of growth is of the utmost importance. This explains certain facts which are well known to growers; the superiority of long fresh manure to very close rotten dung, the practice of growing potatoes after seeds on a fresh rather than a stale furrow, the green seeds tending to promote the prosperity of the soil, and the undoubted beneficial effect of frequent stirring of the surface, which is so well secured by the frequent use of that admirable implement the coupe-harrow, the hoe, and the houting plough. Potatoes should have a free, porous, dry soil, in which to develop roots and so bear tubers. As regards the quality of the produce, the better the soil the better the crop, but, as I said before, a favourable mechanical condition is more important than the natural fertility, because any deficiency can be supplied by proper application of manure, whereas if we have not suitable media no amount of fertility can secure a sound crop.

Although there are certain soils which appear specially suitable to potatoes, even these can have too much of a good thing. Great injury has followed the too frequent growth, and this, it would almost seem, has been in proportion to the natural fertility of the soil. Confining my attention to the class of soils with which I am best acquainted, light poor land, I hold a strong opinion that the potato crop cannot be properly grown as a permanent element of the rotation more often than once in six years, and that its place should be after seeds either one or two years old. My reason for advising that potatoes should follow seeds is because the land is then richer, owing to the accumulating effect of the clover, than at any other time, because the roots of the clover as they decay furnish a large amount of slowly soluble food, and because I find that the soil, after a crop of potatoes properly manured, is in a suitable condition to grow not one only, but two successive corn crops. The rotation we adopt on the Home Farm at Escrick is as follows:—1. Potatoes on seeds, mown, fed, and top-dressed. 2. Oats without manure. 3. Barley, top-dressed. 4. Roots, swedes, mangels, and yellow turnips, alternating. 5. Barley and seeds. 6. Seeds, mown and fed.

3. As regards the sort of potato, I may state at the outset that I am sceptical as to the permanent immunity from disease of any variety. The Fluke kidney potato when first produced was singularly free from disease, but at the present time it is quite as liable as other sorts. I have grown an American sort much praised—viz., Snowflake—and whilst our main crop of Dalmatian and Victorias suffered considerably—probably one-fourth being diseased—I only found here and there a diseased tuber of the new sort; but I do not suppose that the result will be the same twenty years hence. A great deal has been written about the Champion, a Scotch potato, which I take to be an improved variety of Rocks, and the freedom from disease has been a gratifying fact this year. With better qualities out of the market, these potatoes have had a fair sale, but it must not be forgotten that when potatoes are sound and abundant these coarse sorts are not good to sell, and would probably have to be used as cattle food. Still, it will be wise discretion to grow a portion of such crops, so as to be prepared for accidents. York Regents, which at one time took a lead in the market, have of late years been improved by Scotch potatoes. We have been fairly successful with a variety of Regents known as Dalmatians [? Dalmahoy]. I think change of seed of great importance, and especially for poor soils which do not yield a good quality. It is really astonishing how soon both quantity and quality suffer when home-grown seed is used year after year. The price of seed is always a serious item, but there is nothing pays so well as frequent changes—if not every year, at least every other year. The question of liability to or immunity from disease may be influenced to some extent by the sort, but will depend to a great extent on atmospheric conditions. One most important point has been proved, namely, that the spawn of the

fungus can exist in the soil for considerable periods, and hence, if diseased haulm be ploughed under, as is often the case, we may thereby be supplying a source of disease for the next crop. Mr. Carruthers therefore advises that in cases where there is disease the haulm should be carefully collected and burnt.

In considering the subject of manures, Mr. Coleman referred to a mixture of manures recommended by Dr. Voelcker; the experiments with it were tried in two very opposite years as to seasons: 1853 was a remarkably dry summer; 1869 was a much more favourable year for root crops. Yet the results are comparatively identical, and they prove incontestably the superior results from such a mixture over Peruvian guano; indeed, the increase in 1869 was 3 tons 5 cwt. which at £4 a ton gives an increased value of £13 an acre; whilst the result in 1868 was even greater, but the extremely dry weather of the year was unfavourable to guano. It is not, I think, difficult to understand why the mixture proved so superior. Potash is a most important ingredient in the ash of the potato, and, to a less extent, in the haulm. Confining our attention to the bulbs only, the total ash comprises about 71 per cent. of the whole, and of this one-half, as shown by Professor Way, is potash. In a crop of 10 tons per acre we have therefore 159 lb. of ash, of which 79½ lb. will be potash. Now Peruvian guano is very deficient in potash, containing only about 3 per cent. Sandy soils are also wanting in potash, hence the remarkable result of its application. It would be seen in both years the mixture of superphosphate, crude potash salts, and sulphate of ammonia produced a larger crop than 20 tons of well-made manure, thus proving how extremely suitable the mixture was for the crop. In our practice we use both fold-yard manure and artificial, and accordingly vary somewhat the mixture, which has hitherto proved very suitable, and which I can heartily recommend to all who grow potatoes on light poor sand. Now that the manure is made under cover, we find ten cartloads, weighing about 9 tons, quite as much as we can spare. On this we sow broadcast the following mixture:—

2½ cwt. of bone phosphate.
1 „ kainit, sulphate of potash.
„ muriate of potash.
„ sulphate of ammonia.
„ rape dust.

6½ cwt. per acre.

The sole object of the rape dust is to make the mixture work better. It is itself a very expensive manure, according to what it yields. Now this manure costs from 45s. to 48s. per acre, and I am satisfied—and I hope you will be also—that it is a much better manure than 4 cwt. of guano. It should be borne in mind, as strengthening my views, and when these experiments were tried the quality of guano was better than it is now and more reliable, yet if we dressed our crops, as so many of our neighbours do, with guano, we should have lost from £10 to £12 per acre, which represents a very handsome profit. I have been so struck with the fact that, notwithstanding our experience, which we ventilated as much as possible, our neighbours still generally apply Peruvian guano for potatoes; and I have brought the subject before you to-day, hoping that, having seen and heard, you may alter your practice in this important detail.

GARDEN MUSIC.

IN the year 1787 a Captain Haas, of Basle, Switzerland, set up in his garden a gigantic Æolian harp, which suggested itself to him by accident. He was in the habit of shooting with a cross-bow at a target which stood in his garden. During rainy weather he not unfrequently amused himself with shooting from his room, through an open window which faced the target. To avoid the inconvenience of going out to fetch back the discharged arrow, he fixed an iron wire to it, by which he could draw it back at will. Perceiving that when the arrow struck the wire emitted a sound, he conceived the idea of stretching in his garden fifteen wire strings, 320 feet in length, at distances of two inches apart. Their tension was effected by a curious apparatus made on purpose by a friend of the Captain. The strings were placed in a line running from north to south and were inclined at an angle of 20 to 30 degs. At every change of weather they emitted a variety of sounds, which are described as sometimes resembling the sound of a glass harmonicon; sometimes that of water in a state of ebullition; sometimes like distant chimes, and sometimes, again, like an organ. The effect was supposed to be owing to electro-magnetic action. On account of the character of the sound being altered by a change of weather, the apparatus became known by the name of a *wetter harfe* (weather-harp) as well as a *riesenharfe* (giant-harp). Some remarks on the acoustic hints derived from it by the eminent Professor G. C. Lichtenberg were published in the *Göttingen Taschenkalender*, anno 1789. A somewhat similar contrivance is the *Armonica meteorologica*, which the Abbate Gattoni, of Milan, constructed in 1785, or two years before Captain Haas made his *riesenharfe*. The armonica is likewise known as the “meteorological harp” or *harpe gigantesque*. The ordinary Æolian harp suggested to the Abbate to extend fifteen wire strings, of different thicknesses, from the top of a tower 90 ft. high to his dwelling-house, about 270 ft. distant. He tuned them, however, not in unison or in octaves, as Æolian harps are usually tuned, but adopted a regular diatonic order of intervals. Having observed that, owing to atmospheric vicissitudes and other uncontrollable causes, his contrivance proved musically unsatisfactory, Gattoni used it only for meteorological observations, since it predicted by its sounds the changes of weather. Through the invention of the telegraph the phenomena exhibited by the meteorological harp have become more generally known; at any rate, the sound of the telegraph wires must be familiar to many persons who are unacquainted with the previous experiments. Instancing the soothing effect of the wind heard through a bed of reeds or a forest of leaves, Herr Carl Engel, from whose most interesting paper on “Æolian Music,” in the *Musical Times*, we quote the above, suggests that in a garden or conservatory a charming effect of this kind might be produced by a distant arrangement of small musical bells, like those on Buddhist temples, “supported” by the fundamental bass notes of a judiciously-placed giant harp. The absence of musical “composition” would, he thinks, be more than atoned for by the exquisite delicacy and fascinating quality of these aerial notes, whose symphonies he likens to the play of shapes and hues in the field of a kaleidoscope.

WHY SPEND MONTHS OF SUFFERING and pounds in physic when LAMPROU'S PYRETIC SALINE restores health and vigour to the system? Headache, fever, thirst, and skin affections it cures in a very short time, and has proved of great value in the prevention of small-pox and other infectious diseases. To be obtained of any Chemist, and of the Maker, 113, Holborn, London.—[ADVT.]

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Turner, Harry, Royal Nursery, Slough.
Wills, John, Onslow Crescent, Onslow Square, S.W.

FIREPROOF PAPER AND INK.—The *Chemiker Zeitung* gives the following modes of preparing incombustible writing and printing paper, which appear worth attention. The best asbestos is treated with a preparation of permanganate of potash and then with sulphuric acid. Ninety-five per cent. of this asbestos is mixed with five per cent. of wood-pulp in water containing borax and glue. A fire-proof writing ink is made by mixing Indian ink and gum with chloride of platinum and oil of lavender; for printing ink lampblack and varnish are to be substituted.

Notes of Observation.

SNOW'S WINTER WHITE BROCCOLI.

It is a great pity that there is so much difficulty in obtaining a good strain of this valuable broccoli. At all events I find it difficult to procure seeds that will give a fair percentage of plants that will produce heads in the proper season. When true, I do not know of any other broccoli that is so valuable, as it comes into use at a time when no other variety is available. Our supply of Veitch's Self-protecting Autumn broccoli and the Walcheren is just over. On the approach of the late spell of frost I examined the plantation of Snow's Winter White, and dug up all the plants that had heads and took them just as they were lifted to a cool cellar, and up to the present time I have been cutting a nice dish every day, and have enough to last several days longer. By the time those taken under cover are used there will be another lot ready for cutting in the open, provided the mild weather continues. Having made a rather large plantation, I do not anticipate (unless the weather is very severe) being without a supply of this broccoli throughout the winter. I sow the seed under glass early in March, and plant in the open quarters early in June. It is most important that the plants have a long season of growth, and then they will produce good heads in the proper season.

J. C. C.

TELEGRAPH CUCUMBER.

This is without doubt the most valuable of all cucumbers for general purposes, but it should be known to all that there are many inferior forms of it in cultivation. This is much to be regretted, because it brings into disrepute a valuable article, and without any valid reason. The original form of Rollisson's Telegraph I have no hesitation in saying is very scarce and hard to be got at, but when obtained true there is no more useful cucumber either for winter or summer use. Late in the summer of 1882 I had an opportunity of inspecting a large house full of the different varieties of Telegraph, and I was never more surprised than then to observe the difference existing between them. The true form of Rollisson's Telegraph was as distinct from the others as the most fastidious could desire. It was not only of a uniform size throughout, with scarcely any neck, but the fruits were perfectly uniform in shape and size, and carried such a high colour that a mere novice could at once tell the difference between the true and the false. Those who are interested in this cucumber should not discontinue growing it because they have failed in obtaining the true variety, for it is still in existence, and the large stock of it which I saw growing has been distributed amongst a goodly number of seedsmen. There is therefore a prospect of its being once more accessible to the general body of growers.

J. C. CLARKE.

DINNER TABLE PLANTS.

I should like to add to the very excellent list of dinner table plants recently given in the Magazine two good subjects that were not included in it. I will mention first *Jacaranda mimosaefolia*. This is a stove plant which although not new is rather scarce. In growth it is similar to the *Grevillea robusta*, but the leaves are of a much more pleasing green. Altogether the *Jacaranda* has a much more refined appearance than the *Grevillea*, as the leaves are more finely cut and the habit more graceful. The other subject I wish to name is *Sonchus laciniatus*, which is a particularly valuable plant. It is quite distinct from the preceding, and much less difficult to grow. A stove temperature is required, and the tops when made into cuttings strike freely. The plant rises with a single stem, which is thickly studded with finely-cut and gracefully arching leaves. All points considered, I think this *sonchus* is the most handsome and valuable of the green leaf plants employed for table decoration.

THE VICAR'S GARDENER.

MR. DAVIS'S CHRYSANTHEMUM CATALOGUE.

It is very generally known to cultivators of chrysanthemums for exhibition and other purposes that Mr. Davis, of Warner Road, Camberwell, has not only a very extensive and correctly-named collection of these flowers, but issues a catalogue of much value both to the young beginner and old grower. The completeness of the lists and the accuracy of the descriptions of the varieties are both worthy of a word of praise, but I would like to refer more particularly to the excellence of the cultural details. I have had nearly twenty years' experience in the cultivation of the chrysanthemum, and when I read the directions given by Mr. Davis for the management of the plants I could not help regretting that I had not such a useful handbook at my command when I began. Even now I have derived much assistance from it, and I would strongly recommend those who intend engaging in the cultivation of the chrysanthemum for the first time, and also those growers who have not been so successful as they would wish, to make the acquaintance of the catalogue and ponder well its contents. In conclusion, I would like to add that my only object in penning this note is the assistance of growers of the chrysanthemum.

Palmer's Green, Southgate.

W. ALDRIDGE.

AMERICAN WONDER PEA.

Those who are partial to dwarf peas cannot make a mistake in growing this one for an early crop. It is supposed not to require any sticks, but I have never yet grown peas that did not produce a better crop with sticks than without them; therefore I advise all who grow this pea and want to secure a full crop to give it the aid of sticks; very short ones of course will suffice, as it only grows about 16 inches high. As a dwarf pea I was very well satisfied with it last year, for it certainly bore a fine crop for the space it occupied, and in quality it was equal to any of the early sorts. But I should not think of depending on this sort to furnish a regular supply, for although it comes quickly into bearing it is as soon over. If I wanted to rely upon this kind only I should make three separate sowings, one on the 1st of February, another about the 20th of that month, and another about the 10th of March. Then I think I might get a continuous supply of green peas until the second earlies came in for use. If this pea is sown in rows two and a half feet apart it will have ample room.

R. H. B.

Replies to Queries.

Manure for Vine Border.—H. J. C.—The quantity of manure should be regulated by the character of the soil, but, speaking in a general way, the proportion of manure should be one load to eight loads of soil.

Names of Plants.—W. A.—The chrysanthemum is very much like Madame Bertier Rendatler, but as the flower is small and out of condition it is impossible to speak with any degree of confidence with reference to it.

Cross between Chinese Primula and Polyanthus.—J. B.—There is no such cross. The plants said to represent the cross are true representatives of *Primula sinensis*. It is not for us to discourage you in your proposal to "work out this cross," but we shall prefer to be silent on the subject until it is accomplished, and then you shall have the coveted laurels.

Palms in Greenhouse.—H. J. C.—The palms are suffering from an insufficiency of warmth, and you cannot do anything to improve them unless you can afford them more warmth. They were in all probability grown in a high temperature and injured by the exposure to which they were subjected previous to their coming into your hands. You should have gone to a nursery instead of to the market, and then you would have obtained not only kinds suitable to the greenhouse, but plants properly hardened, provided of course that you placed yourself in the hands of the nurseryman. The broad-leaved plant is *Ficus elastica*.

Literature.

The Journal of Forestry, edited by MR. FRANCIS GEORGE HEATH (Rider), is well sustained in its new and enlarged plan of operations, and Mr. Heath, as might be expected, has added to the general subject of forestry from the practical side, those views of the picturesque in forestry which, as an artist and lover of trees, are to him, as to many of his readers, especially precious. Statistical and technical matters are treated with the same skill as heretofore, but the book is more readable by reason of its increased breadth and variety.

Obituary.

RECENTLY, at Claremont Square, Islington, MR. ROBERT KEMP PHILIP, an active journalist and compiler, aged 63 years.

On the 20th inst., MR. WILLIAM HINDS, formerly of the Gardens at Roby Hall and Otterspool, latterly attached to the *Gardeners' Chronicle* newspaper. Mr. Hinds enjoyed the good opinion of all who knew him, and will be greatly missed by the literary workers with whom he was often associated in the bustle of horticultural work. His age was only 38 years.

THE TUMBLE WEED OF KANSAS.—An American scientific paper gives some particulars of this strange production of the western prairies. The "tumble weed" (*Cochyloma platyphylla*) belongs to the bindweed tribe, and is very abundant in Arkansas. It forms huge tangled globular heads on the summits of very slender stalks. These heads readily snap off, and are then rolled hither and thither over the prairie by the wind, their lightness and elasticity causing them to bound over intervening boulders and shrubs like things of life; a unique but very effective arrangement of Nature for distributing the seeds of the plant. The scene on the prairies when thousands of these balls are in full career under the influence of a strong wind is wild and fantastic in the extreme, and has given rise to marvellous tales of travellers, who have mistaken the rolling masses for the shaggy fronts of bull bison.

END OF VOLUME.

Sales by Auction.

Monday next.—5,000 Liliun auratum just received from Japan in fine condition.

MR. J. C. STEVENS will **SELL BY AUCTION**, at his **GREAT ROOMS, 38, KING STREET, COVENT GARDEN**, on **MONDAY** next, **JANUARY 1**, at Half-past Twelve precisely, an importation of 5,000 Bulbs of **LILIUM AURATUM**, just received from Japan, in fine condition; a consignment of 3,000 *Tigridia grandiflora*, from New Jersey; a consignment of Bulbs and Plants from Algiers, Hardy Orchids, 1,000 American Tuberoses, choice Hybrid Begonias, Seedling Amryllis, 200 fine clumps of Lily of the Valley, Belladonna Lilies, Dutch Bulbs, &c.

On view morning of sale, and Catalogues had.

Sale, Thursday Next, January 4, 1883.—Cattleya Triana, very finest varieties; Odontoglossum vexillarium, ditto.

MR. J. C. STEVENS has received instructions from **MR. F. SANDER** to **SELL BY AUCTION**, at his **GREAT ROOMS, 38, KING STREET, COVENT GARDEN**, on **THURSDAY** next, **JANUARY 4, 1883**, at Half-past Twelve o'clock precisely, an immense importation of **CATTELEYA TRIANA**, very finest forms, and in grand health and masses; also an extra lot of *Odontoglossum vexillarium*; the plants are from the same locality from whence our importation came, among which three *O. vexillarium* superbum have flowered, together with an importation from Mexico, and a specially grand lot of *Odontoglossum Alexandrine*, in finest large-flowered round-petaled varieties, and other Orchids.

On view morning of Sale, and Catalogues had.

Wednesday next.—Hardy Plants and Bulbs.

MR. J. C. STEVENS will **SELL BY AUCTION**, at his **GREAT ROOMS, 38, KING STREET, COVENT GARDEN**, on **WEDNESDAY** next, **JANUARY 3**, at Half-past Twelve precisely, Choice named **STANDARD** and **DWARF ROSES** of sorts; Pyramid and Dwarf-trained Fruit Trees, Hollies, Hardy Conifers, &c., Carnations, Picotees, Pinks, and other Hardy Herbaceous Border Plants, Bulbs from Holland, &c.

On view morning of Sale, and Catalogues had.

For Sale.

TO NURSERYMEN.—THE QUEEN, the new Apple.—The owner of the original seedling, having completed his engagement with Messrs. Saltmarsh, will sell the scions for 1883 by Tender. Specimens of the fruit can be seen and tried.—**W. W. BULL**, Ramsden, Essex.

Situations Wanted.

AS HEAD, or SINGLE HANDED.—14 years' experience in Flower and Kitchen Garden, Stove and Greenhouse; good character; age 26; married, one child.—Address **G. PENNELES**, 2, Surrey Cottages, Farley Road, South Norwood, S.E.

GARDENER.—Age 32; married, no family; understands Melons, Vines, Stove, Greenhouse, Flowers, and Kitchen Gardening; good characters; good reasons for leaving.—**A. PITSON**, West Combs, Evercreech, Bath.

GARDENER (Head, Working).—Age 28; single at present; four years' excellent character as Head; 14 years' experience in all branches; no single-handed place accepted.—**A. B.**, 12, Park Terrace, East Horsham.

GARDENER (good Single-handed).—Understands Cucumbers, Grapes, Flower and Kitchen Garden; no objection to a Cow; two years' good character; age 28, married.—Please state particulars to **A. B.**, 1, Cottrill Road, Dalston Lane, Hackney.

GARDENER (Single-handed, or where help is given, for February 1).—Understands Stove and Greenhouse Work, Flower and Kitchen Gardening; good characters from previous places; married; no family; age 34.—**J. SIMMONS**, Gardener, Caldecote House, Nunceaton, Warwickshire.

GARDENER (where two or three more are kept), by a thorough practical and energetic Man; well up in the cultivation of Fruits, Flowers, and Vegetables; highest reference from former employer: age 32; married, one child.—**GARDENER**, Burrey Cottage, Burrey Road, Gosport, Haats.

PROPAGATOR and SALESMAN.—Eleven years' experience in Market Nurseries; good Bouquetist; four and a half years' good character from present employer.—Apply by letter, stating wages, to **H. W.**, 15, Defoe Road, Church Street, Stoke Newington.

RICHARD SMITH and CO. beg to announce that they are constantly receiving applications from Gardeners seeking Situations, and that they will be able to supply any Lady or Gentleman with particulars, &c.—**St. John's Nurseries**, Worcester.

SITUATION WANTED as GARDENER (Head, or good Single-handed), by a steady respectable middle-aged married Man; no incumbency; thoroughly understands the Kitchen, Fruit, and Flower Gardens, Grapes, Glass, &c.; Wife help at house if required; good character will be given.—Apply **E. F.**, care of **Mr. Brinkley**, Nascot Street, Watford, Herts.

SHOPMAN or ASSISTANT, in Wholesale or Retail Seed Trade.—Wages moderate; highest references; age 21.—Apply **A. C.**, Messrs. Lamoureux and Co., Seed Merchants, Plymouth.

UNDER-GARDENER.—**G. REDMAN**, Gardener to **J. H. Goodgame, Esq.**, can recommend a young Man, age 20, as above; five years' reference, and a good knowledge of in and outdoor work.—**Eynesbury, St. Neot's.**

WANTED, by a young Man, a Situation as **JOURNEYMAN** in the Houses; good characters; please state wages.—Address **A. B.**, Mr. Fishor, Gardener, Harpenden Lodge, Herts.

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ALDERSGATE STREET, No. 149A (containing 4,500 feet of floor space).—**TO BE LET**, a large light WAREHOUSE of five floors; good basement. Goods entrance, New Street (adjoining the Manchester Hotel).

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WANTED, a steady respectable **MAN**, to take charge of a small Garden and make himself generally useful; wages 18s., with two good unfurnished rooms over stables.—Apply, by letter only, with full particulars, to **C. CUTBUSH and SON**, Nurseries, Highgate, N.

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